

BEST SINGLE
ISSUE
(GOLD)
TABBIE AWARDS
2012



► rise of a smart port ► Singapore is BIMCO's next arbitration centre
► IMO's pressing concerns

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



CONTENTS

No:21



PAGE

04

SHIP'S LOG
NEWS AND EVENTS
AT MPA

PAGE

10

PORT &
STARBOARD
PRESENTING THE
SUPER SHIP



PAGE

14

FEATURE
PORT OF
POSSIBILITIES

PAGE

22

COMPANY SPOTLIGHT
SIMULATION
CENTRAL

PAGE

24

MARITIME SERVICES
RIDING OUT
THE STORM



PAGE

26

PERSONALITY
NORIFUMI IDEE



PAGE

28

TECHNOLOGY
CLEAR FLOW

PAGE

31

COMMENTARY
SINGAPORE BECOMES A BIMCO
SHIPPING ARBITRATION CENTRE

PAGE

34

COMMUNITY TALK
BRAVE NEW WORLD

PAGE

38

MARITIME CAREERS
FOR GOOD MEASURE

PAGE

40

THE
BACK PAGE
MARITIME MYTHS



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
Cheong Keng Soon
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

managing director

Dennis Pua

general manager

Christopher Chan

group editor

Joanna Lee-Miller

senior editor

Low Ching Ling

editor

Serene Foo

sub-editor

Winnie Fong

creative director

Alex Goh

art director

Don Lee

account manager

Jasper Lee

manager, business

development and

client management

Mavis Liang

assistant manager,

client management

Loo Pei Hwa

executive,

publishing services

Lin Feng

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

SINGAPORE
maritimeweek
2013



PEOPLE IDEAS OPPORTUNITIES

7-12 April 2013

www.smw.sg



Port development

It is a well-known fact that shipping is a very international industry. Singapore sits at the centre of a web of trade routes, and is connected to over 600 ports in more than 120 countries.

A world-class port of call, Singapore is also the busiest in the world in terms of vessel-arrival tonnage. In 2011, annual vessel-arrival tonnage at the Port of Singapore crossed the two billion gross tonnes mark for the first time. Read more about the Port of Singapore in this issue, from its infrastructure and evolution over the years, to future plans for development in our feature story.

In our Maritime Services

section, Credit Suisse, a 70-year veteran in the ship-finance business, tells us why it is here to stay. The bank reveals more about its new ship-finance regional headquarters in Singapore, and how it plans to remain committed to its clients in Asia.

We also speak with home-grown company SimPlus – a consulting firm that provides simulation solutions and operations intelligence to the maritime industry. Find out more in Company Spotlight.

Wee Shann
executive editor



Singapore International Bunkering Conference and Exhibition 2012



► Organised by the Maritime and Port Authority of Singapore (MPA), the 17th Singapore International Bunkering Conference and Exhibition (SIBCON) was held from Oct 16 to 19, 2012 at Resorts World Sentosa.

Mr Lui Tuck Yew, Singapore's Minister for Transport, officiated as the guest of honour at the opening ceremony of the biennial event.

By far the world's largest and most influential forum for the marine fuels industry, SIBCON saw bunkering and shipping professionals gather at the world's largest bunker market to conduct business and listen to thought leaders.

Mr Aaron Cobb, Global Director for ExxonMobil Marine Fuels, Mr Kwa Chong Seng, Chairman of NOL Group, and Mr Adam Ritchie, General Manager (Oil Market Analysis) of Shell Trading, delivered keynote and industry addresses on market drivers and challenges. Other prominent personalities

also commented on pressing issues affecting the marine fuels industry, including market projections, the use of liquefied natural gas as bunker fuel and compliance with international regulations.

As with previous editions, SIBCON 2012 offered numerous networking opportunities for participants, who comprised suppliers, traders, brokers, shipowners, ship managers, surveyors as well as port and terminal operators.

For the first time, experts from the SIBCON speaker panel hosted an exclusive lunch for a limited number of participants. The purpose was to enable them to interact directly with experts and discuss pertinent issues.

On Oct 19, SIBCON delegates were also given the opportunity to participate in the full deployment of the Joint Oil Spill Exercise, in order to view the multi-agency response involved in tackling an oil spill at the Port of Singapore.

MPA introduces initiatives to enhance quality of bunkering

► Mr Lui Tuck Yew, Singapore's Minister for Transport, announced the introduction of an information sheet on licensed bunker suppliers and an industry guide for the use of the mass flow metering system at the opening ceremony of the 17th Singapore International Bunkering Conference and Exhibition (SIBCON).

The Maritime and Port Authority of Singapore (MPA) will publish an information sheet on licensed bunker suppliers at the Port of Singapore to allow shipowners to make more informed decisions in appointing bunker suppliers. This will enhance transparency across the bunkering supply chain by providing details on sales performance, technical performance and other value-added propositions.

Mr Lui also shared that MPA had developed an industry guide for the use

of the mass flow metering system. The guide will provide an overview of the requirements for applying the mass flow metering system during bunker deliveries.

Other than the initiatives announced by Mr Lui, MPA will also commence a study on frothed bunkers and establish a hotline to help manage bunker disputes.

These initiatives are part of MPA's efforts to enhance the quality of bunkering in Singapore and will help ensure that the country retains its competitiveness as the world's leading bunkering port.

MPA and the Singapore Maritime Institute appointed the National Metrology Centre to conduct an in-depth study on frothed bunkers to tackle recent allegations.

MPA has also established a 24/7 bunkering assistance hotline – 1800-BUNKERS (1800-2865-377) – available from Nov 1, 2012.



13 more companies sign Green Pledge



► The Maritime Singapore Green Pledge continues to receive positive response from the industry as another 13 organisations came together in October 2012 to sign the Maritime Singapore Green Pledge during the opening ceremony of the 17th Singapore International Bunkering Conference and Exhibition (SIBCON).

This is the third Green Pledge signing ceremony organised by the Maritime and Port Authority of Singapore (MPA) since the pledge was inaugurated in April 2011. With the latest signing, a total of 40 key organisations have pledged their commitment to promote clean and green shipping in Singapore.

Mr Lam Yi Young, Chief Executive of MPA, said: "We started the Green Pledge in 2011 as part of the Maritime Singapore Green Initiative.

Through the pledge, we want to encourage the maritime industry to come forward and play an active role in promoting clean and green shipping in Singapore. We are heartened by the continued support for the Maritime Singapore Green Initiative and the Maritime Singapore Green Pledge."

The Maritime Singapore Green Initiative was launched by MPA during Singapore

Maritime Week 2011 in an aim to reduce the environmental impact of shipping and its related activities, and to promote clean and green shipping in Singapore. It is a comprehensive initiative comprising three schemes – Green Ship Programme, Green Port Programme and Green Technology Programme.

MPA pledged to invest up to \$100 million in the initiative over a period of five years.



Singapore continues to invest in the maritime sector

► Mr Lui Tuck Yew, Minister for Transport, announced enhancements to the existing Maritime Cluster Fund (MCF) and the exemption of Maritime Welfare Fees, as the Maritime and Port Authority of Singapore (MPA) continues its investment in the maritime sector.

To encourage more maritime companies to train and develop their local employees, MPA will be raising its co-funding support for three manpower schemes under MCF.

Co-funding support for the schemes will also be increased from the current 50 per cent to 70 per cent.

Taking effect in October 2012, this will continue for a period of three years.

The increased co-funding support is expected to cost MPA \$2 million a year.

In response to industry feedback, MPA will also exempt vessels, with a port stay of not more than five days, from the payment of Maritime Welfare Fees.

Ships visiting the Port of Singapore will be able to reduce their overall operating costs as part of MPA's ongoing efforts to provide a pro-business environment for maritime businesses and establishments.

This initiative, effective from Oct 1, 2012 for a period of five years, is expected to cost MPA an estimated \$7 million a year.

MPA wins top spot

► The Maritime and Port Authority of Singapore clinched the top spot at the PEP-SBF Pro Enterprise Awards 2012.

Organised by the Pro-Enterprise Panel and the Singapore Business Federation, the inaugural PEP-SBF Pro Enterprise Awards 2012 recognises public agencies which have been assessed to be pro-enterprise by their customers based on the Pro-Enterprise Ranking Survey, conducted annually since 2004.

In 2012, 26 agencies participated in the annual survey, which evaluates government agencies with regulatory functions on how business-friendly they were.

Leaders gather for 2nd Maritime Public Leaders' Programme



► Senior maritime representatives from 11 countries embarked on the 2nd Maritime Public Leaders' Programme (MPLP) at the Nanyang Technological University's (NTU) Infrastructure Systems and Maritime Studies Division, School of Civil and Environmental Engineering,

in October 2012.

Organised by the Maritime and Port Authority of Singapore, in partnership with NTU and supported by the Ministry of Foreign Affairs under the Singapore Co-operation Programme, the MPLP was a seven-day programme that offered a holistic and interdisciplinary

curriculum. Apart from maritime-related and public administration topics, it provided participants with skills and information on the latest trends and best practices in the industry.

The programme was attended by participants from various parts of the world, such as Africa, Asia, the Caribbean, Europe and the Middle East.

Participants also got to visit some of Singapore's maritime facilities to gain valuable insights into the policies and processes that have enabled Singapore to grow into a global hub port.

In addition, they had the opportunity to attend part of the 2012 Singapore International Bunkering Conference, a major international event.

MPA receives Community Chest Award



► The Maritime and Port Authority of Singapore (MPA) was awarded the Special Events Silver Award during the Community Chest Awards 2012 presentation ceremony.

In recognition of corporate and individual donors for their contributions towards the Community Chest's fundraising efforts, 254 awards

were conferred at the 28th Community Chest Awards presentation ceremony at Marina Mandarin hotel in September 2012. Another ceremony for other categories was held at the Istana the following month.

The award recipients raised more than \$52 million in financial year 2011, an increase of seven per cent from the previous year. This figure accounted for 93 per cent of the organisation's fundraising target for financial year 2011.

International Maritime Awards 2013

► The Maritime and Port Authority of Singapore (MPA) recently called for nominations for the 2013 edition of the Singapore International Maritime Awards (IMA).

The biennial IMA recognises individuals and firms for their outstanding contributions to Singapore's development as a premier global hub port and an international maritime centre.

In 2013, the prestigious IMA will feature seven award categories that are open for nomination.

They include the

International Maritime Centre (IMC) Award (Corporate and Individual), SRS Ship Owner of the Year Award, Bunker Award as well as Maritime Service Provider Award.

The new SRS Green Ship of the Year Award will also be introduced at IMA 2013. This accolade is a closed category and is not open for nominations.

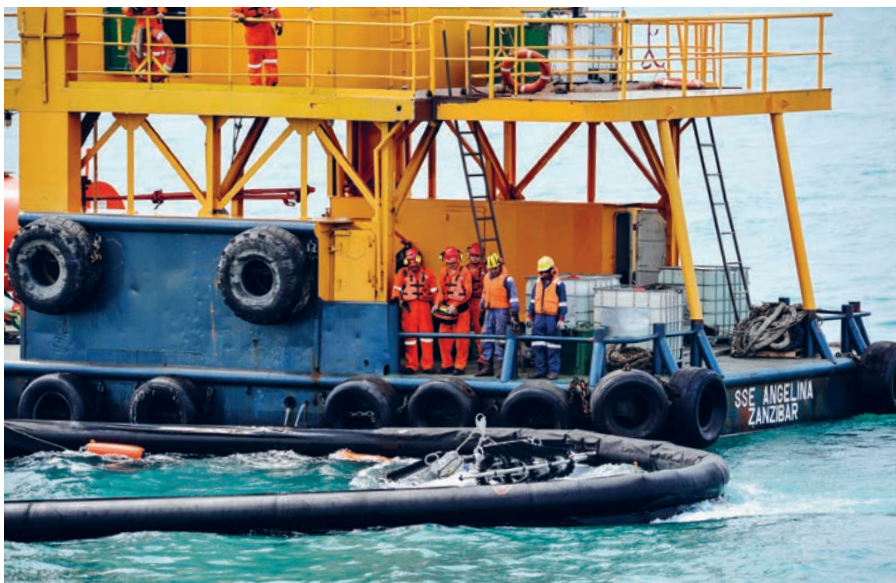
For assessment criteria, visit www.mpa.gov.sg and click on the International Maritime Awards 2013 link. Nominations closed on Jan 8, 2013.

5th Co-operation Forum



In September 2012, MPA hosted the 5th Co-operation Forum under the Co-operative Mechanism on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore. Indonesia, Malaysia and Singapore signed Letters of Acknowledgement to achieve institutional sustainability of the Marine Electronic Highway through the Tripartite Technical Experts Group and Co-operative Mechanism. Mr Lui Tuck Yew (above, middle), Singapore's Minister for Transport, was guest of honour.

JOSE 2012



MPA organised a full-deployment, multi-agency joint oil spill exercise, code-named JOSE 2012, last October to test and demonstrate Singapore's readiness to respond to oil spills at sea. Two hundred personnel from various agencies participated in this exercise.

Dispersant-spraying craft combating the oil spill (top) and the deployment of a heavy-duty oil recovery system (above).

World Maritime Day 2012



Started in 2003, World Maritime Day is an annual initiative that recognises the important contributions of seafarers in the maritime industry. MPA, Singapore Maritime Officers' Union and Singapore Organisation of Seamen jointly distributed 600 hampers to ships that call at the Port of Singapore.

Visit by MaritimeONE scholars



MPA hosted a visit by MaritimeONE scholars at the Port Operations Control Centre at PSA Vista.

Visit by Brunei delegation



MPA and the Singapore Maritime Academy hosted a visit by the Brunei delegation, led by HRH Princess Fadzilah Lubabul Bolkihah.

Tripartite Technical Experts Group meeting



MPA organised the 37th Tripartite Technical Experts Group meeting in September 2012.

▸ The *NYK Super Eco Ship 2030*, a joint collaboration between several key players in container shipping, hopes to find the solution to reduce the industry's future energy consumption. It is so named because, with its energy efficiency, it is expected to produce far fewer CO₂ emissions than current vessels.

By using nature's energy sources, the ship generates the power it needs for movement. It operates using retractable solar cells that harness the sun's rays. The sails capture the wind, as well as provide an aesthetically pleasing profile; while the fuel cells on board use almost emission-free energy sources to reduce the vessel's carbon footprint.

The project first began in 2008 when Monohakobi Technology Institute, a wholly owned NYK subsidiary, and NYK Line decided to find a new approach to shipbuilding. Together with Garroni Associates and Elomatic, they set out to find a more ecological future for ships.

The push behind the project was an acknowledgement of the need for more corporate social responsibility efforts from shipping companies towards

reducing greenhouse gas emissions. "The shipping industry is a big individual consumer of fossil fuels," says Masato Nobuhara, General Manager of the Technical Strategy Group at Monohakobi Technology Institute.

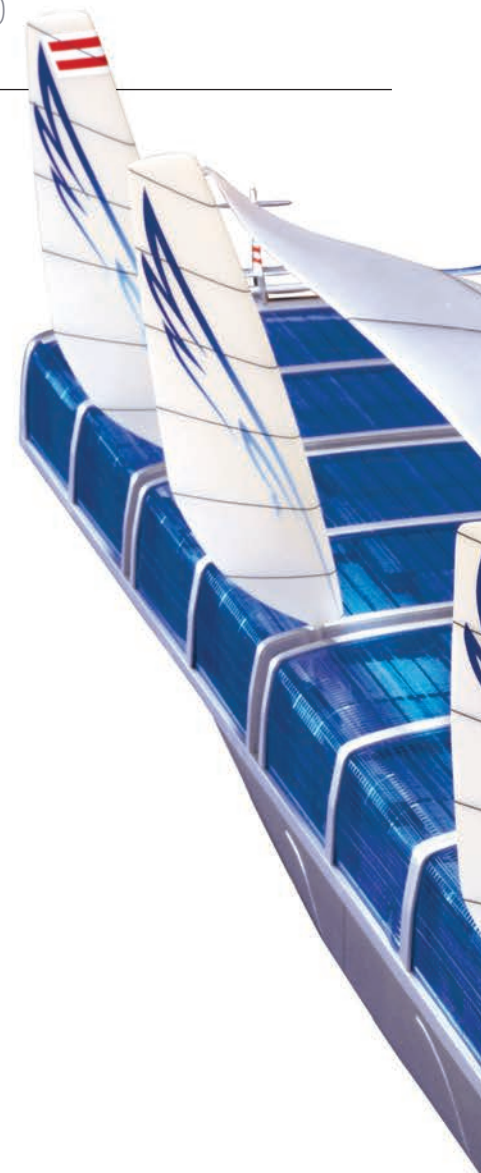
"Even though shipping is the most efficient mode of transport for goods, continuously growing transport needs (predicted to increase by about 3 per cent annually) and related emissions force us to find solutions to reduce these emissions for a cleaner planet."

Indeed, according to NYK Line, this rate of business growth will increase the volume of shipping by 3.3 times in 40 years, resulting in the need to reduce carbon emissions by up to 69 per cent.

Energy-efficient design

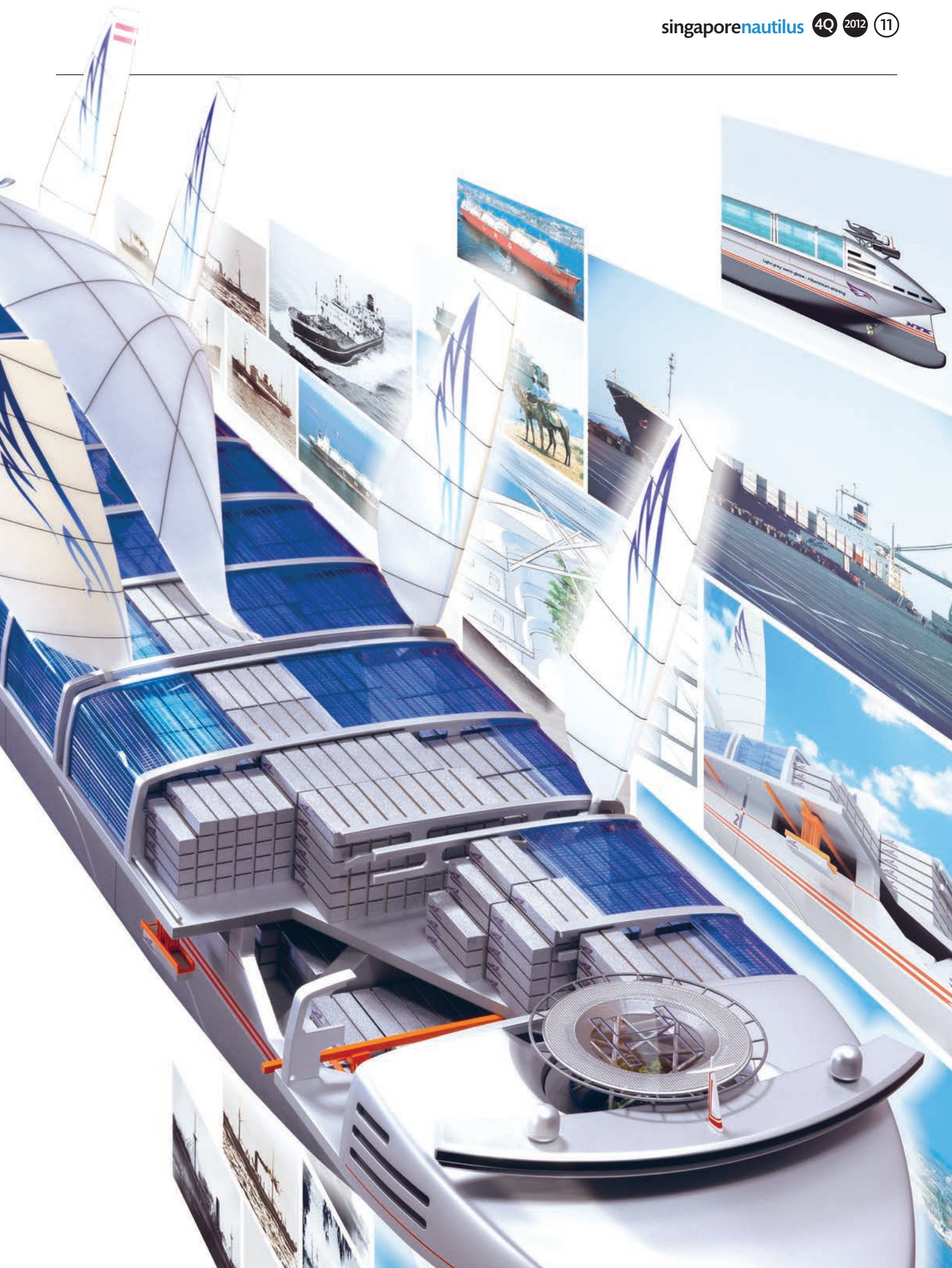
For the *NYK Super Eco Ship 2030*, the water resistance of its hull has been reduced by cutting down on its dead weight – a simple but effective solution to increase energy efficiency.

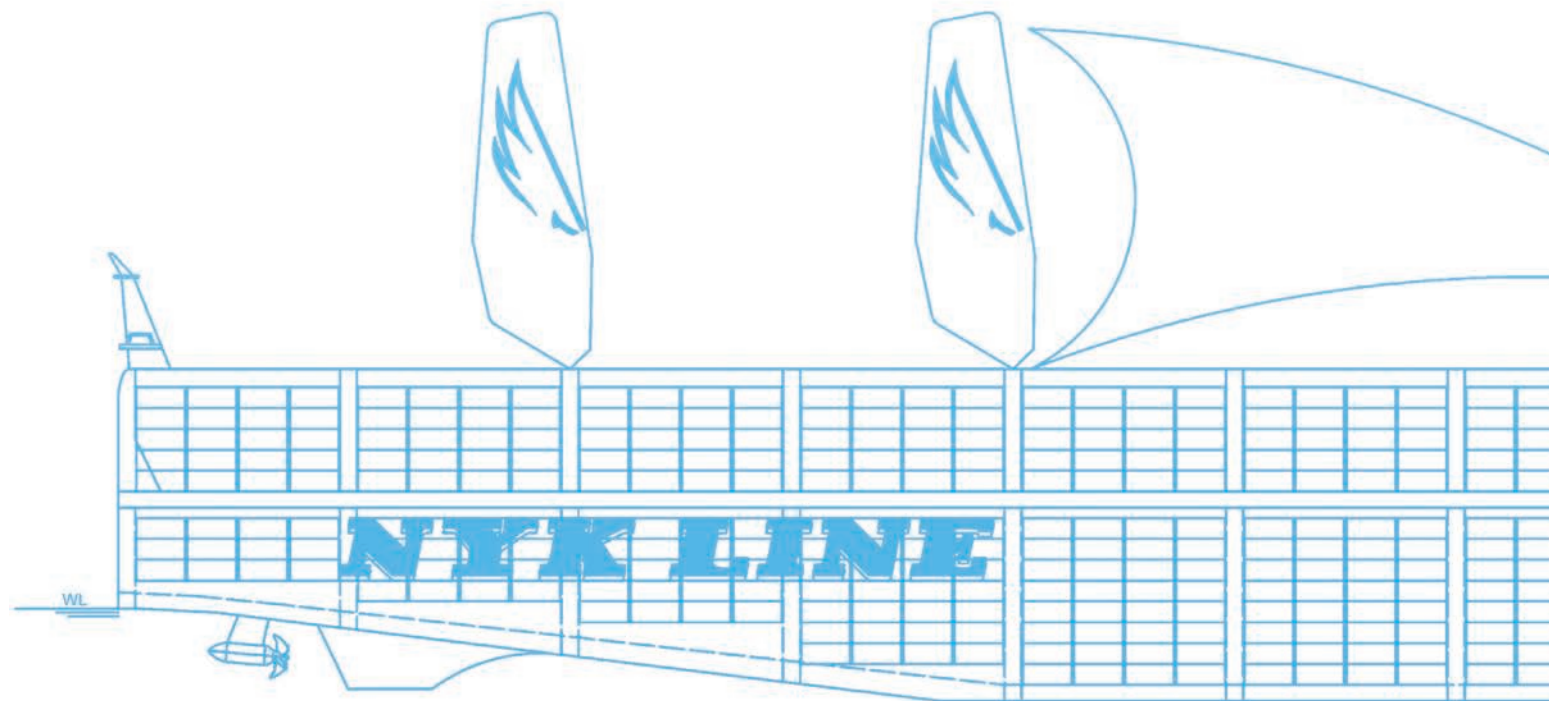
Secondly, a number of zero-carbon-emitting natural energy sources will be incorporated into the vessel's design,



THE *NYK SUPER ECO SHIP 2030* PROVIDES A POSSIBLE BLUEPRINT FOR A CLEANER AND GREENER MARITIME INDUSTRY. BY AIMEE CHAN

PRESENTING THE SUPER SHIP





KEY INNOVATIONS OF NYK SUPER ECO SHIP 2030

- Length** 352m
- Maximum breadth** 54.6m
- Height to main deck** 24m
- Dead weight** 70,000 tonnes
- Capacity** 8,000 TEUs
- Refrigerated container capacity** 500 TEUs
- Propulsion power** 44,000 kW
- Service speed** 25 knots
- Power generation from renewable sources**
 - Solar cells (1-2MW), wind (1-3MW)

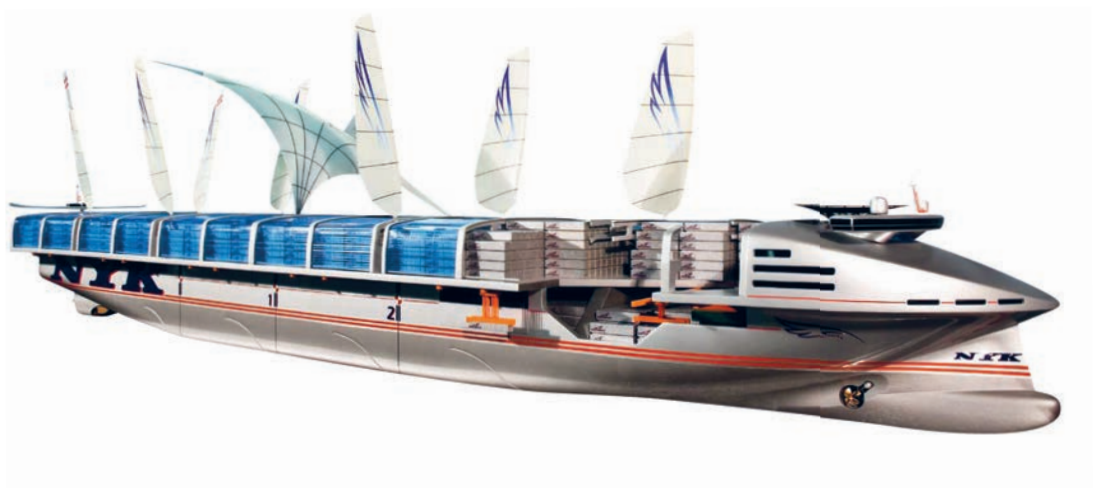
including wind and solar power. The *NYK Super Eco Ship 2030* comes with sails as well as retractable solar panels to harness the sun's energy.

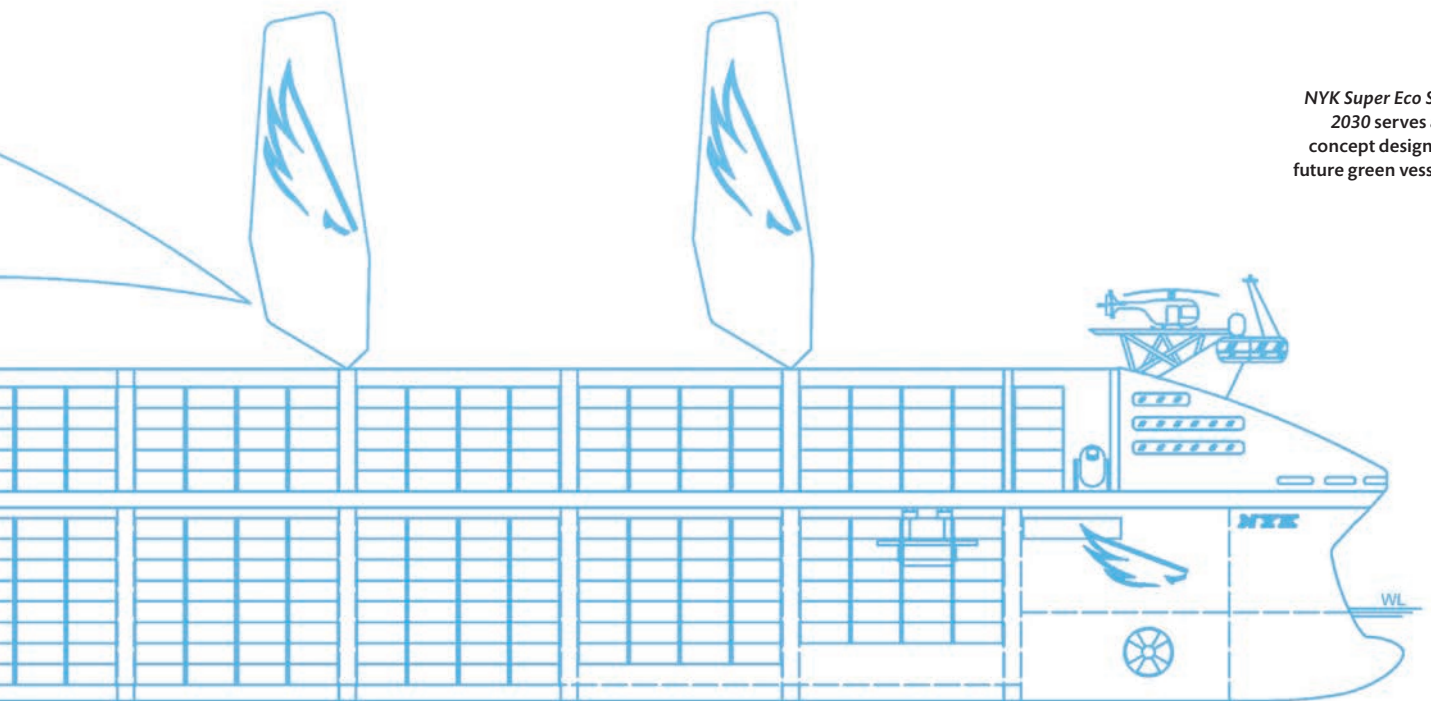
Instead of an internal combustion engine, LNG fuel cells, which increase efficiency and reduce undesirable environmental emissions, will be used.

From a consumer's perspective, these design features have an additional benefit - better protection of valuable cargo on board. For instance, in an effort to reduce the contribution of steel to the overall weight of the vessel, the main

deck has been built without any hatch openings. This has a two-fold effect - firstly, it makes the hull stronger and more seaworthy; secondly, it significantly reduces the time it takes to load and unload goods.

The *NYK Super Eco Ship 2030* has further refined this cost-saving model by creating an in-built loading system in the hull. The independent in-built cranes not only reinforce the ship's strength, but could reduce loading and unloading time, without relying on third-party onshore operators.





NYK Super Eco Ship 2030 serves as a concept design for future green vessels.

GREEN SHIP'S INCEPTION

Masato Nobuhara, General Manager of the Technical Strategy Group at Monohakobi Technology Institute, a wholly owned NYK subsidiary, shares about how the NYK Super Eco Ship 2030 came about.

Why the name Super Eco Ship 2030?

We call it an "eco" ship because it is an energy-efficient vessel expected to produce far fewer CO₂ emissions than current ships. The power needed to propel the vessel is lessened by reducing the weight of its hull and water resistance. Propulsion power is increased through the use of energy sources such as LNG-based fuel cells, solar power and wind power, which emit little or no CO₂.

And why the year 2030?

It is a mid-term milestone for us. Our long-term goal is to develop a ship with zero emissions by 2050, and the Super Eco Ship 2030 will provide some indicators of the technical difficulties that we need to overcome before then.

So what's next for the NYK Super Eco Ship 2030?

It is our only vessel because it is a benchmark for evaluating technical advantages and serves as a concept design for future vessels.

What elements of the ship do you see being incorporated into container vessels in the future?

We are not limited to just container ships. Some of the innovative technologies such as solar power, air lubrication and propulsion efficiency have been used to equip other NYK vessels.

ABOUT NIPPON YUSEN KAISHA (NYK)

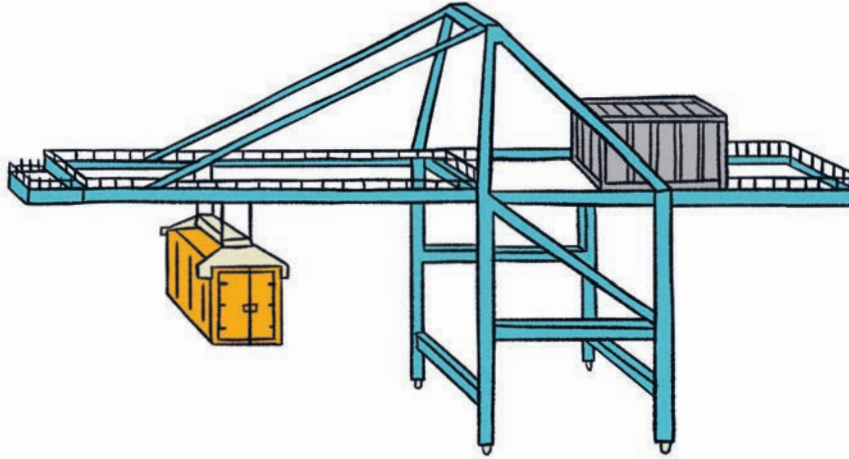
As a global logistics company, NYK Group has a mission to provide safe and dependable transport and associated logistics. The Japanese firm has a long history dating back to its establishment in 1870 as Tsukumo Shokai Shipping company by the Tosa clan. After a few more name changes, the company established Japan's first overseas liner service running between Shanghai and Yokohama in 1875. By 1885, the firm (renamed Nippon Yusen Kaisha or NYK) had 58 operational steam ships in its fleet.

As of March 2012, NYK Group has a fleet of 838 vessels, including cruise ships, car carriers, container ships and tankers, allowing it to service the needs of every type of customer around the globe.

We call it an "eco" ship because it is an energy-efficient vessel expected to produce far fewer CO₂ emissions than current ships.

PORT OF POSS





IBILITIES

SINCE THE OPENING OF ITS FIRST CONTAINER PORT, THE PORT OF SINGAPORE HAS BEEN CONSTANTLY EVOLVING TO EMBRACE NEW TRENDS AND TECHNOLOGY, ANCHORING ITS POSITION AS A PREMIER GLOBAL HUB PORT. BY JAMIE EE

► With over 500 million tonnes of cargo and around 30 million containers handled every year at the Port of Singapore, Singapore's status as the world's busiest port in terms of annual vessel-arrival tonnage is widely acknowledged.

Buzzing with activities around the clock, the Port of Singapore sees ships arriving from all over the world to conduct their business. In the following pages, we take a glimpse at some of the developmental steps that the port has taken, and the range of terminals and services which Singapore has to offer.

Physical expansion

The most obvious development has been the physical expansion of the port. In 1972, operations commenced at the first container berth at Tanjong Pagar Terminal. In the 1980s, Singapore built its second container terminal, Keppel. A third terminal, Brani, was added in 1992. By then, Singapore's annual throughput had hit 5.22 million TEUs (twenty-foot-

equivalent units), making it the world's busiest container port.

In 2000, Phases 1 and 2 of Pasir Panjang Terminal were opened as business volumes continued to grow. Yet, as ships grew larger, there was a need for ports to be more efficient and productive to handle the increased capacity.

PSA Corporation Limited (PSA) currently operates the four terminals. Development of Phases 3 and 4 of Pasir Panjang Terminal are also under way. The first berths at the expanded terminal are expected to be operational in 2014. When fully completed with 15 berths by 2020, Pasir Panjang Terminal - Phases 3 and 4 - will increase total port capacity to 50 million TEUs.

Technological advances

Over the years, Singapore's port operations have also grown more technologically advanced. In the 1980s, it went high-tech by introducing port operating systems like PORTNET and

CITOS to streamline planning processes and operations. These systems are still in use today, but have gone through various upgrades.

On the ground, new technology has also been introduced. For instance, Pasir Panjang Terminal - Phases 1 and 2 - is equipped with remote-controlled bridge cranes, which allow each operator to handle up to six cranes.

To stay ahead of the curve, the Maritime and Port Authority of Singapore (MPA) and PSA are collaborating to conduct research on new technologies for future container terminals. One key project is the development of automated guided vehicles, which will help reduce manpower and improve port productivity.

As the Port of Singapore develops, maritime services such as bunkering and ship repairs are also growing.

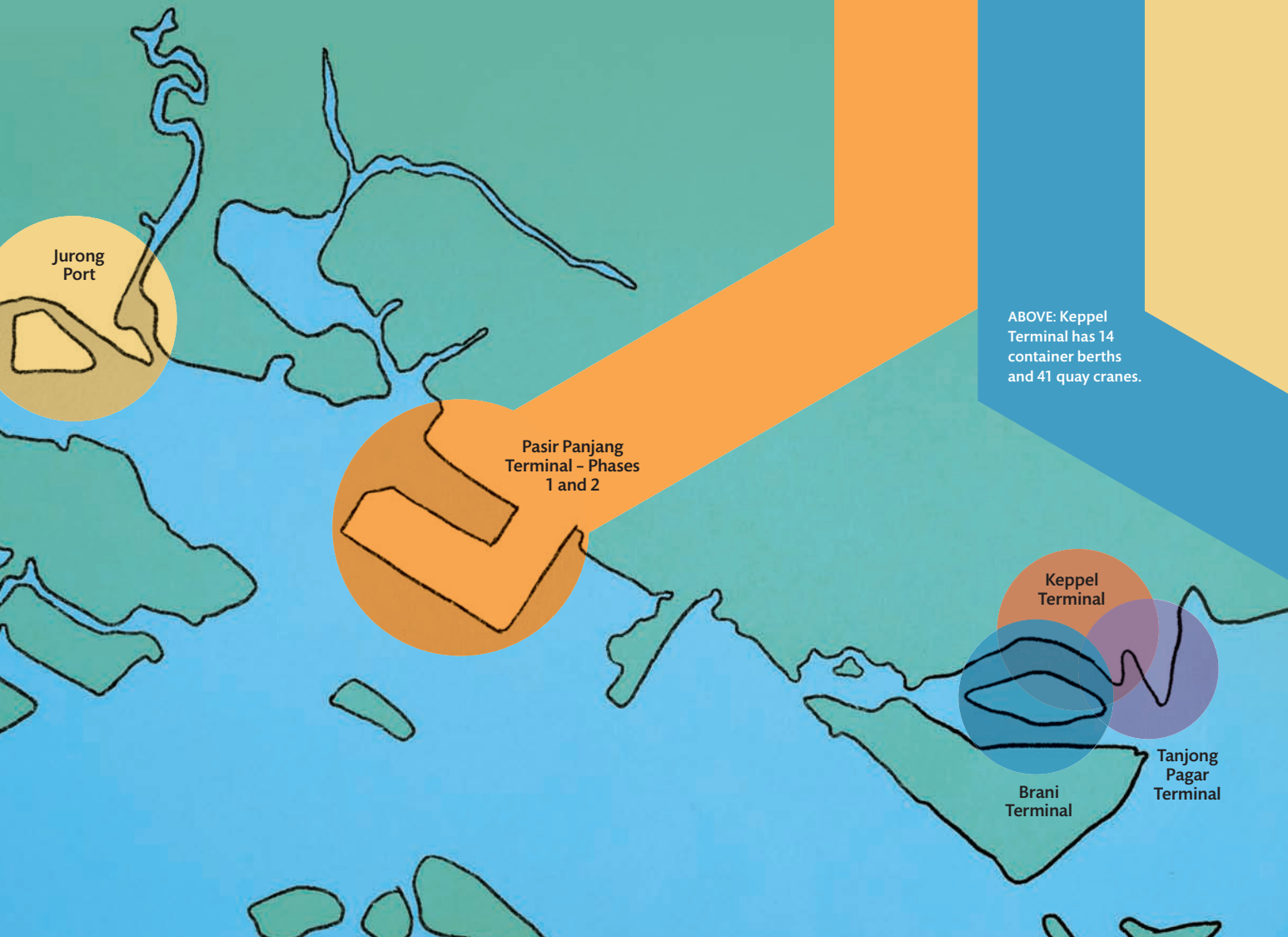
Today, Singapore is home to more than 110 international shipping groups and over 5,000 shipping companies and maritime ancillary service providers.

INSIDE A PREMIER GLOBAL HUB PORT

► Comprising many different terminals, the Port of Singapore handles a diverse range of cargo, such as bulk cargo, general cargo and containers. These terminals are run mainly by two commercial operators, PSA and Jurong Port, and form the backbone of the country's port infrastructure.

Multipurpose terminal Jurong Port handles general cargo, bulk cargo and containers; while PSA, which manages Pasir Panjang Terminal – Phases 1 and 2, Tanjong Pagar Terminal, Brani Terminal and Keppel Terminal, deals with containers.

Collectively, they operate efficiently as one seamless and integrated facility.



ABOVE: Keppel Terminal has 14 container berths and 41 quay cranes.

Jurong Port

Pasir Panjang Terminal - Phases 1 and 2

Keppel Terminal

Brani Terminal

Tanjong Pagar Terminal

CONTAINER TERMINALS

PASIR PANJANG TERMINAL - PHASES 1 & 2

To date, this is Singapore's largest and most advanced container terminal. Phases 1 and 2 are equipped with berths up to 16m deep and quay cranes that are able to reach across 22 rows of containers to accommodate the world's largest container ships. The terminal's remote-controlled bridge crane system allows each operator to handle up to six yard cranes.

Construction of Phase 1 started in 1993, and was inaugurated in 2000. In 2006, Pasir Panjang Terminal welcomed *Emma Maersk*, then the world's biggest container ship, when it made its first stop in Asia.

Phases 1 and 2 were completed in 2010.

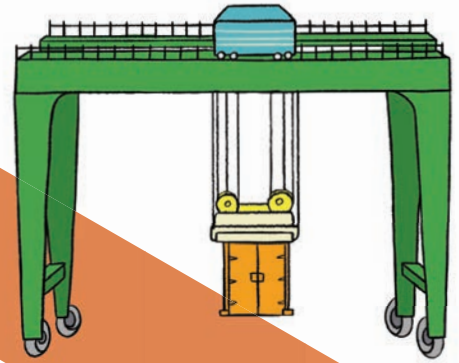
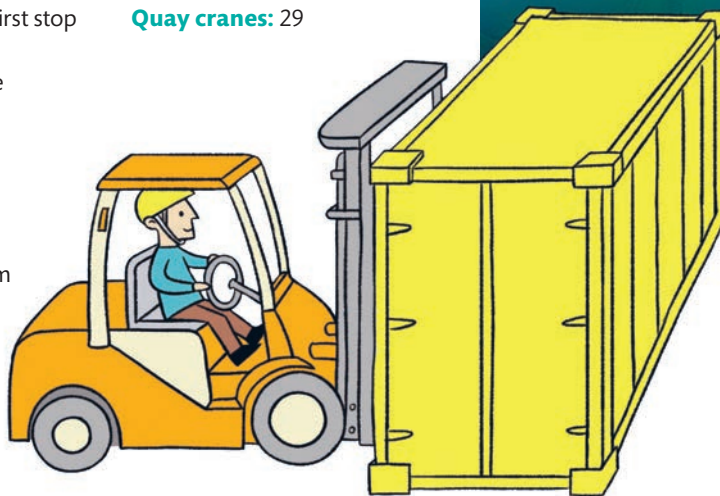
Container berths: 23
Quay length: 7,900m
Area: 335ha
Maximum depth: 16m
Quay cranes: 87

TANJONG PAGAR TERMINAL

This is Singapore's first container terminal, setting the stage for Singapore's rise as one of the world's leading container ports. Back in the 1960s, when containerisation was still a relatively new concept, Singapore embarked on a bold journey to build a container port.

The \$140 million container terminal opened on June 23, 1972, and welcomed its first container ship, *M.V. Nihon*, from Rotterdam.

Container berths: 8
Quay length: 2,300m
Area: 85ha
Maximum depth: 14.8m
Quay cranes: 29



BELOW: Tanjong Pagar Terminal



MULTIPURPOSE TERMINAL JURONG PORT

A multipurpose terminal, the port is also the main bulk and conventional cargo gateway for Singapore and the region. It handles steel products, cement, project cargo, machinery and liquid bulk, among others.

Facilities for bulk cargo include an extensive network of pipelines and conveyor systems for speedy and environmentally friendly discharge and loading. It is also accredited by the London Metal Exchange as an ideal storage and trans-shipment hub for firms dealing in metals such as aluminium and zinc ingots.

With its multipurpose capabilities, Jurong Port is able to handle different types of cargo efficiently and seamlessly within one location.

Quay length: 5,629m
Area: 152ha (124ha within Free Trade Zone)
Maximum depth: 16m

KEPPEL TERMINAL

By 1982, Singapore had become the world's busiest port in terms of vessel-arrival tonnage. In anticipation of growing port container volumes, Keppel Terminal was added to Keppel Harbour in the 1980s. It began operations in 1991.

Container berths: 14
Quay length: 3,200m
Area: 100ha
Maximum depth: 15.5m
Quay cranes: 42

BRANI TERMINAL

Situated on the island of Pulau Brani, the terminal was officially opened in 1992, and is linked to mainland Singapore via Brani Terminal Avenue to facilitate the movement of vehicles and containers.

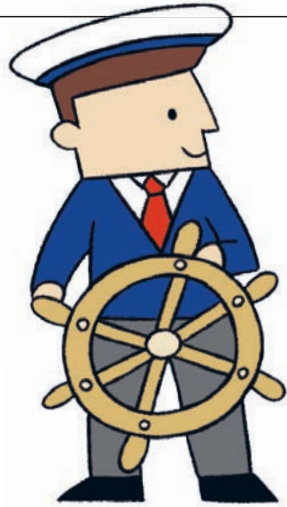
Container berths: 9
Quay length: 2,600m
Area: 80ha
Maximum depth: 15m
Quay cranes: 32

SOURCES: MPA, PSA, Jurong Port

PILOTAGE

Ship captains unfamiliar with Singapore's port conditions may find it a challenge to berth. This is where harbour pilots are needed. In Singapore, there are about 240 of them, and their job is to work with shipmasters to navigate their vessels safely into Singapore's port waters. Such vessels can range from small yachts to large 400m container ships.

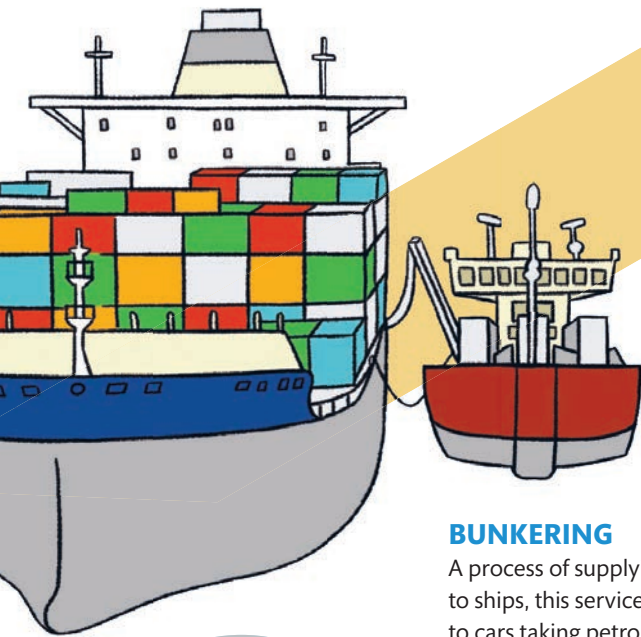
Under MPA's regulations, it is compulsory for certain vessels like liquefied gas carriers and chemical carriers to be piloted.



Singapore's harbour pilots are held to high standards – they are to have 97 per cent of all pilotage jobs served within 30 minutes of the service time required.

AT YOUR SERVICE

THE PORT OF SINGAPORE PROVIDES A DIVERSE RANGE OF SERVICES TO THE THOUSANDS OF SHIPS CALLING AT ITS FACILITY EACH DAY. HERE ARE SOME OF ITS AMENITIES.



BUNKERING

A process of supplying fuel oil to ships, this service is similar to cars taking petrol at petrol stations. At ports, fuel oil is transferred on board ships through bunker barges.

Singapore is currently the world's top bunkering port, with bunker sales in 2011 reaching a record 43.1 million tonnes. Part of this success lies in the country holding high

bunkering standards to ensure the quantity and quality of fuel delivered.

The standards are spelt out in the Singapore Standard Code of Practice for Bunkering by bunker barges/tankers (SS600), launched by MPA and SPRING Singapore in 2008.

It has since become a model for bunker delivery in other countries.



WATER

All vessels carry water tanks to store clean, potable water for their crew. Ships that enter Singapore are served by about 20 water supply operators at our ports, including oil terminals and major shipyards. These operators are regulated by MPA.

On average, more than 70 per cent of water supplied is transferred through pipelines, while the rest is done via water boats at anchorages.

GARBAGE RETRIEVAL

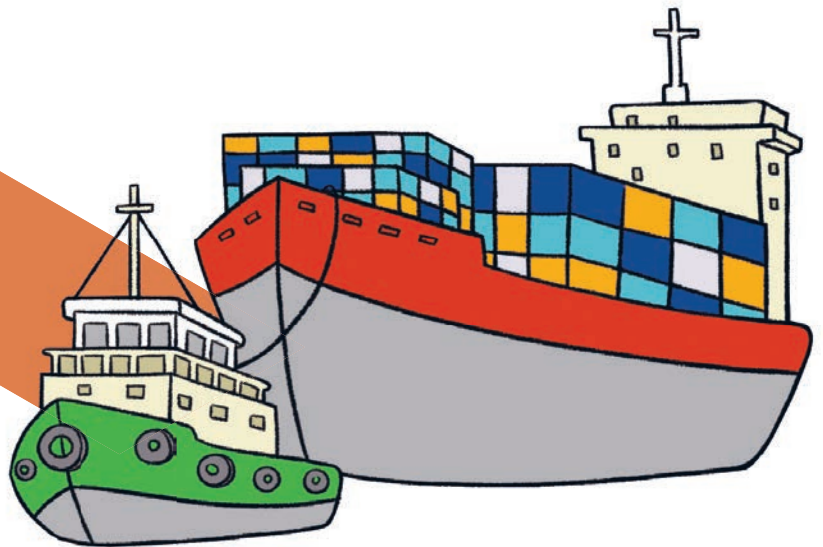
Under MPA's regulations, ships that call at Singapore's ports are not allowed to dump oil, sewage or garbage in Singapore waters. To manage waste at sea, MPA provides a daily garbage collection service through a private operator for ships that call at Singapore's ports.

The contractor also operates a fleet of flotsam retrieval craft that monitors and retrieves floating debris from the sea. MPA's port inspectors patrol the port waters daily to ensure compliance with its regulations.

To improve its service level, MPA introduced an



e-receipt system in October 2012. The system allows shipping agents or shipmasters to retrieve and download information, such as the timing of the garbage retrieval service and the number of bags disposed, from MPA's e-commerce platform MARINET the next working day after the vessel has been served.



TOWAGE

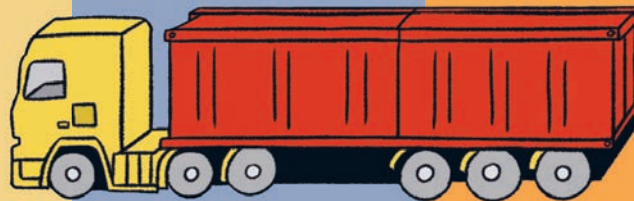
This is a service assisting ships to berth and unberth at facilities such as shipyards, container terminals and oil and petrochemical terminals, with the help of tugboats. It is a vital part of port operations because the berthing and unberthing of large ships are complex. Any incidents can cause serious damage to ships and marine facilities.

When vessels come close to Singapore's ports, they are assisted by one or more tugboats to help them berth safely. The number of tugboats required during berthing depends on factors such as the length of a ship and the capabilities of its thrusters. Some newer container ships need fewer tugboats to assist

them as they are built with powerful thrusters.

There are currently five licensed towage service providers in Singapore. They are required to complete 95 per cent of towage jobs within 15 minutes of the service time required. In 2011, this target was exceeded with an average service level of 99.6 per cent.

RISE OF AN INTELLIGENT FACILITY



► One of the key factors of Singapore's success and endurance as a global trans-shipment hub is its savvy use of technology. As early as the 1980s, the Port of Singapore began to harness technology in a big way to keep pace with the growing demand and level of complexity of port operations.

Currently, PSA and MPA are also collaborating to conduct research and test new technologies for future container terminals under the five-year Port Technology Research and Development Programme.

This programme is partly funded by the \$100 million Maritime Innovation and Technology Fund, established by MPA in 2003 to support research and innovation development for new maritime technologies.

PORTNET

In 1984, PSA, then a statutory board, pioneered PORTNET – the world's first nationwide business-to-business portal that allows the shipping community to apply for berthing spaces and marine services virtually, among other features.

PORTNET was cited in a 2007 survey by the World Bank as a key success factor in Singapore's ranking as the world's top logistics hub.

COMPUTER INTEGRATED TERMINAL OPERATIONS (CITOS)

In 1988, PSA introduced CITOS – a system that coordinates the key activities of Singapore's container terminal operations. This includes berthing, ship planning, yard planning, resource allocation as well as gate operations.

OPTIMISATION TECHNIQUES AND GREEN PORT TECHNOLOGIES

To enhance port productivity so as to handle more volumes in the near term and the long run, PSA is also looking into optimisation techniques and green port technologies.

According to Tan Puay Hin, Regional CEO, South-east Asia, PSA International, in a press release to announce the development of automated guided vehicles, important considerations in PSA's Singapore operations include land optimisation, manpower productivity and the environment.

"Our investment in automation and green technologies would enable us to overcome these challenges and further enhance the skill sets of port employees. This will also create new opportunities for the newer-generation Singaporeans who are technologically savvy," he added.

MARINET

After MPA took over the regulatory role from PSA in 1996, it continued to develop and promote research, innovation and development of test beds for maritime technology.

In 1998, MPA introduced an integrated e-commerce system called MARINET, which is used today by the maritime community to submit statutory declarations, process crew-manning documentations and apply for permits, among others.

AUTOMATION TECHNOLOGIES

The Port of Singapore has stayed at the forefront of technology. For the latest Pasir Panjang Terminal – Phases 3 and 4 – PSA has announced that it will spend about \$3.5 billion on its infrastructure and the latest port technology. These include an automated container yard and unmanned rail-mounted gantry cranes that are supported by intelligent systems.

PSA is also developing prototypes for automated guided vehicles to transport containers between the quay and container yard efficiently and reliably 24/7 without human drivers. The vehicles are expected to feature at the new port in Tuas.





ENTER TUAS PORT

► Even as the Port of Singapore marks a new milestone with the expansion of Pasir Panjang Terminal, another bigger and bolder plan is already on the horizon.

Singapore will work towards consolidating all its container operations at one terminal in Tuas, chosen for its sheltered deep waters and proximity to major industrial areas and international shipping routes.

The first set of berths at Tuas Port will begin operations in about 10 years' time.

When fully operational, it will handle up to 65 million TEUs per year.

Consolidated port in Tuas

Minister for Transport Lui Tuck Yew announced the consolidation plan in October 2012. The idea of consolidating all container operations at one terminal was first proposed by the Government's Economic Strategies Committee in 2010, in light of the redevelopment plans for the port land in Tanjong Pagar, Keppel and

Pulau Brani after their lease expires in 2027.

A terminal that consolidates all container operations will also benefit from greater economies of scale and increased efficiency.

"To support trans-shipment operations, there is often a need to move containers between these terminals by trucks. This adds to the time taken and business costs for port operations, as well as congestion on our roads. Consolidation will eliminate this need for inter-terminal haulage," said the minister in his speech.

Building a new terminal from scratch also means having a "clean slate" to introduce more advanced technology and processes to meet future challenges.

The minister added that Tuas Port must be able to handle

future generations of container ships, which are likely to be even larger and more complex than the vessels today. He also highlighted the potential need to cater to ships that are powered by liquefied natural gas and other alternative fuels.

Some of these technologies and processes, such as automated container port systems, optimisation techniques and technologies, and green port technologies, are already being tested under the Port Technology Research and Development Programme, launched by MPA and PSA in April 2011.

Like Pasir Panjang Terminal – Phases 3 and 4 – Tuas Port will be developed in a sustainable manner, with necessary steps taken to address any impact on the environment.

Port operations will begin in 10 years' time.

SINGAPORE WILL CONSOLIDATE ALL CONTAINER OPERATIONS AT A NEW PORT IN TUAS.

When Tuas Port is fully operational, it will handle up to 65 million TEUs per year.

SIMULATION

HOME-GROWN COMPANY SIMPLUS PROVIDES SIMULATION SOLUTIONS AND OPERATIONS INTELLIGENCE TO HELP LOCAL MARITIME AND LOGISTICS COMPANIES MAKE MORE INFORMED DECISIONS. BY NG HUI HUI

PHOTO GETTY IMAGES

Keen to prove that knowledge is power, consulting firm SimPlus provides simulation solutions and operations intelligence catering to the maritime industry.

Explains Stuti Nautiyal, Managing Director of SimPlus: "The maritime industry is one of the key pillars of Singapore's economy, and we think there are some gaps in current approaches and practices we can help plug, using our expertise in simulation solutions."

Mimicking a real-world system

SimPlus offers a suite of simulation tools which integrates both the seaward and landward side of marine port operations. The software can be applied to planning, evaluation and optimisation of varied marine resources like waterways, anchorages and service terminals.

Ye Rong, Director of Technology at SimPlus, explains that a simulation model is a computer model that mimics the operation of a real-world system over time, and is a useful problem-solving methodology for analysing large and complex systems.

RIGHT: SimPlus' Vessel Traffic Simulator simulates the navigation behaviour of vessels at sea or in port waters.



CENTRAL

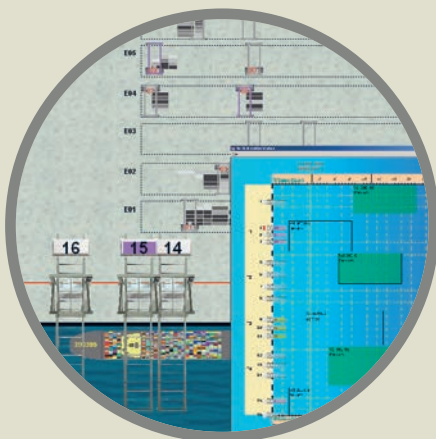


SimPlus' Vessel Traffic Simulator simulates the navigation behavior of vessels at sea or in port waters. The simulator has been applied to conduct risk-assessment studies to quantify and assess the impact of changing waterway layouts or increasing traffic volumes and patterns in a region.

Other simulation projects undertaken by SimPlus cover the areas of anchorage management, cargo and terminal planning, as well as passenger terminal operations.

SimPlus' value to its clients is the ability to use simulation as a means to assess plans even before they are implemented, explains Nautiyal. This method gauges the feasibility of plans without disrupting regular operations, and is particularly relevant to the maritime industry, where port infrastructure costs can run into the billions.

Chen Chuanyu, Director of Strategy and R&D at SimPlus, adds that the company has also been focusing on providing business analytics to its clients. "There is a lot of data collected from the time a vessel enters a port to the time it leaves. We make use of these raw data in our various operations analytics software to help our clients unearth useful information that might have been previously unknown to them."



Taking the plunge

More than 10 years ago, Nautiyal, Chen and Ye were working at the Nanyang Technological University of Singapore on the \$2 million High Capacity Terminal Simulation project with the Maritime and Port Authority of Singapore (MPA) and Agency for Science, Technology and Research (A*Star).

"At that time, MPA felt that we could continue developing simulation solutions to further encourage research and development in the maritime industry," recalls Nautiyal.

With support from MPA's Maritime Innovation and Technology Fund, the three of them decided to take the plunge, setting up SimPlus in 2006. Nautiyal reasons: "We picked up a lot of domain knowledge when we were working on the project, and we saw that we could marry both sectors and use our expertise to create value in the maritime industry."

Since then, the firm has expanded and gone on to win other local awards, including the Minister's Innovation (Merit) Award 2007 and the Minister's Innovation (Distinguished) Award 2010 (both awarded by the Ministry of Transport), and the Emerging Enterprise Award 2011.

Even though SimPlus has carved out a regional niche for itself in simulation-based consultancy services, Nautiyal acknowledges that the company is still a very small player compared to many international brand names. Its strategy, therefore, is to work very closely with maritime organisations such as MPA, PSA Corporation and Jurong Port, as well as consultancy firms like DHI, which offer complementary services to their clients.

LEFT: SimPlus' simulation of a container terminal.

The strategy has not only helped the company anchor firmly in the local maritime industry, but has also enabled it to make inroads into other countries, such as Malaysia and the United Arab Emirates.

Winds of change

Looking ahead, SimPlus is also expecting "dynamics to change" in the years ahead.

"With the tight labour market here, we expect to see more automation technology being deployed. Before port operators deploy these technologies, they have to evaluate its productivity and cost effectiveness. This is where we can help," says Nautiyal.

"On average, Singapore attracts more than 120,000 vessel calls every year. It is, therefore, important that maritime operators make the best use of their space, equipment and other resources, so as to prevent traffic congestion and ensure smooth operations at the ports."

Other potential new offerings from SimPlus include eco-oriented services, such as benchmarking the carbon footprint of ports, as the emphasis on sustainable green operations looks set to stay relevant.

When asked what would happen in the face of current economic woes, SimPlus also has a plan.

Nautiyal states: "It's always good to plan for the upturn when the economy takes a dip. What we are doing helps our clients in their scenario testing and to plan their policies ahead. During a slower period when daily operations are not so overwhelming, they have the chance to step back and re-evaluate their policies."



RIDING OUT

DESPITE THE CURRENT TURBULENCE IN THE SHIPPING INDUSTRY, CREDIT SUISSE REMAINS COMMITTED TO GROWING ITS SHIP-FINANCE BUSINESS IN ASIA. **JAMIE EE** FINDS OUT MORE ABOUT ITS STRATEGY.

► The global shipping industry is preparing itself for a long difficult spell, as it faces the challenges of oversupply and a slowing global economy and international trade. Amid this storm, global bank Credit Suisse is committed to growing its ship-finance business in Asia, building on its hubs in Singapore and Hong Kong.

Earlier this year, Credit Suisse set up its new ship-finance regional headquarters in Singapore, with its global Co-head of Ship Finance, Mario Behe, relocating here from Zurich to oversee the international and regional operations.

Behe, a 28-year veteran in the bank's ship-finance business, explains: "With 90 per cent of all intercontinental trade carried out by ships, shipping is an essential part of the world's economy. Ship-lending has been a crucial service for the industry for decades. In any business, you have to pick the survivors. After a heavy storm, the survivors always benefit from the market."

Ship finance: Part of private banking

Credit Suisse has been in this area of business for 70 years, offering financing of modern commercial high-sea vessels.

But it is neither a lending bank nor a specialised ship-lending institution. Founded in 1856 with its headquarters in Zurich, Credit Suisse is now a global integrated bank with two key divisions – Private Banking and Wealth Management, and Investment Banking.

It first started the ship-finance business after World War II, when it identified, among its private banking clientele, a group of Scandinavian and Greek shipowners who required services not only to manage their wealth, but also to support their shipping business.

"Ship finance is part of our Private Banking and Wealth Management division, and is a service and product made available to our existing clients – mainly shipowners. We are not catering to the entire shipping industry, but primarily to trustworthy clients who



THE STORM

appreciate our core capabilities in Private Banking and Wealth Management, as well as Investment Banking," says Behe.

Today, Credit Suisse ship finance spans six international locations, with more than 40 highly experienced employees financing about 700 commercial ocean-going vessels and servicing 140 top clients worldwide. Lending capacity in today's market extremely limited, and many European financial institutions face new capital requirements and severe restrictions on their balance sheets. Some have stopped lending as it absorbs too much liquidity.

"Our lending capacity is not unlimited either, but we reserve it for our clients worldwide. The vast majority of our customers have been with the bank for at least 20 to 30 years. We know them very well, not only from the lending side, but across their general business activities as well as personal wealth.

"Clients also understand that we will stand by them during both good and rough times in the shipping industry. This is why we have one of the longest traditions in ship finance and, even in the most difficult times like now, more than 95 per cent of our ship-finance portfolio is still performing extremely well."

Window of opportunity

Credit Suisse ship finance opened its first regional office in Hong Kong in 2004, but realised at that time that the market was

extremely over-banked. Cheap financing was easily available and the competition was so intense that the bank did not see the benefit of joining the fray.

After 2008, many firms in the finance industry went into severe crisis. With many European banks pulling out of or scaling back their ship-financing operations, there is now a reported funding gap of US\$249 billion (S\$304 billion) to be filled.

Behe says: "We clearly see an opportunity for us to attract new clients or assist existing ones of the bank. We have the capability, the strength, the willingness and, most importantly, the tradition. Credit Suisse is neither new to ship-lending nor to Asia. The bank has been operating in Singapore since 1973 and is highly committed to the country and the region. Our ship-finance business is capitalising on the strong foothold that the bank has already built across the region."

Credit Suisse ship finance's growth strategy in Asia is also based on the need to rebalance its global portfolio. At the moment, only about 10 per cent of its

global ship-finance business is from Asia, and this has to be realigned. The bank is determined to grow its Asian business to allow it to better balance its overall portfolio.

Indeed, Behe's relocation is a strong statement of the long-term vision of Credit Suisse.

"I have moved with my family to Singapore with a strong intention to stay for the long haul. Singapore is a regional centre, where the legal system makes it very easy for an international organisation to set up headquarters and operate. It also has a good talent market, and our strategy is to hire from the local talent pool and create jobs for Singaporeans."

He also feels that the authorities have done well for the maritime industry in the last 10 years and sees little room for major changes.

"Singapore is already occupying a pole position in the international maritime industry. It has come a long way in creating an excellent environment for the shipping industry. It is not a coincidence that all the shipping banks, shipowners, brokers and suppliers are coming here."

"Our ship-finance business is capitalising on the strong foothold that the bank has already built across the region."

Mario Behe, Co-head of Ship Finance, Credit Suisse



A portrait of Norifumi Idee, a middle-aged man with dark hair and glasses, wearing a dark pinstriped suit jacket, a light blue shirt, and a yellow patterned tie. He is standing in front of a blurred background of a building and trees. The text 'THOUGHT LEADER' is overlaid on the image.

THOUGHT LEADER

NORIFUMI IDEE, FORMER DIRECTOR-GENERAL OF JAPAN'S MARITIME BUREAU, WAS APPOINTED COMMISSIONER OF THE JAPAN TOURISM AGENCY IN 2012. HE TELLS THAVA RANI HOW HE COMES UP WITH THE BEST IDEAS OVER DRINKS.

I particularly enjoy reading over a drink at midnight. Some of my most inspired ideas come to me during these sessions.

► What was the most challenging issue you dealt with while helming the Maritime Bureau?

The biggest challenge was enhancing the status of Japan within the maritime community. Japan plays a big role in various aspects of the maritime industry, one of which is in the International Maritime Organization (IMO). During my term, a Japanese candidate, Koji Sekimizu, ran for the post of secretary-general of the IMO. I was responsible for managing his campaign. It was a very challenging yet exciting experience for me. Thanks to the support of many countries, we were successful in the elections.

Japan has held the position as the world's largest shipbuilding country for more than a decade. How is it dealing with competition from other Asian countries?

The problems in the shipbuilding industry are two-fold. Firstly, it's about supply and demand. Following the shipbuilding boom, what used to be a problem of excess demand from shipowners has now become a case of oversupply by shipbuilders.

Secondly, it's the building capacity. Korea and China are our greatest competitors in this area as they have been increasing their capacities.

The first problem is a market issue and there's very little we can do. To increase our shipbuilding capacity, the Japanese shipbuilding society worked together and, in July 2011, we came up with some new comprehensive shipping policies, which are currently being implemented. Shipbuilding firms have started working together. For example, one company may

supply the design for another to build.

So more shipbuilding companies are working together to supply vessels to foreign shipowners. I also envision the merging of major shipbuilding firms in the near future.

Japan promotes green technology too. Under the new IMO rules, newly built ships are required to meet certain standards in CO₂ emissions. This is definitely one area Japanese shipbuilding companies will be able to compete in quite favourably.

You seem to have a strong opinion about global warming. What do you think the international shipping industry can do to reduce greenhouse gas emissions?

As far as reducing emissions is concerned, the maritime industry has to work closely with the IMO, and Japan has already started.

One of the immediate measures taken includes the obligation of shipowners to have their newly built vessels meet certain standards in CO₂ emissions by January 2013.

Talks are still under way and we aim to come up with a workable framework by 2015 and to have it implemented by 2020.

What would you be doing if you weren't in the civil service?

Actually, I'm not sure. I majored in law but, when I graduated, I was very keen to join the government service, particularly the maritime sector. Although I was initially posted to the aviation unit to manage some legal matters, I eventually got my wish and was posted to the maritime unit.

What do you mould your attitude and philosophies around?

My family name is Idee, which means "idea" not only in Japanese, but also in French. So, to me, it is first important to increase knowledge in one's life. Academics is merely one aspect of knowledge, and I feel there are many other things to learn in life.

Second, one must have a certain level of self-indulgence. For me, it is my enjoyment of drinking. I particularly enjoy reading over a drink at midnight. Some of my most inspired ideas come to me during these sessions.

For example, last year, I was tasked with coming up with tax reforms in the maritime field – a very challenging task that required gaining the support of the members of parliament.

I had stopped drinking for a while but, when I allowed myself to have a drink, a game plan popped up in my head. That's the strategy I worked with and it eventually paid off.

These personal "philosophies" have definitely worked out for me.

If there was one thing you could change about the world, what would it be?

The internal strife that is rampant in many countries, such as some troubled regions in Africa. People need to learn to coexist.

What do you do in your free time?

The only free time I get is during the weekends. I used to sail my yacht, ski and play tennis. I use past tense because, these days, I just enjoy reading over a quiet drink.

CLEAR FLOW

JURONG PORT IS EMBARKING ON A RESEARCH PROJECT WITH THE MARITIME AND PORT AUTHORITY OF SINGAPORE AND NANYANG TECHNOLOGICAL UNIVERSITY TO STUDY THE BEHAVIOUR OF CEMENT FLOW IN AIR PIPES. **NG HUI HUI** FINDS OUT ITS IMPACT ON CEMENT IMPORT.



☛ Cement is a staple used by many industries as an element of construction. It can bind materials together effectively as it is not affected by constant exposure to wet weather.

Singapore relies on imports for its cement needs and deals with about four million tonnes of cement every year.

Jurong Port is currently Singapore's sole port of call for cement. Once the cement reaches the port, it is conveyed and discharged into customers' silos directly via the air-slide conveyor system.

The system works via the

pumping of air through pipes together with the cement. The air acts like a lubricant that will push the cement through the pipes easily.

The system doesn't always work

While the air-slide conveyor system works in theory, the powdery nature of cement can make it challenging for cement to be transported through the pipes. Blockages can occur at any time, which need to be cleared manually before the system can operate again.

Says Liew Chin Beng, Jurong



RIGHT Singapore deals with about four million tonnes of cement every year.



Jurong Port is currently Singapore's only port of call for cement.

Port's Senior Vice-President of Corporate Affairs and Technical Services: "To clear the blockage, we have to first find out where it is. The technicians would go and knock on the pipes at random positions to ascertain where the cement has been stuck.

"Sometimes, they just keep knocking at the pipes or try to pump more air into it. The nature of the system makes troubleshooting inefficient. In more severe cases, it can take up to half a day for the problem to be resolved. Clearly, we would like to find a solution to this problem, which reduces our cement-handling productivity," he explains.

Experimental research

Recognising that this will result in other related problems, such as an increase in the unloading and vessel-turnaround time, Jurong Port, Nanyang Technological University (NTU) and the Maritime and Port Authority of Singapore (MPA) are embarking on an experimental research to study the behaviour of cement in air pipes.

"It is encouraging to know that the R&D capability of our institutes of higher learning can be tapped to address real-world operational challenges,"

says Goh Kwong Heng, Deputy Director of Research and Technology Development, MPA.

Liew adds: "Once we understand the causes of the cement choke, we will be able to identify or create solutions to prevent such chokes. This is new research knowledge that will yield potential benefits to the wider cement industry."

This research project is part of the Green Port and Productivity Solutions Programme that was jointly launched by Jurong Port and MPA in October in 2011. Co-funded by MPA's \$100 million Maritime Innovation and Technology Fund and Jurong Port, the programme will see both organisations committing \$6 million each over the next five years to it.

The estimated cost of this three-year research study is \$600,000.

Research approach

There are three main steps to carrying out this study. First, scaled-down models of selected components of the air-slide conveyor system will be built at NTU.

Unlike the actual system, the model will be transparent so the researchers can visualise the flow of cement.

"It is encouraging to know that the R&D capability of our institutes of higher learning can be tapped to address real-world operational challenges."

Goh Kwong Heng, Deputy Director of Research and Technology Development, MPA

The next step is to use a specialised flow measurement technique, used in the aerospace engineering research community, to obtain the speed and direction of both the cement and air flows within the system components. This method is known as particle-image velocimetry.

Once the measurements are taken, the team can then combine the quantitative results with its observations for a better understanding of how cement flows in the air-slide conveyor system.

The project is expected to start in early 2013, with advice from Jurong Port regarding the designing and building of the model.

Project limitations

As with any experimental research study, there is bound to be limitations in application. This project is no exception, says Assistant Professor Daniel New Tze How of NTU's School of Mechanical and Aerospace Engineering.

Prof New, who is working on this project with another project officer from NTU, outlines three main limitations. In this case, size does matter. The laboratory test models of the air-slide conveyors and pneumatic pipes cannot be as large and extensive as those used at Jurong Port Cement Terminal.

"Hence, we will have to consider carefully the scaling effects of cement-flow behaviour observed in the laboratory, when we try to relate our experimental findings to the actual large-scale application," explains Prof New.

Secondly, the team will have to carefully select the most critical system components to investigate – those which it believes to have the most impact on the states of cement flow – so as to "get down to the most likely root causes of cement blockages".

Finally, Prof New adds that the cement powder flows in air are "essentially two-phase flows", and that it has always been a challenge in the research community to measure the velocity fields of fine cement particles and those of air separately.

"However, we remain confident that these challenges can be overcome with useful research outcomes for both Jurong Port and MPA," says Prof New.

Says Matthew Chan, CEO of Jurong Port: "This research project is one of a number that we aim to embark on under the Green Port and Productivity Solutions Programme. In fact, we are now reviewing other possible productivity projects under the programme."

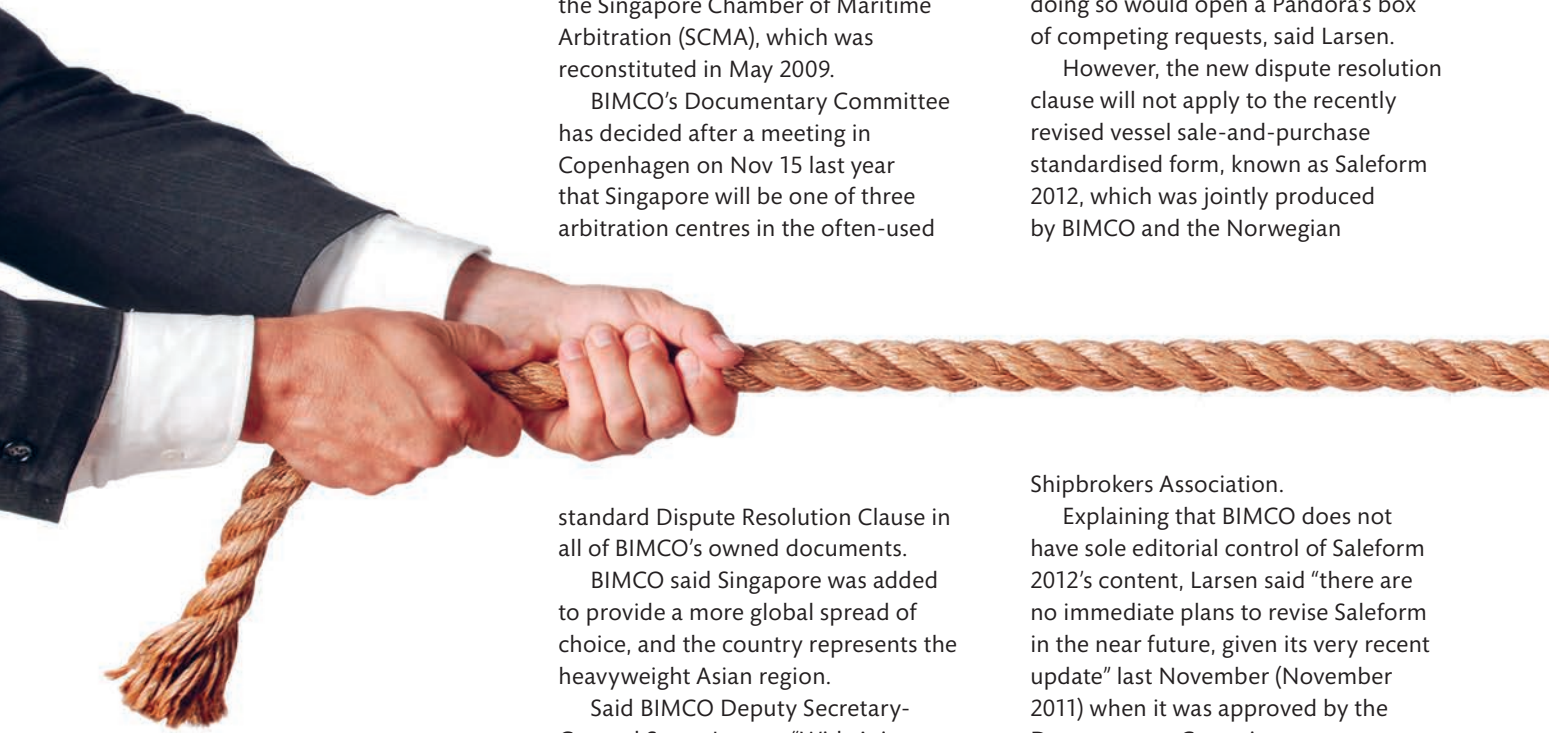


RIGHT: The air-slide conveyor system allows air to be pumped through the pipes along with cement.

SINGAPORE BECOMES A BIMCO SHIPPING ARBITRATION CENTRE

THE REPUBLIC IS ADDED FOR MORE GLOBAL
CHOICE, REPRESENTING HEAVYWEIGHT
ASIAN REGION. BY LYNN KAN





► The Baltic and International Maritime Council (BIMCO) has had a change of heart about including Singapore as an arbitration venue for dispute resolution alongside long-standing seats in London and New York.

The clause change could raise the standing and caseload handled by the Singapore Chamber of Maritime Arbitration (SCMA), which was reconstituted in May 2009.

BIMCO's Documentary Committee has decided after a meeting in Copenhagen on Nov 15 last year that Singapore will be one of three arbitration centres in the often-used

Each year, tens of thousands of BIMCO forms are used.

Singapore's inclusion is a sea change from six years ago, when the Documentary Committee was asked to consider Singapore as a third listed arbitration venue. The request was turned down then on concerns that doing so would open a Pandora's box of competing requests, said Larsen.

However, the new dispute resolution clause will not apply to the recently revised vessel sale-and-purchase standardised form, known as Saleform 2012, which was jointly produced by BIMCO and the Norwegian

standard Dispute Resolution Clause in all of BIMCO's owned documents.

BIMCO said Singapore was added to provide a more global spread of choice, and the country represents the heavyweight Asian region.

Said BIMCO Deputy Secretary-General Soren Larsen: "With Asia now represented, the much-used BIMCO clause represents three important shipping regions in the world: Europe, Asia and the US. It took a little while to get there, but the important thing is that we got there."

The revised clause will be published shortly for all new and revised documents that BIMCO produces.

Shipbrokers Association.

Explaining that BIMCO does not have sole editorial control of Saleform 2012's content, Larsen said "there are no immediate plans to revise Saleform in the near future, given its very recent update" last November (November 2011) when it was approved by the Documentary Committee.

"However, you can be assured that when it comes up next for revision, we will be pressing hard for the incorporation of our new Dispute Resolution Clause," he added.

The Singapore Maritime Foundation (SMF) and SCMA have worked with BIMCO since May to introduce the Singapore arbitration clause.



"With Asia now represented, the much-used BIMCO clause represents three important shipping regions in the world: Europe, Asia and the US."

Soren Larsen (left), Deputy Secretary-General, BIMCO

SMF said recognition by BIMCO bears testimony that Singapore has gained international recognition as a key node in the global maritime network.

"This announcement is great news for Singapore as it sets Singapore apart from the other maritime cities as the choice maritime arbitration centre in Asia and strengthens our position as a thought leader in maritime affairs," said Patrick Phoon, President of the Singapore Shipping Association.

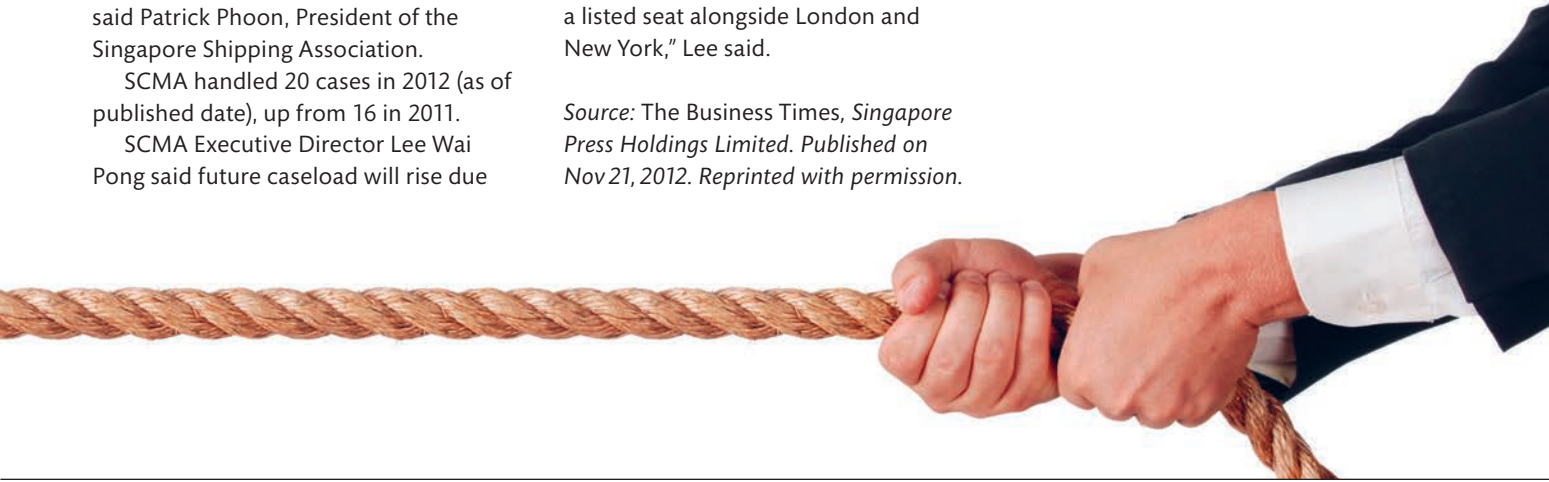
SCMA handled 20 cases in 2012 (as of published date), up from 16 in 2011.

SCMA Executive Director Lee Wai Pong said future caseload will rise due

to the adoption of Singapore in many more contracts, and it is possible its caseload could double to reach 40 in 2013.

"Many Asian principals, who have used London or New York for arbitration in their previous contracts, will find the case for switching to Singapore in their new contracts more compelling, now that it is available as a listed seat alongside London and New York," Lee said.

Source: The Business Times, Singapore Press Holdings Limited. Published on Nov 21, 2012. Reprinted with permission.



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

BRAVE NEW

RAHITA ELIAS TALKS TO THREE KEY PERSONALITIES FROM THE INTERNATIONAL MARITIME ORGANIZATION ON ISSUES RANGING FROM GREENHOUSE GAS EMISSIONS AND REGULATIONS TO MANPOWER.



Arsenio Dominguez



Jo Espinoza

WORLD

ILLUSTRATIONS: JIT (WWW.PORTRAITWORKSHOP.COM)



Jeff Lantz

► When the *Titanic* disaster happened in 1912, it indicated the need for a consolidated regulatory body to promote maritime safety. An answer to this call came in the form of the International Maritime Organization (IMO), which was formalised in 1948. As a specialised arm of the United Nations, the IMO develops and maintains a comprehensive regulatory framework for the shipping industry, with emphasis on safer shipping and cleaner oceans.

Today, the IMO continues to make headway in the global maritime industry, being the first international organisation to introduce global legislation addressing the environmental concerns of shipping.

At the beginning of 2013, new IMO regulations will require the latest vessels to meet specified energy-

efficiency levels to reduce greenhouse gas emissions from international shipping.

Singapore Nautilus speaks with three IMO representatives on what they are doing to help the shipping economy address its major challenges, including minimising its carbon footprint and keeping seafarers and vessels safe from piracy.

• **Arsenio Dominguez**, Vice-chairman of the Marine Environment Protection Committee at the IMO, and Alternate Representative and Technical Adviser of Panama to the IMO

• **Jo Espinoza**, Director of the Administrative Division at the IMO

• **Jeff Lantz**, Director of Commercial Regulations and Standards in the US Coast Guard, and Chairman of the IMO Council

“We always do an analysis for the need of any regulation. We don’t have the objective of over-regulation. We try to be proactive rather than reactive.”

Arsenio Dominguez, Vice-chairman of the Marine Environment Protection Committee at the IMO, and Alternate Representative and Technical Adviser of Panama to the IMO

SINGAPORE NAUTILUS (SN):
What is the IMO doing in 2013 to answer the global call for shipping to address environmental concerns?

JEFF LANTZ (JL): Shipping is the most environmentally friendly mode of bulk cargo transportation. The industry has already done quite a lot to reduce its carbon footprint, and it continues to do more. Following the 62nd session of the IMO’s Marine Environment Protection Committee (MEPC) in July 2011, new regulations starting on Jan 1, 2013 will require the latest ships to be built with certain improved efficiencies and gas-mileage standards.

ARSENIO DOMINGUEZ (AD): This is aimed at reducing the international shipping industry’s greenhouse gas (GHG) emissions. The IMO is actually the first international organisation that is adopting measures to reduce GHG emissions on a global scale, starting first with new ships and then moving on to older vessels.

SN: What impact will the new regulations have on the shipping sector?

JL: Industry players might complain that regulators do not appreciate their need to reduce costs amid the depressed markets, while

still having to comply with enhanced safety, environmental and security standards. The new regulations may increase the price tag of a new vessel, but they will apply across the entire industry. Therefore, they shouldn’t result in a market distortion. The playing field will remain even for everyone.

AD: I think it is important that we look at the long term. There will be inevitable cost implications when adapting to and adopting new regulations. However, an increased capital cost of building a ship is still a better alternative to higher operating costs in the long run. A more efficient vessel would burn less fuel and reduce operation costs, therefore improving the staying power of an already viable mode of transport.

SN: Moving forward, how can the maritime community continue to address GHG emissions from ships?

JL: From the last MEPC meeting, there was a tacit acknowledgement that we need to concentrate on the technical and operational measures for ships, starting with the new ones, then moving on to existing fleets.

AD: This means the next thing on the agenda is to look at regulations of an existing fleet. We will give the industry

enough time to adapt to and implement the new regulations. Throughout the process, the shipping industry and member states will be involved.

SN: Another major area of concern for shipping is piracy, especially in the waters off Somalia. However, the number of attacks in that area appears to have tapered off. Does this mean that piracy is no longer a threat?

AD: We have had some success because the shipping industry has introduced the best management practices to address the piracy issue. The IMO has introduced guidelines which are based on these best practices. At the same time, shipping has received strong support from the armed forces of various nations. So the problems have been addressed to a certain extent. However, they still need to be addressed further. The last thing we should do is believe that the problem is gone. We should not be complacent.

SN: What are your views on a long-term solution to the problem of piracy off the coast of Somalia?

JL: We would like to persuade the flag states and their shipowners to implement such anti-piracy measures (the aforementioned support from

the armed forces). The IMO has no enforcement authority, so we are working with the flag states to help them and their shipping companies overcome the obstacles to implementing these measures. We also need to be mindful that piracy will remain a problem as long as there is no effective central government and a rule of law in Somalia.

AD: We are focusing on helping the industry implement the guidelines we have issued, which are actually already based on the industry’s best management practices. These are very recent guidelines, so we don’t want to issue new ones because we don’t want to over-regulate.

SN: Some argue that more regulations will help establish the highest





practicable standards, while others say that regulations just stifle the industry.

How and where does your administration draw the line?

AD: We always do an analysis for the need of any regulation. We don't have the objective of over-regulation. We try to be proactive rather than reactive. We prioritise the various issues using cost-benefit analysis, taking into account the needs of various countries.

SN: Given that the IMO has 170 member states, how does it go about introducing new measures for the shipping industry?

AD: Every time we analyse a proposal for a regulation, we look into its implications on a global basis. In the case of the new energy-efficiency regulations, for example, the

shipping industry and the member states were involved throughout the whole process. They attended the meetings and gave their input towards a concrete solution. The IMO always seeks to engage the maritime community to ensure the best decisions are reached.

SN: Given the type of work that the IMO does and its consultative process, what kind of staff does it look for?

JO ESPINOZA (JE): We have three types of people who work at the IMO – technical, support services and senior management. At every level, IMO staff have to possess the technical skills to do their jobs well. They also need strong people skills as they are working in a multicultural environment. Overlying these

hard and soft skills is a deep passion to serve the world at large.

People who join the IMO have a desire to serve the international community. We share the same values and ideas – to promote peace and order. In the case of the IMO, it is to provide a safe, clean and efficient means of moving the world's trade.

SN: What manpower changes do you see in the future of the IMO?

JE: At the moment, we have around 70 different nationalities in the secretariat. One hundred and seventy is a big number – we will never get to a situation where each member state is represented. But as we help developing countries put more IMO standards in place, we could

soon be recruiting from these countries.

Fifty years ago, our employees probably comprised people from the US, Canada, Europe, Australia and New Zealand – the then-developed maritime world.

Today, the maritime world has expanded considerably. Knowledge and expertise are no longer concentrated in just a few places. So I think this would be one aspect of change within the organisation.

SN: The IMO, like all UN agencies, is facing pressure from its member states to trim its budget. How has this challenged the organisation?

JL: It boils down to two things – becoming much better at realistically agreeing on and prioritising the workload, as well as having a more robust cost-benefit analysis on whether a proposal goes forward.

JE: We are also reviewing our secretariat structure, which has been in place for a very long time. We are looking to make the secretariat more dynamic and forward-thinking, so we can be more responsive to our member states. It is not only a good time to do this, but it also gels with our new secretary-general's vision of becoming more cost-conscious and cost-efficient.

► A bunker surveyor's job is to board vessels and measure the amount of fuel on board. Derrick Neo, 36, tells *Singapore Nautilus* why integrity and honesty are some of the important traits required in his job.

How and why did you become a bunker surveyor?

I was with the Republic of Singapore Navy for 10 years and chose to leave after the end of my contract. Many of my friends became bunker surveyors after leaving the Navy, and that was how I was introduced to this profession.

Upon joining Odessea Inspection Services in 2007 as a bunker surveyor, I found that I could adapt to this lifestyle easily. Similar to the Navy, we are required to be comfortable on board vessels and operationally ready all the time.

What does a bunker surveyor do?

My job is to measure and ascertain the quantity of bunker (usually comprising fuel oil and diesel oil) on board a client's vessel before and after its delivery, to determine the fuel delivery and report any bunker-fuel shortages.

For example, if a vessel is supposed to receive 1,000 metric tonnes of oil from a bunker tanker, my job is to make sure the amount is accurate after

the refuelling is done. If there are any discrepancies in the amount of bunker fuel, the client can later claim the shortfall from the bunker tanker party.

Some of my tools include a measuring tape to check oil levels, and a calibration table to calculate bunker volume.

I also collect oil samples from the bunker on the vessel to send to a laboratory for testing.

What is a typical workday like?

After receiving a job schedule, I will plan my day around the times that I am able to board a vessel to conduct bunker surveys.

These timings can take place at any time of the day, with notice as short as two hours, thus the need to be operationally ready all the time.

The time I take for each job depends on the size of the vessel and its load. For example, it would take up to 10 hours to attend to a vessel with one cargo.

After the survey is done, I'll usually head back to the office to hand in my survey documents.

Do you have any memorable experiences to share?

When the weather is very bad, our visibility is compromised.

We sometimes have to stop the boat

in the middle of the sea and wait out the storm to stay safe.

What are the challenges you face and how do you overcome them?

Meeting the tight deadlines would be my biggest challenge, as we try not to delay a vessel's schedule after refuelling.

I also try to remain calm and do my job properly, even though time may be tight. I have to follow the proper procedures, and not rush through any jobs.

I also work with people of different nationalities, and I have had to learn how to communicate with them effectively.

What qualities should a bunker surveyor possess?

First and foremost, integrity is important. A bunker surveyor has to be honest about the figures he churns out. He also has to be independent, competent and able to manage his time well.

In addition, bunker surveyors have to comply with the Singapore Standard Code of Practice for Bunkering by bunker barges/tankers (SS 600).

This sets out the best practices for documentation, equipment requirements, and verification procedures during a bunkering operation.

FOR GOOD MEASURE

LEARNING TO BE OPERATIONALLY READY IN THE SINGAPORE NAVY HAS GIVEN DERRICK NEO THE RIGHT ATTITUDE TO BE A SUCCESSFUL BUNKER SURVEYOR.

BY DESMOND NG

Do you have any advice for those who want to consider a career as a bunker surveyor?

They would need to be independent in their job, and be operationally ready 24/7.

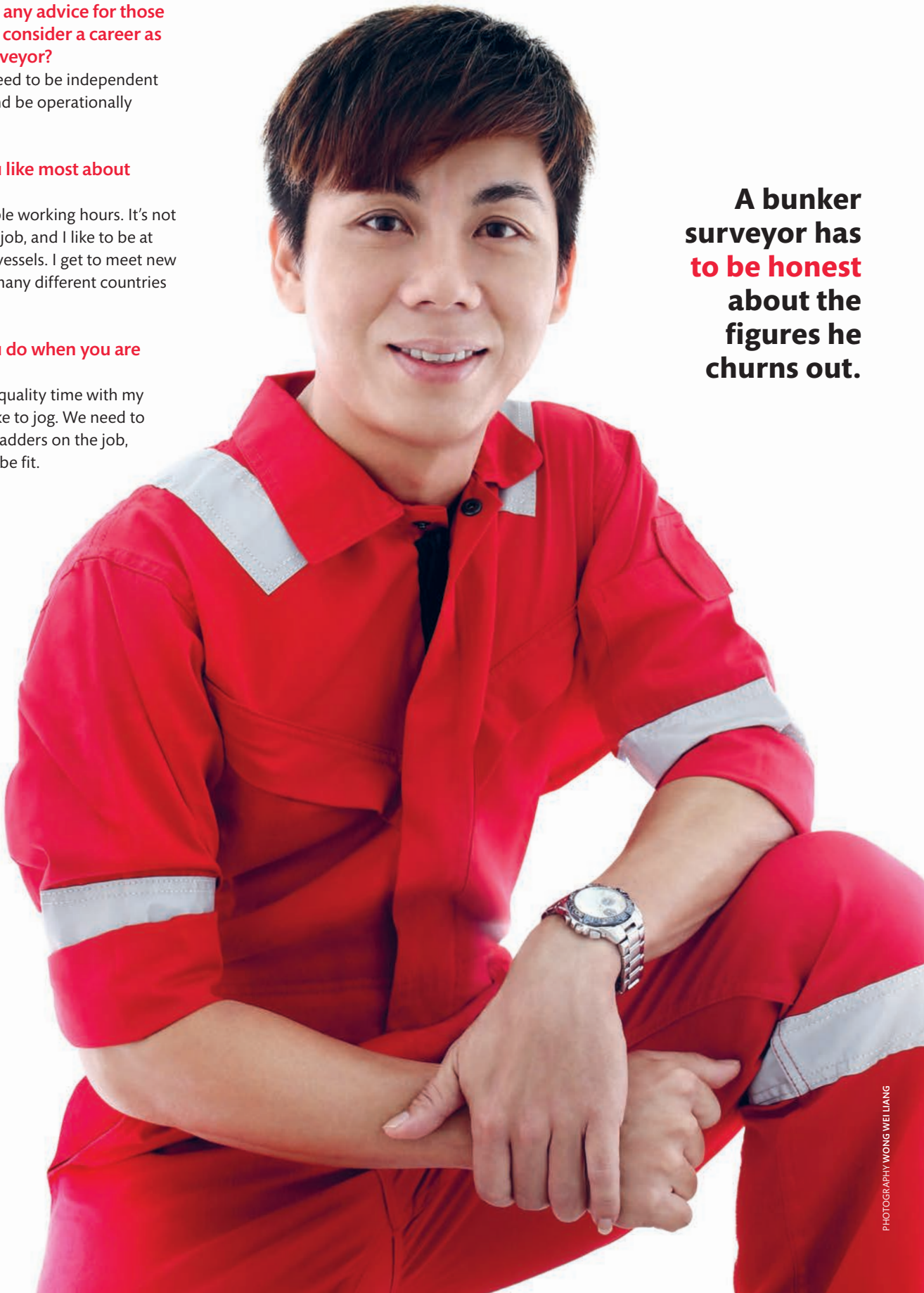
What do you like most about your job?

I like the flexible working hours. It's not a desk-bound job, and I like to be at sea on board vessels. I get to meet new people from many different countries all the time.

What do you do when you are off duty?

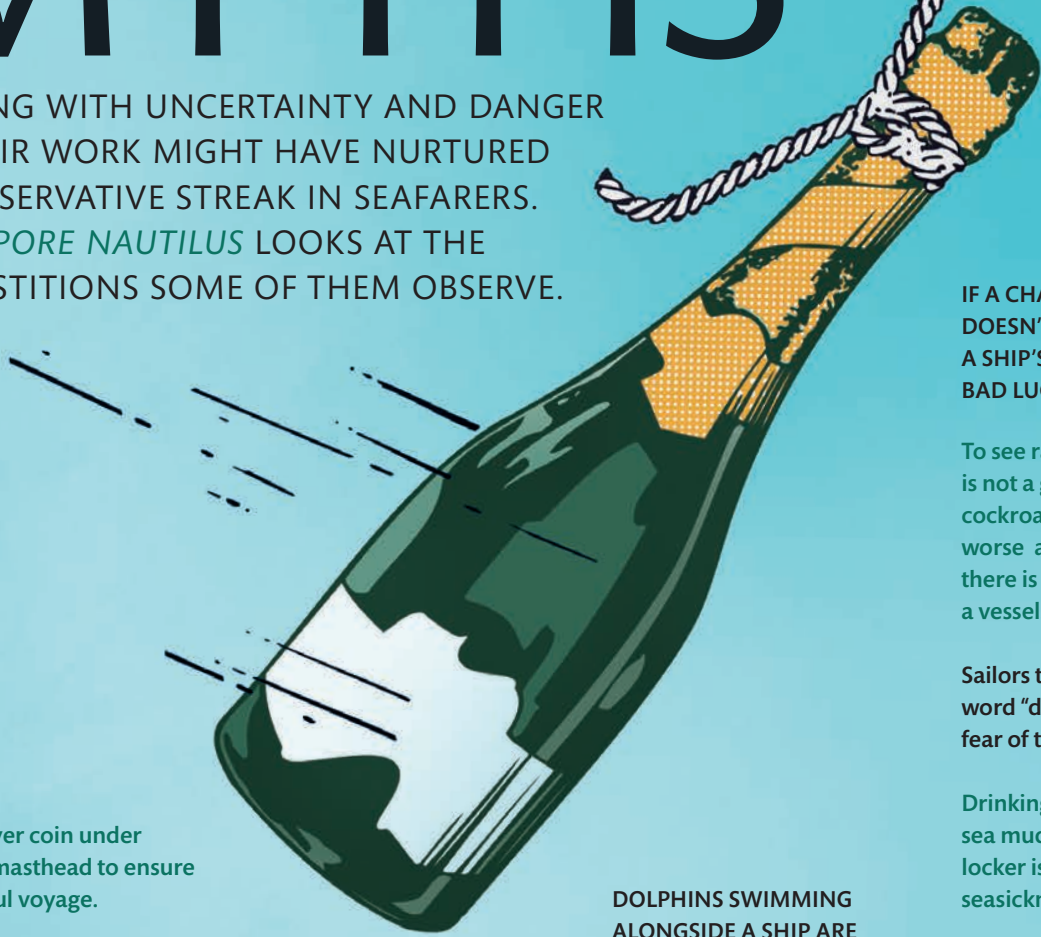
I try to spend quality time with my family and I like to jog. We need to climb a lot of ladders on the job, so we have to be fit.

A bunker surveyor has to be honest about the figures he churns out.



MARITIME MYTHS

DEALING WITH UNCERTAINTY AND DANGER IN THEIR WORK MIGHT HAVE NURTURED A CONSERVATIVE STREAK IN SEAFARERS. *SINGAPORE NAUTILUS* LOOKS AT THE SUPERSTITIONS SOME OF THEM OBSERVE.



IF A CHAMPAGNE BOTTLE DOESN'T BREAK DURING A SHIP'S LAUNCH, IT SPELLS BAD LUCK.

To see rats leaving a ship is not a good sign. To see cockroaches leaving is even worse as it indicates that there is no more food on a vessel.

Sailors try not to say the word "drown" on board, for fear of this really happening.

Drinking water with sea mud from the chain locker is believed to prevent seasickness.

DON'T BRING BANANAS ON BOARD, OR YOU WON'T CATCH ANY FISH.

Place a silver coin under a vessel's masthead to ensure a successful voyage.

The phrase "knock on wood" comes from sailors who would knock on the hull of their wooden ships to listen for rot.

Some seafarers never look directly into the sea, for fear of being pulled under.

Whistling on board is believed to raise the wind, thus the saying "whistling up a storm"!

Seagulls and albatrosses are considered to be the souls of seamen, therefore it is unlucky to kill any of them.

It is believed that Friday is the worst day to start a journey on a vessel.

DOLPHINS SWIMMING ALONGSIDE A SHIP ARE CONSIDERED GOOD LUCK, WHEREAS A SHARK DOING SO IS BAD LUCK.



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



Researching Cement Chokes

All the cement required for Singapore's construction industry — to build our subway systems, our residential homes, our schools, and other infrastructure projects — is imported. And the cement is largely imported through Jurong Port, Singapore's main gateway for general and bulk cargo. Each day, thousands of tonnes of cement move through Jurong Port's cement conveyor system into silos to be processed and then trucked to the final customers in various parts of the country. The conveying process is normally smooth, but, sometimes, the cement chokes in the conveyor system.

With support from the Maritime and Port Authority of Singapore's Maritime Innovation and Technology (MINT) Fund, Jurong Port is leading a research project into eliminating these chokes to improve productivity. To be carried out by Professor Daniel New of the Nanyang Technological University (NTU) School of Mechanical and Aerospace Engineering, the research project will study the behavior of cement in air slides, so as to understand how chokes are formed. Once that's understood, solutions to the cement choking problem can be found.

With its very limited land space, Jurong Port has to ensure high productivity in all its operations. The success of this research project will help raise the port's cement handling productivity to better serve the country's construction industry.