



ClassNK

MAGAZINE

MARCH 2015 - 71ST EDITION

- *Maritime R&D on the rise in Singapore*
- *Industry partnership: Eagle Bulk Shipping*
- *Road to growth in USA*

As maritime needs grow, ClassNK has solutions.

As the world's economy grows and changes, the maritime industry is faced with ever greater challenges. With roughly 20% of the world's merchant fleet under class, we understand the requirements for the future of safe shipping, and we're working to develop new tools and technologies to meet the changing needs of the maritime industry. Learn more about our efforts to advance maritime safety and protect the marine environment at www.classnk.com



Global Authority in Maritime Standards

ClassNK

www.classnk.com

Global responsibility



Welcome to the 71st edition of ClassNK Magazine, the first ClassNK Magazine of 2015 – a year of significant change for the maritime industry both regionally and globally.

Globally, there is growing demand for new marine renewable energy resource development and new technology and services to support this emerging industry. In the US, the expected introduction of safety management requirements for towing vessels as part of Subchapter M is creating new challenges for the local maritime industry. These challenges highlight once more our responsibility to support the operations of our clients across the world in a changing regulatory environment, while at the same time anticipating and advising on the future needs of the industry.

This message is strongly reflected in this edition of our magazine, with content focusing on ClassNK's commitment to research and development, both in Asia and the US.

The establishment of our new Global Research and Innovation Center (GRIC) in Singapore reflects our commitment to supporting global R&D for the benefit of the entire maritime industry. It also strengthens the partnership between ClassNK and Nanyang Technological University, and the National University of Singapore.

Broadly speaking, the motivation behind GRIC is to carry out new research to support a smarter, greener, and safer maritime industry. Through GRIC, ClassNK will carry out joint R&D projects with partners in Singapore and from around the world, for the benefit of the global maritime industry.

GRIC's mandate includes a significant commitment to not only existing maritime fields but also the emerging sector of marine renewable energy. As part of this commitment GRIC is leading a feasibility study to establish Southeast Asia's first testing center for marine renewable energy systems. ClassNK is at the forefront of efforts to make these resources available to the world.

As I have said, this year is one of significant change for the industry, and this magazine also focuses on ClassNK's efforts to enhance its service activities to support changes in the US maritime sector.

While ClassNK has been serving shipowners and operators in the US for over 50 years, in the last five we have greatly increased our investment in the region. The result has been streamlined decision-making to offer greater regional autonomy, deployment of extra human resources into the region, and the acquisition of companies with the specialized expertise to better serve our clients.

ClassNK's growing commitment to the region is also reflected in our recent agreement with the United States Maritime Resource Center (USMRC) to carry out joint R&D activities for the maritime industry. USMRC and ClassNK will work together on a range of projects for maritime safety and critical training areas of the offshore sector.

In line with pressing industry needs, ClassNK will cooperate with USMRC on the initial project to develop practical LNG bunkering simulation tools. This new partnership will both enhance the USMRC's LNG bunkering training programs and contribute to an even greater level of safety in the LNG industry.

This issue once more brings into focus ClassNK's tireless efforts to support the industry both for today and for its future. I hope that through these articles you can get a small glimpse into some of the efforts being undertaken by ClassNK and our partners for the benefit of the industry.

A handwritten signature in black ink, appearing to read 'N. Ueda'.

Noboru Ueda
Chairman and President of ClassNK

ClassNK

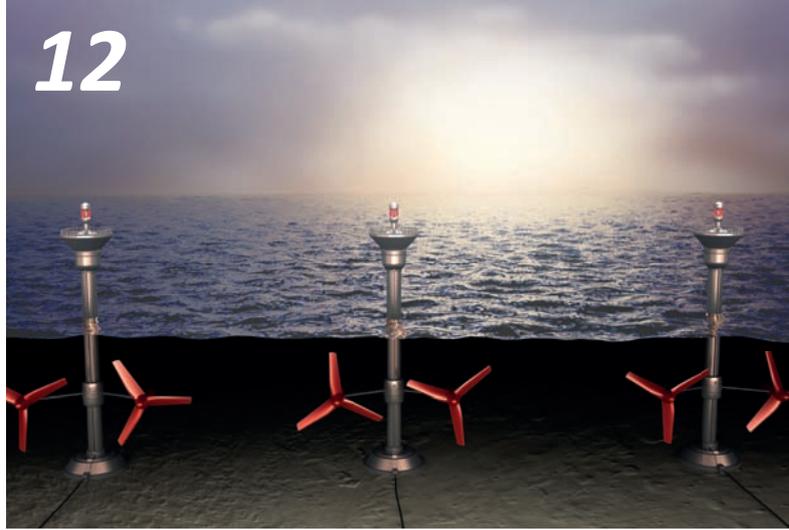
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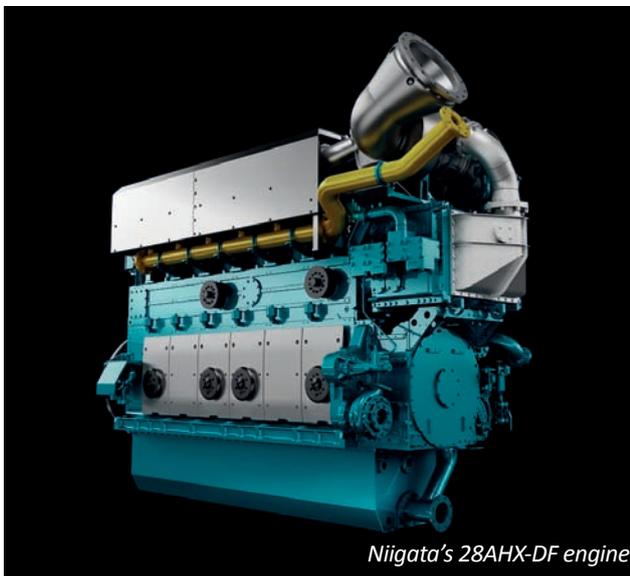
ClassNK news

CLASSNK ANNOUNCES RECORD 2014

29 January 2015 - ClassNK announced its registration totals for 2014. Over the course of the year, 833 new vessels with a combined total of 21,466,272 gt joined its register, marking the fourth straight year that the leading classification society registered over 20 million in new tonnage. ClassNK's growth in 2014 comes in spite of a global downturn in the market which has seen newbuilding deliveries fall by an estimated 15% according to Clarkson Research Services. Led by continued strength in the newbuilding markets, ClassNK registered a total of 548 newbuildings with a combined total of over 16 million gt, or more than 25% of all newly built tonnage in 2014 based on Clarkson's figures.

CLASSNK APPROVES NIIGATA'S DUAL-FUEL ENGINE

2 February 2015 - ClassNK granted type approval in near record time to the new 28AHX-DF dual-fuel engine built by Niigata Power Systems Co., Ltd. Whilst the adoption of emerging maritime technologies can prove challenging due in part to the time required to gain approval, ClassNK's streamlined approval process has allowed it to complete the design approval, trial operational testing, and the overhaul inspection of the 28AHX-DF in just a couple of months before granting type approval on 24 December. The engine has a maximum rated power per cylinder of 320kW with a maximum rated speed of 800 min⁻¹, a cylinder bore of 280mm and a 390mm stroke.



Niigata's 28AHX-DF engine

CLASSNK LEADS EXHAUST GAS ADVANCE



17 December 2014 - Nippon Yusen Kabushiki Kaisha (NYK Line), the Monohakobi Technology Institute (MTI), which is an NYK Group company, and ClassNK have teamed up with Singapore-based Nanyang Technological University and Sembcorp Marine Technology Pte. Ltd. for research on an exhaust gas cleaning system (EGCS) intended to be used to control SO_x emissions outside emission control areas (ECAs). This joint research project between Singapore and Japan will be funded by a grant from the Singapore Maritime Institute and carried out with the support of the ClassNK Joint R&D for Industry Program.

STAINLESS CHEMICAL SHIP DELIVERY



The 12,500MT chemical tanker Sunrise Hope

17 November 2014 - The world's first chemical tanker to use a combination of duplex stainless steel and stainless clad steel in the construction of its cargo tanks was successfully delivered to Oita-based Hiro Naviera S.A. on 15 November 2014 by Usuki Shipyard Co., Ltd. The application of the duplex steels in the vessel's cargo tanks was made possible thanks to an expansive joint research program involving steel manufacturers, leading technical universities, and ship designers, as well as ClassNK which supported the project as part of its Joint R&D for Industry Program.

CLASSNK APPROVES H2/CO2 FPSO DESIGN

12 November 2014 - ClassNK has granted Approval in Principle (AIP) to a new H2/CO2 FPSO (floating production, storage and offloading) vessel design developed by Mitsubishi Heavy Industries (MHI) and Chiyoda Corporation. This new concept H2/CO2 FPSO uses steam reforming and shift conversion to extract hydrogen (H2) and carbon dioxide (CO2) from the associated gas produced as a byproduct of oil well production. The H2/CO2 FPSO uses a new organic chemical hydride method to convert hydrogen into highly stable methylcyclohexane (MCH), which can be stored in liquid form at an ambient temperature and pressure.



The new H2/CO2 FPSO concept design developed by Mitsubishi Heavy Industries (MHI) and Chiyoda Corporation which received ClassNK approval in principle

CLASSNK AND USMRC TEAM AGREEMENT

9 December 2014 - The United States Maritime Resource Center (USMRC) in Middletown, Rhode Island and ClassNK are pleased to announce the signing of a Memorandum of Understanding (MOU) laying out a framework for future technical cooperation to carry out joint research and development activities for the maritime industry. This will mark the first time a major ship classification society has teamed with a prominent marine operations simulation center engaged in specialized training and research in North America. "Our goal is to support the safety of ships not only from the technological point of view, but also the human factor perspective. The need for qualified seafarers who are familiar with the latest maritime technology is essential for the sustainable development of the shipping industry," said ClassNK Executive Vice President Koichi Fujiwara. See full article, pp16-17.

MOU WITH SINGAPORE MARKS OPENING OF NEW RESEARCH CENTER

16 February, 2015 – ClassNK and the Maritime and Port Authority of Singapore (MPA) signed a memorandum of understanding (MOU) on 13 February to promote research and development (R&D) and innovation in the maritime industry.

Over the next five years, ClassNK and MPA will join forces to foster maritime thought leadership on technology through conferences and workshops, and carry out joint R&D projects focused on enhancing ship safety and environmental sustainability in four main areas: safe ships, smart ships, environmentally-friendly ships, and marine renewable energy.

The MOU was signed by Mr. Andrew Tan, MPA Chief Executive, and Mr. Yasushi Nakamura, ClassNK Representative Director, Executive Vice President. "We are happy to partner with ClassNK on this important initiative to jointly develop innovative solutions and tools addressing ship safety, emission control, and marine renewable energy. The signing of this MOU is a reflection of the emphasis we place on innovation and R&D, and signifies a shared vision to make the industry safer, more efficient and greener", said Mr. Tan.

"Singapore is a world leading maritime nation with one of the world's largest maritime clusters. ClassNK has collaborated with MPA before and through this MOU, we aim to further strengthen our relationship and work towards the shared goal of creating a smarter, safer, greener maritime industry", said Mr. Nakamura.

The signing ceremony also marked the opening of the new ClassNK Global Research and Innovation Center (GRIC), ClassNK's first research center outside of Japan. See full article, pp8-11.



CLASSNK-NAPA GREEN NAMED TOP MARITIME IT SOLUTION AT IBJ AWARDS

18 November 2014 - Vessel performance monitoring and optimization solution ClassNK-NAPA GREEN was named the maritime industry's top IT system by earning the IT Solutions Award at the International Bulk Journal (IBJ) Awards held at the Beurs-World Trade Center in Rotterdam on 17 November. The software solution, developed jointly by leading classification society ClassNK and leading global maritime software company NAPA, was recognized both as an advanced technical achievement and for reductions in fuel costs it has helped achieve and validate on actual vessels in service.

ClassNK Chairman and President Noboru Ueda (center) receives the IT Solutions Award at the 2014 IBJ Awards



CLASSNK INVESTS IN WIND ENERGY

28 January 2015 - ClassNK has further strengthened its renewable energy activities by agreeing to form a capital alliance with the Wind Energy Institute of Tokyo Inc. (WEIT) on 15 January. Based on the agreement, ClassNK will acquire around 30% of WEIT's shares through a third-party allotment and a nonexecutive director will represent ClassNK on the Institute's Board of Directors. The partnership enables both parties to leverage their wealth of experience and knowledge to develop solutions to issues currently faced by the renewable energy industry.

SHIP RECYCLING EXPERTS GATHER IN TOKYO

10 December 2014 - Top ship recycling experts from around the globe gathered in Tokyo on 10 December at the ClassNK Ship Recycling Seminar to discuss the latest updates to the EU Ship Recycling Regulation (EU Regulation). Members from Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT), the EU Directorate-General, and the International Chamber of Shipping together with approximately 220 other maritime professionals and policy makers attended the event hosted by ClassNK. ClassNK Operating Officer and Team Leader of the Ship Recycling Team Takano Hirofumi spoke about what ClassNK is doing to support safer and greener ship recycling such as the IHM creation software offered by ClassNK and how it is quickly becoming the *de facto* standard worldwide, being utilized by over 2,200 companies. In addition, ClassNK has certified five ship recycling yards that have upgraded their facilities to be in line with the Hong Kong Convention.

CLASSNK AND NAPA IMPROVE DESIGN PROCESS

5 December 2014 - ClassNK and leading global maritime software company NAPA have announced a new joint project to reduce the time and cost of designing vessels in accordance with the new IACS harmonised Common Structural Rules. The new project will enhance the data linkage between ClassNK's PrimeShip-HULL(HCSR) design support software with NAPA's 3D model-based integrated design software NAPA Steel, greatly improving the efficiency of the ship design process and reducing the cost of designing vessels in accordance with the new rules.

CLASSNK HEADS ASIAN AGENDA

1 January 2015 - ClassNK Chairman and President Noboru Ueda successfully fulfilled his term as Chairman of the Association of Asian Classification Societies (ACS) at the end of 2014, a position which he held from 1 January 2014. During his one-year tenure, Mr. Ueda was engaged in the following activities with a view to enhancing ACS' operations and contributing to the Asian maritime industry: contribution to discussions at an international level; enhancement of technical contributions to the Asian maritime industry; transformation into a higher quality organization. Mr. Ueda stated that ClassNK will make the most of these experiences throughout 2014 as ACS Chair Society and the new position as ACS Vice Chair Society starting from 1 January 2015, and is determined to keep up the proactive contributions to ACS' activities and communication with Asian industries.

Maritime R&D on the rise in Singapore

ClassNK's commitment to innovative Research and Development (R&D) projects expands further with the opening of the Global Research and Innovation Center, as Singapore's maritime hub continues to become a center of excellence for global maritime R&D activities.



Maritime Industry in Singapore

Strategically located at the crossroads of East and West trade lanes, Singapore is one of the busiest ports in the world for commercial shipping and maritime services, as well as a world leading transshipment port for container traffic within the South East Asian region. There are more than 1,000 ships at any one time at the Port of Singapore. In 2014, Singapore's container throughput achieved a record high of 33.9 million TEU, vessel arrival tonnage rose by 1.9 percent to 2.37 billion GT, and Singapore continues to be the world's top bunkering port with 42.4 million tonnes sold.

The maritime industry has always been an important part of Singapore's economy and it remains one of the fastest growing economic sectors of the city-state, contributing 7% to Singapore's GDP. At a time when the global shipping industry is poised for recovery, the Government of Singapore is committed to working with the sector to develop the necessary infrastructure and talent, which includes building a new container port west of the current city sites capable of handling 65 million TEU a year.

As the driving force behind Singapore's port and maritime development, the Maritime and Port Authority of Singapore's

(MPA) mission is to attract a core group of ship owners, operators and maritime service providers to raise Singapore's profile as a premier global hub port and International Maritime Center ("IMC"), as well as to advance and safeguard Singapore's strategic maritime interests.

MPA is also committed to developing Singapore as a center of excellence for maritime research and development (R&D) through a comprehensive maritime R&D framework, the S\$150 million Maritime Innovation & Technology (MINT) Fund and different R&D partnerships. The strategy is aimed at developing Singapore as a global center of excellence for maritime R&D, technology and innovation in the years to come. MPA, together with the Agency for Science, Technology and Research (A*STAR) and the Economic Development Board (EDB) in partnership with local Institutes of Higher Learning (IHLs), also set up the Singapore Maritime Institute (SMI) in 2011. SMI develops strategies and programs relating to the academic, policy and R&D aspects of the maritime and offshore industry. This includes the grooming of the next generation of local maritime academia talent, and promoting greater industry-academia R&D collaboration within IHL's (Universities and Polytechnics) to focus and create world class research standards and facilities in the area.

ClassNK presence in Singapore

Singapore has always maintained high academic standards, and its universities continue to climb global rankings. ClassNK is well aware that this culture of excellence makes Singapore a prime location for R&D activities and one ripe for further development for maritime interests.

Since establishing its operations in Singapore on 7 September 1967, ClassNK has expanded its activities in the city-state with the opening of a plan approval center which was the first outside of Japan to cater to the demand for drawing approvals in the region back in 1992.

ClassNK began its R&D projects in Singapore in 2011, when a Memorandum of Understanding (MOU) was signed together with Nanyang Technological University (NTU). Since then ClassNK has collaborated with the Energy Research Institute @ NTU (ERI@N) in many projects related to the maritime industry. ERI@N's mission is to grow into a center-of-excellence for conducting advanced research, development, and demonstration of innovative energy solutions that could have a global impact. Research at ERI@N encompasses seven programs, namely: fuel cells; energy storage; sustainable buildings technologies; solar cells & fuels; maritime clean energy; wind & marine renewables; and electro-mobility. MPA also committed S\$7M of funding to support the Maritime Clean Energy Research Programme (MCERP) in ERI@N.

ClassNK has been collaborating with the National University of Singapore (NUS) on Marine & Offshore-related topics. NUS is one of Singapore's leading universities and offers a global approach to education and research with a focus on Asian perspectives and expertise. With three Research Centers of Excellence (RCE) and 26 university-level research institutes and centers, the University is also a partner for Singapore's 5th RCE.

One of the main projects being developed with NUS is the Joint Industry Project on *Static and Fatigue Strength of Tubular Joints Reinforced with Ultra-High Performance Grout* for steel



Mr. Andrew Tan, Chief Executive, MPA and Mr. Yasushi Nakamura, Representative Director, Executive VP, ClassNK

offshore platforms, started in January 2013. Led by Professor Yoo Sang Choo of the National University of Singapore, the objective of the project is to develop appropriate formulations for joints subjected to brace tension or compression, with associated investigations into chord stress effects, and verify the behavior through joint formulations using experimental tests and numerical parametric studies.

In support of the establishment of the Singapore Maritime Institute (SMI), Noboru Ueda, ClassNK Chairman and President, participated as a member of the SMI's 16-member International Advisory Panel, which provides strategic input and guidance in the areas of maritime and offshore R&D and manpower development. In addition, the Society supported the SMI's survey of R&D facilities in Japan and launched a Joint Industry project with NUS and others in R&D on the static and fatigue strength on steel offshore platforms of tubular joints reinforced with ultra-high performance grout.

In addition, ClassNK is collaborating with the Energy Research Institute at Nanyang Technological University on the development of the Zero Emission Desulphurization Process for Maritime Applications (ZEDSMart). The above mentioned projects are supported by MPA and SMI.

Nanyang Technological University



Development of R&D activities

Given the growing research and development activities in this country, ClassNK has expanded the initial plan to collaborate with industry partners, government agencies, research institutes and institutes of higher learning in the areas of maritime safety, smart ship operations and environmental protection, as well as emerging technologies that harness tropical marine renewable energy while utilizing the expertise available from the marine and offshore industry (See full article, pp12-13).

The expansion of maritime R&D activities in Singapore made establishing a R&D center in Singapore the next strategic move for ClassNK.

Reliable research capabilities and knowledge within Institutes of Higher Learning (IHL), proven research institutes and world-renowned shipping companies based in Singapore place ClassNK's Global Research and Innovation Center in good stead. Above all, MPA and the SMI funding support platform will be ideal for implementing additional joint collaboration projects between industry partners, IHL's, government agencies and ClassNK.

The funding support platform set up in Singapore is expected to enable a rapid development of global technical and research expertise to further enhance the standards of R&D projects as well as the training of local manpower engaged in these activities.

Marquee project Started 1st Dec 2014

In line with MPA's key thrust to promote environmentally-friendly shipping in the busy Port of Singapore, a new joint research project between Singapore and Japan was launched in December 2014 for research on an exhaust gas cleaning system (EGCS) intended to be used to control SO_x emissions outside the emission control areas (ECAs).

This project involves a ship owner, Nippon Yusen Kabushiki Kaisha (NYK Line), the Monohakobi Technology Institute (MTI), an NYK Group company, and ClassNK teaming up with Singapore-based Nanyang Technological University and SembCorp Marine Technology Pte Ltd, an industry partner for ship repair and retrofitting. The project is a good example of how additional initiatives will be created in Singapore, with funding support given by MPA and the SMI. For ClassNK this represents a marquee project and an example of industry partners, academia and government coming together in a program that will have a great impact on the global maritime industry.

The main objective of the project is to conduct research on an exhaust gas cleaning system (EGCS) that can be used to control SO_x emissions outside Emission Control Areas (ECAs). Unlike the development of EGCS intended for use inside ECAs, this research will focus on the future need to comply with SO_x emissions regulations outside ECAs after 2020 or 2025. Working with a leading EGCS manufacturer, the project will utilize the most advanced technology available to simplify EGCS operations, as well as reduce both costs and CO₂ emissions compared with existing EGCS for conventional ECAs. The project will also aim to promote development of new technologies for system installation such as simplification and miniaturization, in order to ensure the system can be installed on a variety of ship types, as well as both new buildings and existing vessels.

In addition, the opening of the Maritime Energy Test Bed (METB) @NTU facility will provide a platform for research institutes and companies to test various green technologies that promote innovative solutions for the maritime industry and translate these technologies from lab-scale to real life applications.

Current and future plans of the Global Research and Innovation Center (GRIC)

The establishment of the Global Research and Innovation Center (GRIC) has seen ClassNK team up together with gov-



ernment agencies, maritime industry partners, IHL's and research institutes in Singapore and across the world on a diverse variety of R&D projects. Established in Singapore on 13 February 2015, GRIC will expand the scope of research to many other aspects of the maritime industry in the future, principally concentrating its efforts on the following areas:

Mainly through Joint Industry Programs (JIP)

- ◆ Projects related with structural integrity
- ◆ Fatigue related projects
- ◆ Rugged Robotics monitoring systems
- ◆ Materials/ composite for marine environment

Other projects

- ◆ Addressing Noise & Vibrations in vessels
- ◆ Propeller cavitation induced noise (CFD modelling)
- ◆ Ship board Noise & Vibrations
- ◆ Hybrid Tug Boat testing and verification in Singapore

The following projects cover Marine Renewable Energy R&D

- ◆ Effects on marine ecosystem
- ◆ Anti Bio fouling and Marine Corrosion coating for the tropics
- ◆ Under water Acoustic noise

Marine Renewable Energy Facility (See full article, pp12-13)

GRIC will also develop projects where marine renewable energy could be utilized for the maritime industry like shore power supply and creating battery charging stations for future hybrid electric harbor boats or vessels. Plans to set up Tropical Marine Renewable Energy Test sites in Singapore would provide a good opportunity for ClassNK to be part of the R&D, standards implementation, testing of energy converters (tidal turbines) and deployment methods of this nascent industry. The main areas of research interest that would benefit the maritime industry would be:

- ◆ Research topics relating to bio fouling & material performance
- ◆ Telemetry/wireless communication for eco system live monitoring for developing tropical marine renewable energy generation
- ◆ Energy storage systems for shore power supply

Further developments of GRIC

In the short term more projects will be established with the support of IHL's and industry partners within two or three years. ClassNK has already invested in some of these projects in 2014.

After the first couple of years, the strategy is to build in-house research capabilities and recruit researchers in Singapore, whilst re-locating some researchers from Japan. As more projects and funding support from Singapore government agencies expand the R&D activities already developed in the area, in the next five years ClassNK will develop GRIC further and manage all R&D projects in Singapore and globally from GRIC.

With the maritime industry gaining momentum in the area and attracting ship owners and maritime service providers from all over the world, Singapore's international network and connectivity will be crucial to the global reach of these initiatives, and to collaborations with other world-renowned universities and talents.

Under the ClassNK Singapore Office, the progressive development of GRIC will improve the research and technical capabilities of local manpower, further consolidating Singapore's position as a hub for global maritime R&D.

ClassNK promotes R&D activities that draw on the advantages of Singapore as a global R&D hub, and provides continuous support for the further development of the global maritime industry together with its partners in Singapore and all over the world.



Tide turns on research

Singapore's potential to act as a focus for Southeast Asia's marine renewable energy sector has taken a major step forward, after ClassNK launched a feasibility study on establishing a regional testing facility.

Plummeting oil prices have unsettled forward investment planning in the energy markets, but few doubt that future demand will only be satisfied through a mix of sources. Marine renewables are expected to be a critical part of that mix, and many governments around the world are trying hard to encourage new renewable energy technologies.

While Japan's governmental commitment to solar and wind energy sources has been widely acknowledged, in recent years ocean energy has begun to attract increasing interest. From 2011, the five year "Ocean Energy Technological Development Research" project has looked to develop testing capabilities beyond the laboratory, in full-scale plants and real sea conditions. Results from the harsh ocean environment that equipment will actually face will be critical to the commercialization of the ocean energy systems.

As a nation, Singapore has demonstrated clear willingness to be at the forefront of such efforts. Professor Subodh Mhaisalkar, Executive Director of the Energy Research Institute @ Nanyang Technological University (ERI@N), highlights the importance of the new testing facility feasibility study project for Singapore and the participation of ClassNK: "Our goal is to make Singapore a leader in technologies that include marine energy technologies in combination with wind and solar. We consider marine energy solutions critical to the energy transitions in the region and we consider this facility an important step to achieving that goal," he says.

"ClassNK, with its credible background in marine energy and offshore research, and extensive experience assessing both marine and offshore structures, is the perfect partner to help

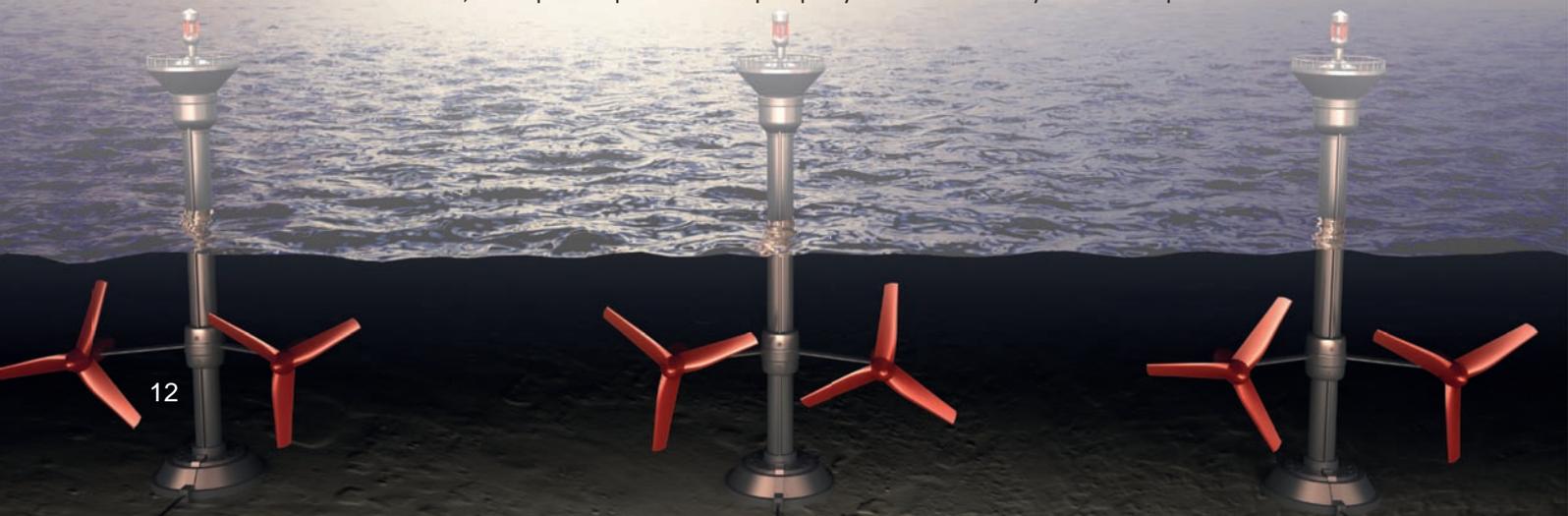
verify the feasibility of this innovative new facility and we are excited to be working with them on this important project."

ClassNK's support will be pivotal to the development of testing facilities, but also to the development of clear procedures elsewhere to verify the safety and efficiency of new marine renewable energy technologies.

The depth of expertise in place and under development at ClassNK was further acknowledged in October 2014, when the Society newly established a Renewable Energy Department to oversee diverse activities related to renewable energy. These include audits and certification of new technologies.

"Given the enormous potential of the ocean as a source of energy and the ever-increasing demand for cleaner energy to mitigate climate change, there is a growing need from the industry for high-quality technical services that can support the practical development of new renewable energy technologies," comments Hirofumi Takano, Operating Officer and General Manager of the Renewable Energy Department. Mr. Takano, who is heading the new Department, was previously in charge of ClassNK's research and development activities as head of the Practical R&D Promotion Division and the Wind Turbine Division.

"Vast technological advances have made it possible to practically harness the power of alternative energy sources such as wave power, tidal and ocean current power, and ocean thermal energy conversion," says Mr. Takano. "By verifying the feasibility and practicality of the new testing facility as a third party certification body ClassNK hopes to contribute to the



widespread development and use of new marine renewable energy technology. ClassNK is committed to being involved at every point along the value chain.”

Unlike wind, there is no specific technological solution to harnessing energy from waves and tidal currents. As a result, many different devices are being developed. Because ocean energy systems operate in a harsh environment, there are significant engineering and environmental challenges to overcome, including predictability, manufacturability, survivability, installability, affordability, and reliability.

A number of centers and consortia throughout the world are working toward addressing these challenges, but the new feasibility study is distinguished as envisaging the first testing facility for renewable marine energy technologies in high temperature tropical waters.

“There is a gap in Southeast Asia and a potential to develop tidal and wave energy industry for the tropical market,” says Mr. Takano. “Test sites are necessary for device manufacturers and the supply chain involved in this industry. Major technology developers have projects in Europe and in order to attract these developers to this region, we need to focus on R&D capabilities which in turn require a test site with the necessary support like special vessels, divers and equipment manufacturers. Devices currently tested in Europe or America will not necessarily perform similarly in the tropical condition which leads to testing of prototypes and components before deciding on developing products themselves.”

Inevitably, in this formative period, full details of the research agenda remain largely undisclosed. However, already, ClassNK identifies a number of targets including effects on the marine ecosystem, underwater acoustic noise, the telemetry/wireless communications appropriate for eco system live monitoring in the tropical environment, and indeed the whole topic of bio fouling & material performance in such conditions.

“Setting up a Tropical Marine Renewable Energy Test sites in Singapore provides opportunity for ClassNK to be part of the

R&D, standards implementation, testing of tidal energy converters and deployment methods of this nascent industry,” says Mr. Takano.

In detail, the study will assess the feasibility of establishing a testing facility at 1/5-1/10 scale in the waters off the coast of Singapore, including surveys of tidal forces, as well as environmental and operational viability assessments. This work will be carried out by a consortium led by ClassNK and ERI@N, with support from other leading research institutes and consultants including the European Marine Energy Centre (EMEC).

The 18-month feasibility study runs from February 2015, with the objective of gaining a greater understanding of local resources and the marine ecosystem in the waters surrounding Singapore. The outcome will be used as the basis for site planning and offer guidance on the facilities required.

Four potential sites have already been identified for further investigation, all of them located in southern Singapore waters. Any proposals will, of course, need to take into consideration the priority given to marine traffic in Singapore, and likely limitations on available space for devices deployed in the sea. Indeed, even at this preliminary stage, a tentative plan proposing a floating platform featuring its own control station is envisaged as part of the eventual proposal for facilities, rather than a permanent structure. Naturally, any development plans will be subject to normal consents and permissions from local government.

“Singapore is a maritime nation first and foremost, and it is also a leader in ship repair and offshore structure construction,” says Mr. Takano. “Its supply chain strengths therefore extend across the entire marine & offshore industries, and that includes the floating crane services and support vessels that could easily support the marine renewable energy industry. Taking a lead on research is one means of supporting the opportunity that exists for companies here in Singapore to extend their business plans and get involved in this industry from the beginning.”



Industry partnership: Eagle Bulk Shipping

With more than 20 years of experience in the Handymax market, Eagle Bulk Shipping Inc. is the largest US-based owner of Handymax dry bulk vessels. With a modern fleet comprised principally of Supramax class vessels, the Zoullas family has a long and strong relationship with ClassNK dating back to the 1970s. Mr. Alexis Zoullas explains the benefits of lasting partnership.

How would you describe the company's strategy and what are your major operating areas?

Eagle's strategy has been to create a dominant position in the supramax market. With main offices in New York and Singapore, our goal is to become a true industrial carrier. The largely homogenous fleet is managed mostly in-house, which enables us to give our clients greater flexibility and first class service. Eagle now controls 58 vessels trading worldwide.

What are the company's values and what makes you popular to the North American maritime community?

Persistence, loyalty, and teamwork. Everyone at Eagle is passionate about what they do, and expects that others feel the same way. We feel that we are only as good as our last accomplishment, and respect those companies and individuals who strive for excellence instead of the lowest-common-denominator.

Your fleet is very modern, comprised of vessels built no earlier than 15 years ago (Kite is the only one built before 2000). Are you planning to introduce any newbuilds soon?

We have no current newbuilding plans in the books. We have built 27 vessels which comprise the foundation of the fleet. Given the current market conditions, perhaps the best nearby opportunities will be in re-sales or second hand. But, newbuilds will always be part of any long-term fleet renewal initiatives at Eagle.



Mr. Alexis Zoullas, Eagle Bulk Shipping

Have you applied new technologies to improve your fleet performance and efficiency?

We are constantly evaluating new technologies, and have begun to install varying retrofits on some of our newer vessels. The challenge is to find an economical solution that improves a vessel's overall performance/emissions, without getting carried away with the menu of options that are being promoted in the market.

From a shipowner perspective, what are the major financial challenges the industry is now posing and what are your views on the global market?

Unfortunately, too much money came into our industry at a time when we had not fully recovered from the financial crisis of 2008. As a result, with world demand shrinking there are too many ships on the water and even more on the way. Political uncertainty is making matters worse, and pessimism has sunk in. Many shipowners in this market protect their liquidity and try to make it to the next healthy market. We secured our balance sheet in a major restructuring last year, positioning the company well in a difficult market. As with every down cycle, there will be opportunities for companies that are positioned to take advantage of them.

When did the partnership with ClassNK start and which vessel was first registered to ClassNK?

Although the Zoullas family's first ship with ClassNK dates back to the 1970s, Eagle's first ClassNK vessel was registered in 2005. It was the *M/V Cardinal*; one of the first purchases that helped the company get started, and which continues to be a strong performer in our fleet.

Do you plan to register further tonnage with the Society in the near future?

ClassNK has been such a consistent and reliable partner during the entire history of Eagle, that we are always looking at ways to grow our relationship.

What is the Society's biggest advantage and the most important benefit to your business?

ClassNK's "biggest" advantage, may amusingly enough, be its size. It has the highest registered dwt tonnage of any classification society. Through its size and impeccable reputation, ClassNK is able to attract and retain some of the best talent in the industry. Their fees are also very reasonable. In addition, they have expanded their operations in the United States and are offering new technical services to all owners.

What are your plans for the future of the company?

Having just completed our refinancing in Q4 of 2014, we are taking stock of where we are as a public company post-restructuring. As the market unfolds, Eagle will use its healthy balance sheet and robust operating platform to adapt to any market situation (as it has done in the past).

ClassNK is heavily involved in R&D projects with the industry, supporting various ongoing and completed projects. Are there any particular areas of the Society's R&D projects which are of major interest to Eagle Bulk Shipping?

Eagle values the leadership role taken by ClassNK in the various R&D projects in the maritime sector. Amongst these various technologies, Eagle would be keen to learn more about the ultra fuel saving antifouling paint A-LF-Sea and the Hybrid Turbocharger.

NOTE: Both the ultra fuel saving antifouling paint A-LF-Sea developed by Nippon Paint Marine Coatings Co. Ltd. with industry partners, and the energy efficient Hybrid Turbocharger developed by Mitsubishi Heavy Industries with industry partners were carried out as part of ClassNK's Joint R&D for Industry Program

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ClassNK has been such a consistent and reliable partner during the entire history of Eagle, that we are always looking at ways to grow our relationship

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LNG bunkering: In safe hands

ClassNK's continuing commitment to training newly qualified seafarers has been reflected in its recent agreement with the United States Maritime Resource Center.

Advances in navigational technology and tightening emissions restrictions on ships are just two of the topics demanding new expertise from the seafaring community. Maintaining safety and protecting the marine environment are the central aims of shipping's regulators, but meeting these goals or falling short remains predominantly a matter for the 'human element'.

While raising standards, the STCW 2010 Manila amendments in fact only set a new international benchmark for the training and education of seafarers. Skills and seafarer competence must be grounded in effective maritime education and certified training, a fact recently highlighted by IMO Secretary-General Koji Sekimizu in his unveiling of "Maritime Education and Training" as this year's World Maritime Day theme.

For the industry, the imperative to provide adequate training extends beyond the newly qualified; it is also a critical issue determining the attractiveness of seafaring as a career. ClassNK, therefore, sees the provision of both technical and operational crew training to support the human element as one of its main responsibilities.

ClassNK is committed to training and developing qualified seafarers skills onboard ship. On top of offering certification of training courses such as ECDIS, Bridge Resource Management (BRM) and Engine-room resource Management (ERM) courses, the Society also undertakes the approval of maritime simulator systems, as well as the training institutions themselves that examine the competence of seafarers.

Its commitment to training the generations of seafarers to come is underlined in the recent Memorandum of Understanding (MOU) with the United States Maritime Resource Center (USMRC) covering cooperation on a range of technical issues.

Based in Middletown, Rhode Island, USMRC is an independent non-profit organization with more than 30 years' experience in navigation safety, maritime risk mitigation and human capital development. It is committed to raising awareness in the international shipping, maritime trade and transport industries, and is also recognized as one of the world's leading providers of marine operations research using real-time, man-in-the-loop simulation.

With a global client base ranging from oil majors, ports and terminals, ship owners and operators to government and inter-governmental clients, USMRC has prepared highly competent and professional mariners to serve aboard a wide range of vessels through training and workforce development initiatives.

From helping partners identify and mitigate security threats, to understanding how ports, vessels and crews can mitigate physical risk on board, USMRC's research team works with domestic and international partners to advance the field of maritime operations around the world and is specialized in addressing highly complex and demanding problems.

Comprised of professionals with a wide variety of real-world maritime experience, and with a library of over 40 U.S. Coast Guard (USCG) approved courses, many of which also meet IMO STCW 2010 requirements, USMRC is primarily focused on providing specialized programs such as: advanced pilot training and candidate evaluation; emergency ship and tug/barge handling; small boat and fast rescue boat operations; as well as ECDIS and other electronic navigation training courses.

Having also built a strong relationship with the maritime industry and a reputation for developing evidence-based training programs, USMRC is the National Oceanic and Atmospheric Administration (NOAA) schoolhouse for professional maritime training for the NOAA Corps officers.

USMRC and ClassNK will work together on a range of projects, including LNG terminal personnel training and critical training areas for the offshore sector, and maritime cybersecurity.

However, the initial joint project will see ClassNK cooperating with USMRC on the development of practical LNG bunkering simulation tools in order to further enhance the USMRC's existing niche portfolio of LNG bunkering training programs. The training requirement of LNG fuelled ships is expected to be included in the next amendment of the STCW Convention in 2016. The partnership will also improve ClassNK's position in the sector, offering solutions for clients with the advantage of USMRC's leading role in developing education programs for the use of LNG as marine fuel.

Opting for LNG as a bunker fuel as emission rules come into force has appeared persuasive, and LNG bunker facilities are expected to develop rapidly in the US in the near future, and possibly in Canada. It is therefore imperative that industry personnel ashore and at sea are fully prepared to deal with LNG operations safely.

Given Japan's position as the world's largest LNG importer, ClassNK has long experience in the maritime transportation of LNG, and has been intimately involved in the development and implementation of new technologies for a safe and efficient use of LNG as a marine fuel.

The Society is not only recognized for its role in promoting the commercialization of LNG fuelled vessels but also for supporting the research that will make the use of LNG as a fuel a practicable part of everyday operations. Its projects range from general topics, such as the commercial viability of ocean going LNG vessels and the development of bunkering vessel designs, to the more specific LNG fuel tank materials feasibility studies.

The USMRC MOU makes explicit the partnership's commitment to support ClassNK in developing a framework and goals for all R&D activities related to LNG fuelled ships from a crew training point of view.

In fact, at the core of competencies responsible for the USMRC's reputation has been its simulation and modelling department, which owns and operates four ship simulators. Its Maritime Simulation Institute division has more than three decades of experience focusing on the LNG sector, being one of the pioneers in marine operations research and training to use real time, man-in-the-loop, full mission ship and tug simulations involving LNG tankers and facilities. Its clients include many of the most well-known names in LNG - Chevron Energy Technology Company, BG Group and British Petroleum, to name but a few.

"The need for qualified seafarers who are familiar with the latest maritime technology is essential for the sustainable development of the shipping industry", says ClassNK Executive Vice President Koichi Fujiwara. "USMRC not only has the specialized knowledge to address these issues, but also has rich experience in maritime training. I am

sure that this collaboration will greatly contribute to the future maritime education and training in the world."

Elaborating on the situation, USMRC President Brian Holden said "We were the first to offer LNG bunkering safety training in the United States. The signing of this MOU will allow us to take another leap forward in this area by developing practical, hands-on LNG bunkering simulation tools to make this training even better."

Aligned with flag state draft guidance and proposed amendments to STCW and the new IGF Code, USMRC has developed advanced bunkering training for seafarers and shore personnel dealing directly with LNG bunkering operations, the first of its kind in the Americas. The main objectives of the course are the design, development, testing and employment of both generic and specific LNG bunkering system simulation models to cover as many bunkering scenarios as possible (e.g. ship to ship transfer where fuel is supplied by ship or barge, rather than tank container where fuel is supplied from on-board containers).

USMRC has strong ties with Transas, and is considered a 'super user' of the supplier's navigation and liquid cargo handling simulation system for training and R&D applications. It also has robust relationships with Wärtsilä and MAN Diesel & Turbo, and is proud of its links to vessel operators in the US which have seized on the opportunities presented by investing in gas as a fuel, including Harvey Gulf International Marine and TOTE.

The regulatory regime around the use of LNG is still evolving, with the recent MSC 94 approval in principle of the draft International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code). Already, though early adopters of new fuels are aware of the lack of experience and adequate skills among those seafarers with immediate responsibility for LNG bunkering operations. Accordingly, ClassNK is taking the initiative.

Interview: Stewart Lee Road to growth in USA

Mr. Stewart Lee (right), Regional Manager of North and Central America, talks about ClassNK activities in America.

A year ago, ClassNK established a new management team in North America where you have been appointed as first non-Japanese Regional Manager of North and Central Americas. What does this mean in terms of ClassNK's evolution to becoming a more global organization?

Put simply in one sentence, this change is aligned with the process of Globalization. Globalization does not mean only setting up a global network and broadening its pursuit of international business, it involves a paradigm shift in our thinking. As I mentioned in my inauguration speech, today we live in a world where even a stone mason in a remote town cannot run his business without Internet support. In that sense, in giving me this opportunity, ClassNK's top management is effectively internationalizing its codes of practice.

The New York Office was the first office being established in North America. Can you describe its functions and connection with the network of offices opened by ClassNK throughout the region in the past 50 years?

The New York Office opened in Manhattan with one surveyor in 1962 and then the New Orleans Office opened in 1978 as the second office in North America. As the third one in North America and the first on the West Coast, the Seattle Office was opened by Mr. Ueda, current ClassNK Chairman and President, in 1980. This was followed by Los Angeles in 1981, Houston in 1982, Vancouver 1995, Norfolk in 2000, Montreal in 2001 and Miami in 2005. For Central America, the Panama Office was opened in 1986, followed by Veracruz in 2004 and Guayaquil in 2006.

Currently we have 12 offices in the North and Central America region and we keep expanding. The New York office is now a Regional Office that controls all service and business activities in the area.



In our region, we work with two subsidiary companies, namely, SMS LLC, acquired by ClassNK in 2013 and Helm Operations acquired in 2014. Their operation is independent from our region, but we still cooperate with each other in some business areas.

What opportunities does the North American market open to the Society at the moment and what are the challenges in this region?

At the moment, there are two major market opportunities in the area, both of which have required a period of preparation on the part of ClassNK. Those are the brown water business in the US and the Canadian small ship market.

Latest news suggests that the 46CFR Subchapter M (TSMS) will gain US Congress approval this year. ClassNK has been preparing for Brown Water Business for a long time and has developed a business strategy and plans to respond to the Towing Vessels market opening in the US.

ClassNK also received authorization from the Canadian Government (Transport Canada) to carry out statutory surveys on Canadian-flagged vessels on behalf of the Canadian government last year. Transport Canada is planning to open their small ship market to ROs (Recognized Organizations).

Regionally, ClassNK is also rising to other challenges presented by offshore-related markets, including shale gas-related, wind turbines, etc.

How does ClassNK as a classification society see its role in this area?

The ClassNK name is certainly becoming a 'go-to' brand across the industry here. Recent activities have included discussions with a New York harbor ferry operator on ClassNK's ISM services, and with a towing company on general service capabilities; these are two opportunities we would not have expected, even a few years ago.

I am confident that ClassNK will perform a major role in the North American industry in the near future.

Can you describe ClassNK's main activities in the region and what operations you aim to improve in the years to come?

ClassNK's main activities in our region focus on customer services, surveying, auditing and inspection, as well as business promotion. As Regional Manager it is my responsibility to ensure that these activities continue to be carried out to our high standards.

In terms of customer service, we are concentrating on securing the human resources that will match our quality standards and broaden our network. We also intend to expand ClassNK Technical Seminar and ClassNK Academy activities within the region.

“ **The ClassNK name is certainly becoming a 'go-to' brand across the industry here** ”

What was the impact of the SMS LLC acquisition and the benefits of this new partnership for your clients as well as the whole US maritime sector?

SMS LLC is a strategic acquisition, given the range of consultative services it offers to the maritime sector, and working in close cooperation will be mutually beneficial not only for us but for owners and operators throughout the region. Part of that strategy is to maintain its independence as we need to uphold

the separation of our services within all market sectors. We will not suggest to anyone that if they use SMS for their consulting work they must use ClassNK for third-party survey and certification services and vice versa.

In 2014, ClassNK registered its first US flagged vessel, the SLNC pax, a 7,985 dwt oil/chemical tanker owned by Schuyler Line Navigation Company. How is the Society now planning to increase its support for domestic and regional owners?

After the first US-flagged ship, we registered a second ship last year too. Currently, ClassNK is in a probationary period with ACP, with the expectation being that we will be fully 'approved' by the USCG in early 2016. Local owners of U.S. flagged ships have come to see that ClassNK is offering the same high quality services here in America as it does across the globe.

The appointment of a General Manager for the Survey Operations Headquarters stationed in New York is the most tangible example of our commitment to enhance support for domestic and regional owners.

ClassNK's commitment to R&D is renowned. Recently, the Society has teamed up with the United States Maritime Resource Center (USMRC) to cooperate on LNG bunkering training and other R&D projects. How important is the research and the development of the human capital in the North American market?

Using LNG as a ship fuel is an established trend the world over, but its uptake has been especially marked in North America, where LNG bunkering and associated training should now be somewhat of a matter of routine for seafarers. ClassNK's recently announced partnership with USMRC extends across LNG, Offshore, Cybersecurity and other R&D projects. This partnership will help secure an even higher level of safety and pave the way for even greater opportunities for the maritime industry.

In terms of outlining our objectives for this relationship, I can do no better than quote ClassNK Executive Vice President Koichi Fujiwara who, on signing the agreement, said: "Our goal is to support the safety of ships not only from the technological point of view, but also from the human factor perspective. The need for qualified seafarers who are familiar with the latest maritime technology is essential for sustainable development of the shipping industry."

Interview: Seiichi Gyobu Surveying operations



Mr. Seiichi Gyobu (above), Representative for Survey Operations Headquarters in New York, examines ClassNK survey operations in America.

What survey operations are undertaken by ClassNK in the North American region?

ClassNK's survey offices in the North America offer a wide range of services, including periodical ship surveys of ships, occasional surveys such as those related to Port State Control, ISM, ISPS audits and MLC inspections, surveys for materials and service suppliers, classification surveys of existing ships, etc. However, we also take responsibility for the South American region, where ClassNK survey offices oversee many classification surveys of newbuildings. As representative for the Survey Oper-

ations Headquarters in New York, residents in North America and South America also fall under my responsibility.

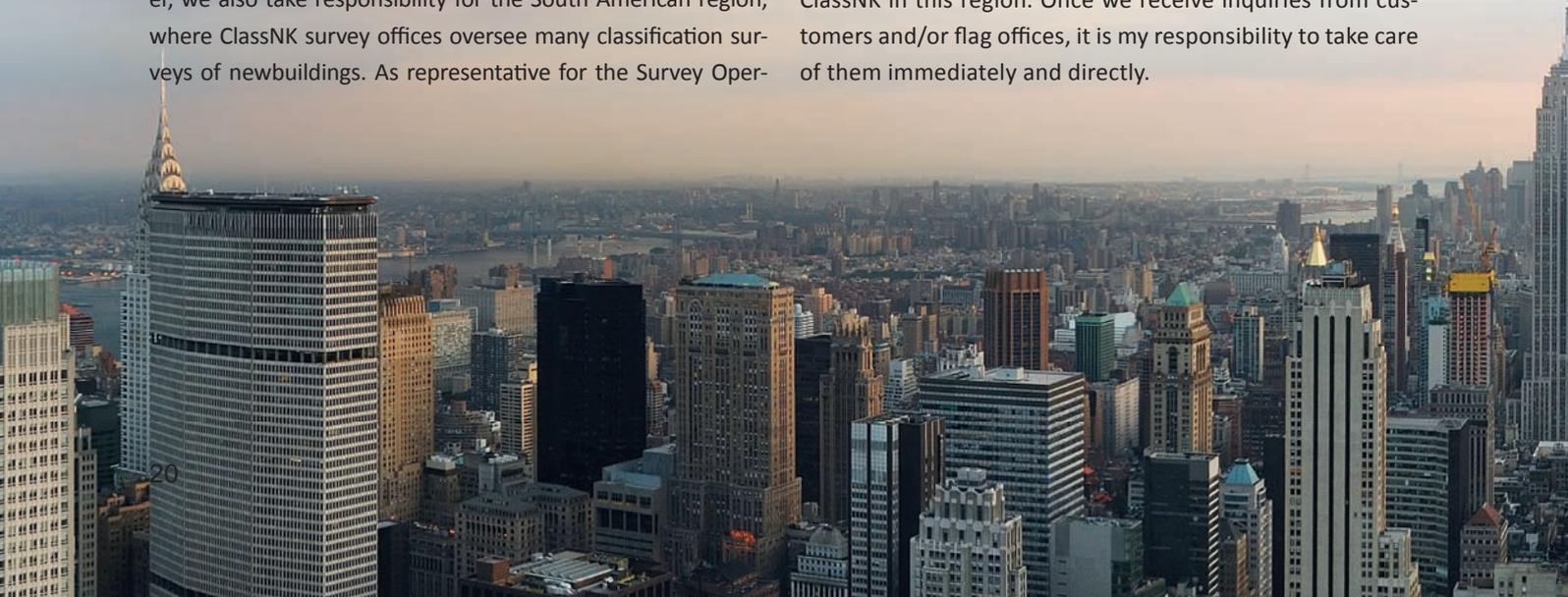
Mr. Gyobu, last year you took the newly established role of Survey Department General Manager resident in North America. This was the first time that high level survey management functions have been placed in North America. Can you explain why in this specific region?

A few key reasons led ClassNK to establish new high level survey management functions in New York. The main one was the improvement and enhancement of our survey activities and customer services in this region.

The Survey Operations Headquarters has its main office in Tokyo, Japan. Last year we established two overseas representative offices, one in New York and the other in Hamburg, each of which has its own General Manager. The purpose is to achieve worldwide and seamless coverage of all survey inquiries on a 24-hour basis, and assist our customers and surveyors as quickly as possible in each time zone.

While my main territory is North, Central and South America, many ports do not sleep and accidents do not wait for us. Therefore, I sometimes offer cover for other time zones - when it is night in Tokyo and Hamburg, for example.

The other reason is the improvement and enhancement of more direct and closer communications with our current customers, potential customers, flag state offices and ClassNK in this region. Once we receive inquiries from customers and/or flag offices, it is my responsibility to take care of them immediately and directly.



How has the expansion of ClassNK Survey Department into a new Survey Operations Headquarters in North America enhanced the survey operations taking place in the region?

Both I and my counterpart in Hamburg are fully authorized by our Head Office in Tokyo, performing the same functions and following the same decision-making process. Therefore, we can quickly manage all inquiries and it is now much easier for us to communicate in real time with our customers and/or our surveyors not only by email or over the phone, but face to face, to give them advice/instructions and address ongoing issues.

What are the areas of responsibility, staffing, technical capability and specialization of the Survey Operations Headquarters in New York?

Having the same functions and responsibilities as those in Head Office, I manage matters concerning the control and supervision of ship surveys, the implementation of countermeasures against ship casualties and damages, and other issues directly. However, gathering and analyzing information relating to Port State Control, the assessment and approval of manufacturers and/or service suppliers and the establishment/publications of instruction/information are all managed by Head Office because these issues are better handled by one office only, mainly for administrative reasons.

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At ClassNK we are proud of our excellent services and are pleased to develop new relationships with new potential customers in the area
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The Survey Operations Headquarters in New York is physically a ‘one man office’ and I personally have expertise in all kinds of ships’ surveys, particularly on gas carriers, chemical and oil tankers. It is therefore very important that we maintain strong links with our Tokyo and Hamburg offices and manage all requested matters using the same procedures and interpretations. This means that the Survey Operations Headquarters in New York effectively functions as part of the Survey Operations Headquarters.

The new approach has proved beneficial since start up in April 2014, although we are always ready to receive feedback and to enhance user-friendliness for our customers and surveyors.

What sectors has ClassNK extended its operations in following the expanded authorization from the United States Coast Guard (USCG) to carry out a full range of surveys for the SOLAS, MARPOL and ISM among other conventions?

In addition to the authorization from USCG, ClassNK has been recently authorized by the Canadian Government to carry out surveys on Canadian-flagged ships.

There are many owners in North America who operate US and Canadian-flagged ships which trade inland as well as internationally. ClassNK has never had the opportunity to approach these owners before, but now that our services can be considered for all vessels trading, including lakers, we are seeing a gradual increase in business throughout the region. At ClassNK we are proud of our excellent services and are pleased to enhance our excellent relationships with current customers further and develop new relationships with new potential customers in the area.

As Representative for Survey Operations Headquarters in New York, I am always pleased to receive inquiries from customers; after all this is the reason why I have been appointed here in New York.



Stay calm and change where needed

With the US towing industry awaiting finalization of new 'Subchapter M' rules covering vessel safety, Safety Management Systems LLC offers a guide to a stress-free transition.

New safety regulations governing the inspection, standards, and safety management systems of towing vessels operating around the US are now expected to be finalized in August 2015, according to latest US Coast Guard information.

The new regulations will not only set out requirements for electrical systems and machinery but also sanction the use of third-party auditors and surveyors for approvals, and procedures for obtaining Certificates of Inspection.

The Coast Guard accepts that there will be additional costs for the industry as part of the new regime. However, such is the importance of the inland waterway network to the US, it has also calculated the increase in vessel safety will yield annualized benefits of \$28.5 million to the wider community.

This is a profound change for an industry that, to date has been self-regulating. However, it should be noted that the industry itself has been seeking regulatory clarity, mostly through the efforts of its largest advocacy group, the American Waterways Operators (AWO). Therefore, the new rules are being allowed a judicious bedding-in period. After publication of the final rule, owners will have two years to implement the required safety management system, and additional time to demonstrate full compliance with all provisions. In anticipation, ClassNK has gone through a period of preparation to meet these requirements, including a strategic expansion of its US activities and the acquisition of key expertise.

US-based Safety Management Systems LLC, acquired by ClassNK in 2014, is perhaps the most clearly defined example of this strategy. Its breadth of experience in advising US owners on safety management and its longstanding consultative oversight of effective compliance bring new focus to the Society's service portfolio. The company's client base includes coast-wise, harbor-assist, inland and harbor tug operators.

SMS Director Bill Mahoney says: "Our initial task is to help customers assess their current arrangements. It's important to stress that their existing safety management systems will meet some, and may meet all of the new requirements. Operators typically have more sensible guidance available in-house than they may realize. Sometimes, our task can be to uncover it."

Achieving openness and transparency can be challenging, Mr. Mahoney says, but pay demonstrable dividends in the long term. "As far as Subchapter M is concerned, one of the first things we'll be doing is engaging in a frank assessment of operators' current management controls versus the regulatory standards. This is normally the starting point for our longer term relationship with a client."



Bill Mahoney

Structured and transparent approaches to safety management are advantageous for any size and type of vessel operator, Mr. Mahoney points out. "We don't tell operators how to run their business, we let them do that while we help establish the controls and mechanisms to keep everything functioning in a way that leads to performance improvements over time. A structured approach to safety management results in fewer issues with regulatory inspections and other oversight because best practice can be demonstrated on a consistent basis. A key part of our job will be to assist in developing the records, or auditing the recording systems that show operators have done what they said they would do, and that such arrangements are repeatable."

Another objective will be that such arrangements can be used across a range of company cultures. "As well as helping to develop documentation, our role will be to offer training and coaching that is customizable for each operator.

"We are working with ClassNK to align our services geographically to our shared benefit," he says. "We are currently focused on New Orleans and intend to support operations serving the Gulf and Mississippi by the close of Q1 2015. However, we are assessing other ClassNK locations within the US and considering how ClassNK might be involved in the training part of our business.

"It's regulation that affords you time to implement your compliance strategy. Our experience is in working with clients to establish sustainable and practicable management system requirements, and now is the time to make ready. But there is certainly no need to panic."

ClassNK events in 2015

- ◆ **CMA SHIPPING, STAMFORD, USA, 23RD - 25TH MARCH**
Please visit ClassNK at booth 101 - 102
- ◆ **PANAMA MARITIME, PANAMA, 12TH - 15TH APRIL**
Please visit ClassNK at booth 62
- ◆ **SEA ASIA, SINGAPORE, 21ST -23RD APRIL**
Please visit ClassNK at booth B2 - E21
- ◆ **OFFSHORE TECHNOLOGY CONFERENCE, HOUSTON, USA, 4TH - 7TH MAY**
Please visit ClassNK at booth 11006
- ◆ **BARI-SHIP, IMABARI, JAPAN, 21ST - 23RD MAY**
Please visit ClassNK at booth A-06
- ◆ **NOR-SHIPPING, OSLO, NORWAY, 2ND - 5TH JUNE**
Please visit ClassNK at booth B03-08
- ◆ **INLAND MARINE EXPO, ST. LOUIS, USA, 15TH - 17TH JUNE**
Please visit ClassNK at booth 240

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As the world's economy grows and changes, the maritime industry is faced with ever greater challenges. With roughly 20% of the world's merchant fleet under class, we understand the requirements for the future of safe shipping, and we're working to develop new tools and technologies to meet the changing needs of the maritime industry. Learn more about our efforts to advance maritime safety and protect the marine environment at www.classnk.com

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