

# ClassNK

MAGAZINE

65TH EDITION

- *Ice breaking research with Japan Marine United*
- *Gearbulk's Sjur Gjerde puts faith in ClassNK*
- *Seafarer training and a crucial new service*
- *Northern Sea Route possibilities for Tschudi*



# *committed to maritime*



***With almost 1,000 vessels and more than 25 million gross tons joining the ClassNK register last year, ClassNK once again confirmed its status as the world's leading society.***

In welcoming you to the 65<sup>th</sup> edition of our customer magazine, it is right to acknowledge that our position as the world's leading society is likely to change, at least in the short term, when the merger between Germanischer Lloyd and Det Norske Veritas is completed. With developments such as this, in addition to market fluctuations and tightening international conventions, the maritime industry is constantly changing, but our purpose remains firm. We intend to meet these challenges in a robust manner through our total commitment to the maritime industry, focusing on technology and service.

These have always been ClassNK's key strengths and our focus will remain on providing an excellent classification service in the markets we serve. We will go on dedicating our resources to the industry and putting considerable effort into research and development related to maritime.

We firmly believe that reinforced research and development will allow us to contribute to maritime on a world scale. A particularly relevant example of this is our joint research with Japan Marine United into the ice breaking capabilities and design of Arctic offshore supply vessels.

ClassNK is headquartered in Tokyo and our growth has come not through pursuits limited to local areas but through efforts centred on the Asian maritime industry. Global expansion has also allowed us to make Europe and the Americas high priority markets for our services.

We are authorized to perform surveys and audits on vessels on behalf of 108 flag administrations throughout the world. Of these, 15 flag administrations belong to the European Union.

German owners have recognised our efforts in the region and in the past few years the rate of transfer to ClassNK by German owners has increased dramatically. In Febru-

ary we secured authorization from BG Verkehr to carry out surveys on behalf of the German government. In addition, we stationed a head office manager from our Survey Department in Germany to expedite decision making.

We have also earned authorization from the Romanian Naval Authority to carry out surveys on behalf of the Romanian government. This allows us to improve even further our services in the European Union.

In North America we have earned expanded authorization, allowing us to perform nearly every type of representative survey for American flagged ships and putting us in a position to expand our operations to include coastal, Gulf, and inland shipping. We have also acquired Safety Management Systems LLC, one of the United States' top safety management consulting firms.

“ *We will go on putting considerable effort into research and development* ”

We are dedicated to providing even higher quality services to clients not only in Asia, Europe, and North America but throughout the world, as evinced by our offices in South America, Africa, and other locations. Against an ever-changing backdrop, we will continue to contribute to the maritime industry by engaging in research and development and supporting increasingly strict international conventions.

The following articles introduce the efforts we are undertaking to accomplish this and further improve our services. Thank you very much for your constant support, without which none of these endeavours would be possible. I hope you enjoy this edition of ClassNK Magazine.

***Noboru Ueda***  
***Chairman and President of ClassNK***



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# ClassNK

The image features a large, blue industrial valve in the foreground, heavily covered in snow. The valve has a circular face with a central opening and several smaller ports. In the background, a complex metal structure, possibly a ship's deck or a large industrial facility, is visible, also partially covered in snow. The lighting is bright, suggesting a sunny day, and the overall scene is set in a cold, snowy environment.

# *breaking new ground*

*In decades to come major shipping operations in the Arctic region will be undertaken by “newcomers” who will not necessarily have the experience or expertise for ice and cold water operations or perhaps even the specialist vessels required to support their activities.*

As demand increases for LNG and other fuels and the development of natural resources accelerates in the Arctic, operators are being pushed towards even harsher ice fields including the Kara Sea and Baffin Bay. The development of offshore support vessels (OSVs) with high ice breaking capability and high manoeuvrability in ice is becoming a pressing issue.

ClassNK and Japan Marine United (JMU), the entity established in January 2013 through the management integration of IHI Marine United and Universal Shipbuilding, are seeking to provide industry with answers by cooperating in a ground-breaking study analysing the capabilities, efficiency and future design of OSVs operating in ice-covered waters.

The main purpose of the study is to research the expected performance of future ice breaking OSVs and their design, principally hull form and propulsion.

The main particulars of the prototype vessels used in the study include overall length of approximately 96m, maximum breadth of around 21.3m and draft (design) of 8m with two azimuth propellers and continuous ice breaking capability of 1.7m at three knots.

*ClassNK has paid particular attention to future Asian country requirements by preparing a guideline to Arctic Shipping particularly for seafarers born in those countries*

JMU and ClassNK have carried out the ice tank tests with the three prototype vessels and three propulsors in JMU's Ice Model Basin, which comprises a main tank of 20m x 6m and depth of 1.8m and a trimming tank of 7m x 4m with similar depth. The models for the ice tank tests, on a scale of 1/20 had V-frame bow, Spoon bow and their intermediate bow. The kinds of the ice model tests were ice resistance tests in level ice and ramming tests in rubbles, propulsion tests in level ice, initial turning tests in level ice and ice clearing tests in rubbles.

The ice tank tests for the three bow and two astern shapes were based on the given criteria because their results showed the course of actual design for next-generation ice breaking OSVs and the results of the study indicate:

- Estimated total resistance in level ice
- Estimated ramming performance in rubbles (thickness about 3.8m)
- Estimated continuous ice breaking power
- Estimated turning radius in level ice (with azimuth angle change of 20 degrees, 30 degrees and 40 degrees)
- Estimated turning radius in level ice (comparison of bow types)
- Clearing ice rubble (thickness about 3.8m, total power about 7 megawatts and azimuth angle of +/- 90 degrees)
- Channel widening in rubbles (thickness about 3.2m, total power about 8 megawatts and vessel speed about one knot)

Both JMU and ClassNK have considerable experience in the design and construction of ice class vessels. The

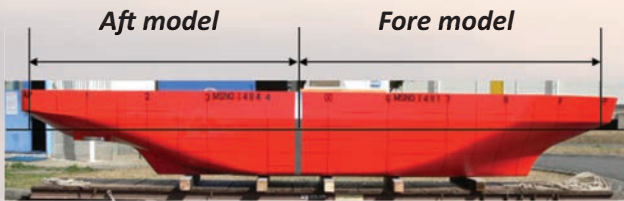


Society's list of references includes the Japanese flag, 73,640dwt LNG carrier *Energy Navigator*, built in 2008 and the 43,732dwt Hong Kong flag handymax bulk carrier *Nordic Barents*, built in 1995, the first non-Russian vessel to transit the Northern Sea Route in September 2010. Special purpose vessels classed by NK include the 27,161dwt Japanese flag drillship/research vessel *Chikyu*, built in 2005 and the 3,363dwt Japanese flag research survey vessel *Hakurei*, built in 2012.

JMU has substantial experience in constructing icebreakers and high ice class vessels in Japan. *Umiak I*, built in 2006 and the most powerful ice breaking bulk carrier in the world, and *Shirase II*, constructed in 2009 and a Japanese Antarctic transportation/observation vessel are their representative icebreakers. The sister vessel of *Umiak I* is being keel-laid this year.

ClassNK's rules for polar class ships and ice class vessels are based on the International Association of Classification Societies (IACS) UR1 series polar class and Finnish-Swedish ice class rules. The Society published *Guidelines for Navigating Ice Covered Seas in Russian Territorial Waters* in October 2009 and it is currently updating the guide for the entire Arctic region with the inclusion of hardware and software guidance for "new entrants" into Arctic waters.

*The research will provide data on the expected performance of next generation ice breaking OSVs*



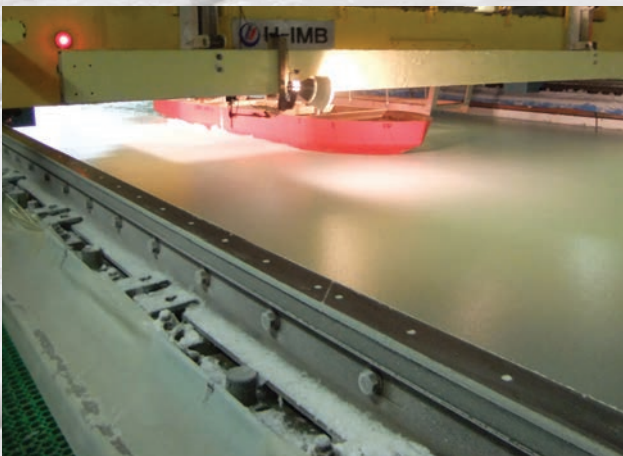
**V-frame bow**



**Spoon bow**



**Intermediate bow**



**One of three hull forms tank-tested**

The second guideline will cater mainly for the immediate needs of the “newcomers” by seeking to maintain and promote safe and eco-friendly shipping in the region. The second set will be based on the International Maritime Organization (IMO) Code and IACS Regulations and will also introduce latest research and development information.

With regard to operations, the guidelines will cover activities in the Arctic and in ice-infested waters with the aim of preventing human error, maintaining on-deck working, sustaining crew health, preventing pollution and preserving the environment. They will also address issues relating to training and the use of training manuals.

In addition to its support for Japanese industry interests in the Arctic, ClassNK has paid particular attention to the future requirements of Asian countries by preparing a guideline to Arctic Shipping particularly for seafarers born in those countries.

The guideline covers hardware, based on the IMO Code and IACS regulations and introduces latest research and development and software, with reference to operations in the Arctic and “ice-infested” waters with the intention of preventing human error, maintaining work on deck, sustaining crew health, preventing any pollution and preserving the environment.

The research will provide data on the expected performance of next generation ice breaking OSVs and on future design, mainly hull form and the type of propulsion.

\* JMU is capitalised with ¥25bn (\$287.3m) and is seeking to provide a range of high value-added vessels with innovations in fuel-saving technology, according to JMU president Shinjiro Mishima. IHI, the Japanese industrial giant that owned the whole of IHI Marine United, and JFE, the parent of Universal Shipbuilding, each hold 45.9% of JMU. Universal Shipbuilding’s minority shareholder Hitachi Zosen holds the remaining 8.2% stake.

# special attention for Gearbulk

*Sjur Gjerde, Managing Director Gearbulk Norway, explains the shipowner's thinking in transferring nine vessels to ClassNK following a full review of its class arrangements.*

Last year Gearbulk, the world's largest operator of open hatch gantry crane ships, undertook a full review of its class arrangements, inviting tenders from six of the leading classification societies in the world. The owner prides itself on the attention it pays to ship design in meeting and anticipating market needs, and also the close working relationship that such an approach entails.

Following the review, Gearbulk transferred nine of its existing fleet of around 50 vessels to ClassNK, as well as two newbuildings due for delivery in 2014.

“ClassNK has our niche ‘ladies’”

“There are a lot of practical requirements involved in such a decision,” says Sjur Gjerde, Managing Director, Gearbulk Norway. “The industry has moved on from the situation that we saw in the 1990s when owners ‘shopped’ for class. Changing class may involve strict entry surveys for the vessels, new certificates and documents must be issued, potentially

vessels may be off hired, etcetera. As an owner we have a long term view in the way we operate and maintain our fleet so a decision to change class is not taken lightly.”

Mr Gjerde says Gearbulk entered the review process because “we wanted to see what was out there after a long period where our class partners had been the same.” While the main part of the Gearbulk fleet remained within existing arrangements, Mr Gjerde says that Gearbulk had been introduced to ClassNK in 2011. “We took over ownership of the ship *Bulk Jupiter*, which was classed with ClassNK. We decided to stay with them as we were most satisfied with our experience with ClassNK on that ship.

“We began to see the way their position globally matched our trades, and how the staff in their support network and at their service stations could attend to our main ports at short notice via their service network rather than having to fly back and forward. We were also impressed by their commitment to research and development and their participation in joint industry projects.”

ClassNK's ability to back up research work on reducing fuel consumption with real towing tank test data proved of particular interest to Gearbulk, which is in the midst of setting up its own fleet performance department.

Gearbulk has worked with ClassNK on the conversion of the open hatch carrier *Kumul Arrow* into a transhipment vessel to be stationed in Papua New Guinea. The six to eight week conversion required the extension of two gantry cranes on one side of the vessel, with a telescopic belt conveyor installed on the other side.

The project proved to be an encouraging experience in terms of the ‘special ships’ Gearbulk owns and operate. The eight ships subsequently transferred to ClassNK include some of shipowner's ‘niche units’, designed to meet specific market needs.

“We have developed a number of ‘niche-type’ vessels to build on the core trades where we are active and it is fair to say that ClassNK has our niche ‘ladies’,” says Mr Gjerde. Typical is *Harefield* (41,000dwt), a general cargo vessel that carries



dry cargoes but which also features orange juice tanks for the South America/North Atlantic trade. *Tern Arrow* (41,000dwt) and *Hawk Arrow* (28,000dwt) are also special ships, in that they are capable of carrying liquid pitch. This means that their tanks need to be able to accommodate cargoes heated to 200°C.

*Jaeger Arrow*, meanwhile, was described by Mr Gjerde as a “one of a kind” ship. Not only is this 47,000dwt open hatch gantry crane vessel able to transport liquid pitch; she features a unique ‘garage’ over the entire cargo area to allow for totally enclosed cargo operation.

The long term nature of the relationship is further solidified by inclusion of four 63,000dwt ‘Fleximax II Eco’ newbuilds being built in Japan.

“Gearbulk’s strong and long term relationships with newbuilding yards in Japan and specifically Mitsui Engineering & Shipbuilding and Oshima Shipbuilding, was also a factor in our thinking,” says Mr Gjerde. “We know that we can build the type of vessel we need in Japan at the quality we want, delivered on time. It made

sense that we worked with ClassNK for some of our newbuildings.”

But if newbuilding and conversion projects touch aspects of the relationship between owner and class, it is only by working together day in day out that true partnership can be established. At a time when the Maritime Labour Convention is shortly due into force, a close relationship with class is all the more critical, Mr Gjerde says. “Implementation of the new MLC is a huge task and class approvals are central to it. Whether training is carried out onshore or onboard ship, and whether it is done via a direct trainer to trainee relationship or via computer-based training, everything must be audited by class. This was one of the first matters we addressed with ClassNK’s full management team during our meetings last year.”

Energy efficiency for working ships is also high on the agenda at Gearbulk. “We are focusing on measuring actual vessel performance in operation, including factors such as whether a ship is loaded optimally, the trim, the fouling status of the hull,” says Mr Gjerde. “Onboard measuring equipment provides real time data which is sent

ashore and analysed. This information will help us to manage operations on a daily basis. There needs to be a close interaction with class to develop new ways of measuring reductions in friction, for example, and how that influences fuel consumption.

“We are aware of the specific development work NK is doing here and we aim to be in a position to be sitting alongside them as part of a collective effort to ensure that shipping is greener.”

Class will also play a role in making sure that ships fuelled by liquefied natural gas become a reality, rather than remaining a pipedream. “We believe that LNG will be viable as a fuel for deepsea vessels, even if that is still a few years ahead.

“The lack of bunkering infrastructure is an obstacle but it is not a showstopper. A bigger hurdle is the need for shipyards to develop viable commercial designs for the market - something we have not come close to so far. Owners, yards and class must work together to monitor design proposals every step of the way, with owner offering feedback so that we develop designs that we can build a business case upon, not concepts.”

Ahead of entry into force, Gearbulk has also been taking forward ballast water management technology, with systems from three makers installed on different newbuild projects. Here again, Mr Gjerde says, the role of class will be pivotal. “The industry faces a number of open-ended questions on BWT, including the sampling procedures used by Port States. This is a live debate at the IMO and one of the key sources of information is ClassNK.”



# under scrutiny



*The entry into force in January 2012 of the Manila Amendments to the Standards for Training, Certification and Watchkeeping for Seafarers (STCW) Convention has brought new requirements for Electronic Chart Display and Information System (ECDIS), Bridge Resource Management and Engine Room Resource Management.*

The requirements have placed greater emphasis on the quality and availability of seafarer training and how this benefits operators, safe and efficient operation and the environment.

ClassNK is meeting ever increasing needs for high quality seafarers by providing certification for maritime simulators and training programmes offered by maritime training centres and other institutions, based on standards including International Maritime Organization model courses.

The Society has also initiated a training course to develop skilled instructors capable of educating trainees in a wide range of maritime professions. In particular, the ClassNK initiatives address the issues of increasing regulation on seafarer training with regard to the wider use of technology including ECDIS.

ClassNK offers a variety of educational and training programmes to the global maritime community through its extensive expertise, experience and technical knowledge.



## *Why did ClassNK launch its seafarer education and training certification operations?*

The maritime industry is calling for accountability when it comes to the training of seafarers. Members of the industry want to know what standards seafarer education and training are based on, what kind of training equipment is being used and the qualifications the instructors have.

One way of fulfilling this need for accountability is certification through a third party. Major oil companies, cargo owners, and flag states all put considerable emphasis on such certification. In spite of this need, there has historically been a distinct lack of third party organizations with the expertise to grant maritime education and training certification, especially in Asia.

## *ClassNK Executive Vice President Koichi Fujiwara answers key questions*

In addition, there is extremely high demand for a 'one-stop service' that can certify both quality management systems that follow ISO9001 standards (as required for seafarer education and training institutions by the STCW Convention), as well as education and training. ClassNK was uniquely equipped to respond to this industry need, which led to our entry into certification.

### *Specifically, what kind of evaluations do you conduct?*

First of all, the quality management systems required by the STCW Convention for each maritime education and training institution are a necessity for ClassNK certification as well. As ISO9001 acquisition is generally a requirement, our Society performs this type of certification, which continues to be extremely well-received by the industry.

These include training programmes carried out at the request of the Japanese government, flag and port administrations, technical seminars and ClassNK Academy programmes.

The Society organises technical seminars around the world to analyse technical and statutory issues, with leading ClassNK executives and research experts taking an important role in each event. The Academy, established in 2009, provides maritime industry newcomers with a working knowledge of shipping and shipbuilding, focusing on surveys and other inspection procedures.

Under its PrimeManagement banner, ClassNK is offering services such as *Certification of Maritime Education and Training* and *NK Training Course for Maritime Instructors*. In the former category, the courses that can be certified include education and training in accordance with IMO courses, in-house training, management/leadership training, technical training, safety and security training, onboard training, simulator certification and training for instructors.

The various services, available around the world through the Society's network of more than 120 offices, enhance competitive advantage in the global education and training market by improving educational standards including teaching quality. They also demonstrate a company or institution's quality to international conventions and underscore to clients an ability to meet all requirements.

We provide certification for the three main elements of seafarer education and training: instructors, training equipment such as maritime simulators, and training programmes. Our assessments are comprised of both a document review and an on-site assessment and are led by ClassNK assessors experienced in seafaring.

The validity period of our certifications is three years – the same as ISO Certification – and by linking evaluation for quality management systems and education and training programs, we have greatly improved the convenience for our clients.

### ***How do you plan to promote seafarer education and training certification in the future?***

Seafarer education and training will need to address two crucial issues in the future.

The first issue is that the expansion of the world's merchant fleet will bring about an increase in the need for

Any kind of maritime education and training course can be certified as an integrated whole or in part, including course programmes, equipment including maritime simulators and other elements on request.

## ***ClassNK offers a variety of educational and training programmes to the global maritime community***

The Training Course for Maritime Instructors is designed to produce skilled instructors who ensure trainees gain the most benefit and realise full potential at a time when the introduction of new training technology and instructional media is changing the teaching skills necessary for effective training.

The course covers the IMO model course 6.09 Training Course for Instructors with an emphasis on practical exercises and also introduces quality management of maritime education and training.

Key elements include understanding the STCW Convention, creating an effective teaching environment, using teaching methods and appropriate training aids to full effect, technical training, producing a relevant lesson plan, evaluating teaching and learning, designing a course of study and quality management.

high-quality seafarers. This means an increase in the number of countries that provide these seafarers. However, countries that are just beginning to supply seafarers lack the instructors, training equipment and current information necessary for seafarer education and training. In order to produce high-quality seafarers, these countries must furnish an infrastructure with these elements and adhere to international standards.

The second issue is that the STCW Convention will continue to provide technical, safety-related, and environmental challenges to seafarer education and training institutions, not only in countries that are developing providers of seafarers, but in those that have already developed as well.

We at ClassNK will provide our seafarer education and training certification services to institutions the world over to address these two issues and work toward the continued improvement of seafarer education and maritime training.

# industry partnership:

# TSCHUDI

**Global warming is making the Arctic Ocean more accessible for navigation and providing the maritime industry with the means to avoid using lengthy transits to East Asia.**

The Northern Sea Route (NSR) from Europe to Asia shortens the distance of traditional shipping links through the Suez Canal depending on destination. For instance, Rotterdam to Shanghai is 30% shorter, Rotterdam to Yokohama is 40% shorter and Kirkenes to Yokohama is 56% shorter.

The NSR has the potential to generate significant savings, with reduced fuel consumption, transportation time and CO<sub>2</sub> emission. It also “subtracts” the risk of piracy, according to Mikhail Belkin, assistant general manager of the Russian state-owned Rosatomflot icebreaking fleet.

Norway’s Tschudi Shipping Company seized the initiative in 2008 when, in collaboration with the Norwegian Ministry of Foreign Affairs, it established the international and independent non-profit Centre for High North Logistics (CHNL) as the preferred knowledge network for creating efficient and sustainable logistical solutions in the High North through research projects between business, academic institutions, organisations and public authorities.

A CHNL workshop in Kirkenes in April 2010, entitled *Opening the North Sea Route for bulk commodities*, attracted more than 25 stakeholders from Russia, Norway and elsewhere. This was the catalyst for the development of a strong partnership between Tschudi Shipping, Nordic Bulk Carriers, Prominvest, Sydvaranger Gruve and Rosatomflot to initiate the first truly international transit shipment through the Northern Sea Route – a non-Russian cargo carried on a non-Russian flag ship between two non-Russian ports.

In September that year the Tschudi Group initiated the

first non-Russian commercial shipment through the Arctic to China using the Hong Kong flag bulker *Nordic Barents* to transport 40,000 tons of iron ore from Kirkenes to China. The vessel left on September 4 and arrived on September 23, completing the voyage at an average speed of 12 knots.

Built in 1995, the 43,732dwt *Nordic Barents* is controlled by Nordic Bulk Carriers in Copenhagen and classed by ClassNK as Ice-Class 1a, the highest conventional ice class and until this year the minimum requirement for ice class required by Russian authorities for the transit. A select few bulk carriers of this size hold this highest conventional ice class.

According to Tschudi, the potential savings are too high to be ignored. Cargo destined from Kirkenes and Murmansk for Shanghai via the Suez Canal takes 37 days at a speed of 14 knots over a distance of 12,050 nautical miles. The NSR was estimated to reduce the distance to 6,670 nautical miles and a transit of 22 days at 12.9 knots, equating to a saving of 15 days. The estimate was made prior to actual journeys and it was then anticipated that the ice would reduce the speed through the NSR.

Recent experience shows that one may, in many instances, use the same speed for both options. Assuming a speed of 13 knots for both alternatives the difference in days will then be 18 days.

Cargo destined for Busan via the Suez Canal covers a distance of 12,400 nautical miles during a transit time of 38 days, also at 14 knots. The comparison with the NSR is particularly significant: the distance is cut to 6,220 nautical miles and 18 days are saved if the vessel travels at 12.9 knots during a 20-day transit, again assuming some ice. For Busan the difference is as high as 20.3 days if one assumes a speed of 13 knots for both alternatives.

For Kobe, the days saved are even greater. Transit via the Suez Canal takes 39 days with the vessel covering 12,730 nautical miles at 14 knots. Using the Northern Sea Route reduces the distance to 5,830 nautical miles and transit time to 19 days at a speed of 12.9 knots, producing a saving of 20 days and up to 21.3 days at 13 knots.

Tschudi believes the route will be navigable for approximately two to four months a year though the route was actually open for five months in 2012 due to favourable conditions.

The NSR shortens the distance to China by about one third, resulting in a significant reduction in fuel consumption and transportation time, and it also means much lower CO<sub>2</sub> emissions. A panamax bulker burns around 30 tons of fuel per day at current prices of around \$600 per ton and the daily bunker value saving is \$18,000. A trip cutting 20 days from transit would result in bunker cost savings of \$360,000.

Questions as to whether the NSR is ready for international commercial traffic include concerns over which operational requirements and additional apply, whether Russia will simplify the application regime and whether ice breaker fees will be open and standardised. The latest initiatives seen from Russian authorities in this respect indicate that there is a will and a way to facilitate increased use of the route. In 2012 46 vessels sailed through the NSR, a significant in-

crease on the 34 vessels in 2011 and substantially more than the four vessels which used the route in 2010.

Tschudi believes that the NSR is ready for use but that the commercial and international fleet and market are not. This will change with improved information and increased attention on opportunities in the high north. The company says there is a need for a larger ice class fleet, infrastructure, regulatory regimes and operational knowledge.

This will open up opportunities for greater use of the NSR for transits between Europe and the Far East, to the provision of improved logistics solutions to the northern regions and thereby contribute to a positive cross-regional development and co-operation across the borders in this region. The Arctic ice-free ports of northern Norway and Russia (Murmansk) will come to play an increasing importance in this context.

According to analysis by Tschudi, specialised Arctic shipping will in future be characterised by tankers, dry cargo, gas carriers and offshore vessels for Russian and international companies, feeder vessels for Russian river deltas and

project cargo. If this also is combined with an extended and improved rail road grid and energy grid it could open many opportunities for the existing population and potentially for new migrants to the northern regions as a whole.



***According to Tschudi, the potential savings are too high to be ignored. Last year 46 vessels sailed through the NSR***



# ClassNK news

## CLASSNK CONTINUES TO GROW IN GERMANY

ClassNK has been authorized by BG Verkehr, the notified body for German flagged vessels under the EU Maritime Equipment Directive (MED 96/98/EC), to carry out surveys on behalf of the German government. Dr Sergej Dalberg has taken on the role of General Manager of Hamburg Operations and the number of expert staff in ClassNK's Survey Department in Hamburg has been doubled to further support ClassNK's growing operations in the region.

## MYANMAR SURVEY AGREEMENT SIGNED

ClassNK has signed an agreement with the government of Myanmar granting the Society authorization to carry out statutory surveys on its behalf. Myanmar, a leading global supplier of seafarers, is one of the fastest growing economies in South East Asia and many Japanese businesses including major shipowners have expanded into the Myanmar market. In addition to this agreement, ClassNK has established its first exclusive survey office in Yangon.

## MINIMAL BALLAST WATER VLCC DESIGN

ClassNK has granted Approval in Principle to the Minimal Ballast Water Ship (MIBS) VLCC design developed by Namura Shipbuilding Co Ltd with the Shipbuilding Research Centre of Japan. Namura's new MIBS VLCC design addresses the financial and technical challenges of installing ballast water treatment systems through a new hull form. In normal ballast conditions, around 65% less ballast water is needed resulting in smaller ballast water treatment systems and reducing fuel consumption.

## ROMANIAN FLAG AUTHORIZATION

ClassNK has been authorized by the Romanian Naval Authority (RNA) to carry out surveys on behalf of the Romanian government. ClassNK Executive Vice President Takuya Yoneya visited Constantza in March and signed the agreement with Romanian Naval Authority General Director Andrian Mihei. ClassNK is now authorized to perform surveys and audits on behalf of 15 flag administrations in the EU and a total of 108 flag administrations throughout the world.

## EXPANDED AUTHORIZATION FROM US COAST GUARD

ClassNK has been granted expanded authorization from the US Coast Guard (USCG) and can carry out a full range of surveys for the SOLAS, MARPOL and AFS conventions as well as ISM audits on behalf of the US flag administration.

*Photo: ClassNK Executive Vice President Takuya Yoneya (left) with USCG Rear Admiral Joseph A. Servidio*



## MAJOR US ACQUISITION AND SERVICE INITIATIVE

ClassNK acquired Portland-headquartered US safety management consultancy, Safety Management Systems, LLC (SMSLLC) in March, signalling broader expansion into the US domestic and brown water shipping industries. SMSLLC subsequently won a contract from American River Transportation Company to assist the company in establishing a towing safety management system in accordance with pending US Coast Guard Subchapter M regulations.

*Photo: ClassNK Chairman and President Noboru Ueda seals the deal with SMSLLC director Bill Mahoney*



## CLASSNK-NAPA GREEN SCORES IMPORTANT 'FIRST' ON WAN HAI LINES' NEW CONTAINERSHIP



ClassNK and NAPA's ClassNK-NAPA GREEN ship efficiency software has been chosen by Taiwan's Wan Hai Lines for installation on its 4,680teu newbuilding Wan Hai 516. This is the first time that the operational optimisation and Ship Energy Efficiency Management Plan (SEEMP) solution has been installed commercially. The software system has been developed to help

owners and operators reduce fuel costs and CO<sub>2</sub> emissions and comply with IMO requirements which entered into force at the beginning of 2013. ClassNK, Executive Vice President Yasushi Nakamura said: "Owners today are facing the twin challenges of new regulations and rising fuel costs. As the world's largest classification society, it is our mission to help owners address these problems, and that is why we teamed up with NAPA to create ClassNK-NAPA GREEN."

*Photo: Jan Schauman, Vice President of Sales, NAPA; Yasushi Nakamura, Executive Vice President, ClassNK and Sanders Jong, Vice President Marine Division, Wan Hai Lines*

## NEWBUILDING AND CLASS TRANSFER RECORDS

ClassNK registered 964 vessels totalling 25.7 million gross tons in 2012, setting records for the number of vessels and total gross tonnage registered in a single year. This marked the tenth straight year that ClassNK has set a record in terms of total tonnage added to its register. The additions were driven by newbuilding registrations, coinciding with a peak in newbuilding deliveries worldwide.

# PrimeShip-HULL for Harmonised CSR

ClassNK has launched a significantly enhanced version of its PrimeShip-HULL (HCSR) ship design support software to coincide with the release of the second draft of the International Association of Classification Societies' (IACS) Harmonised Common Structural Rules for bulk carriers and oil tankers.

PrimeShip-HULL (HCSR) was initially released in July 2012 as the world's first design support software to incorporate the requirements of the new IACS rules. It greatly reduces the amount of man hours needed to handle the large number of complex Harmonised CSR calculations and it is seen to be a powerful tool for supporting the efficient design processes of Harmonised CSR vessels.

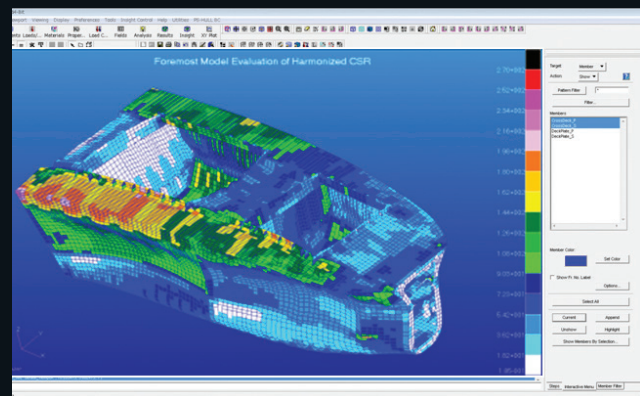
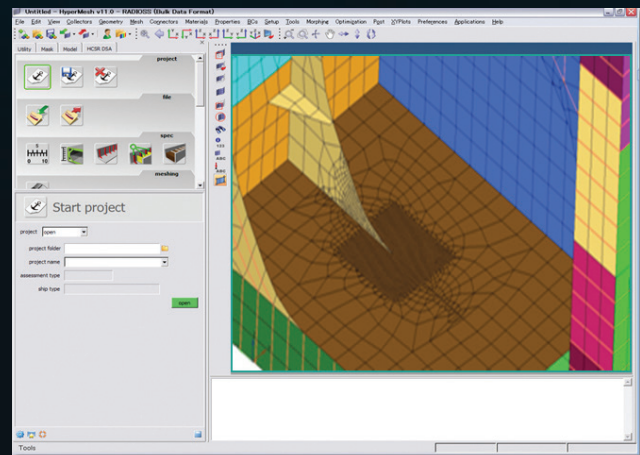
The new version incorporates changes and amendments in IACS' second draft and includes new and improved functions to help ship designers evaluate and implement the new standards. It includes new features to interface with and export Harmonised CSR calculations easily to commercial computer-aided design (CAD) software, among other features designed to cut the time required to carry out direct strength calculations of all the vessel's cargo holds as required by the Harmonised CSR.

It also includes functions to simplify the creation of detailed hull construction models, as well as more efficiently carry out rule calculations for the central section, the bow and aft portions of the vessel. New tools to generate evaluation reports automatically and other improvements to support functions have also been included to improve usability.

The new features have been developed based on feedback from Asia's leading shipyards and designers and ClassNK

is confident that the improvements will make it easier for ship designers to implement and evaluate the new rules and more efficiently design bulk carriers and oil tankers in accordance with the Harmonised CSR.

ClassNK is also confident that this software will become the industry standard once the Harmonised CSR comes into force. The implementation date of the Harmonised CSR is still being discussed by the IACS Council though it is believed it will be determined by the time the Harmonised CSR is adopted in December 2013.





## ***IACS Harmonised CSR and ClassNK software***

IACS has been working on Common Structural Rules (CSR) since 2003, when the International Maritime Organization (IMO) agreed to establish a new regulatory framework, Goal-Based new ship construction Standards (GBS), in response to major marine pollution casualties and the many bulk carrier casualties which had resulted in the deaths of a large number of seafarers.

### ***ClassNK took the lead in a project to harmonise the two sets of rules***

IACS decided to develop a set of CSR that would specify the comprehensive and uniform safety requirements for oil tankers and bulk carriers. The requirements would go even further than those specified in the conventional IACS Unified Requirements.

The two sets of rules for bulk carriers and double hull oil tankers were developed by two independent project teams, the Joint Bulker Project (JBP) and the Joint Tanker Project (JTP) and came into force in April 2006. As the leading society in the JBP, ClassNK played a major role in the development of CSR-B and IACS adopted the rules some 30 months later.

While the two CSR projects were progressing separately, ClassNK took the lead in a project to harmonise the two sets of rules but disagreements between the two project teams resulted in the postponement of the harmonisation of fundamental technical elements including loads, finite element analysis and fatigue.

Industry demand prompted IACS to restart the CSR Harmonisation Project in 2008 and the association also decided to make the Harmonised CSR compliant with the GBS functional requirements finally adopted by the IMO in 2010.

In principle, CSR harmonisation is nothing more than the harmonisation of common requirements between the two sets of

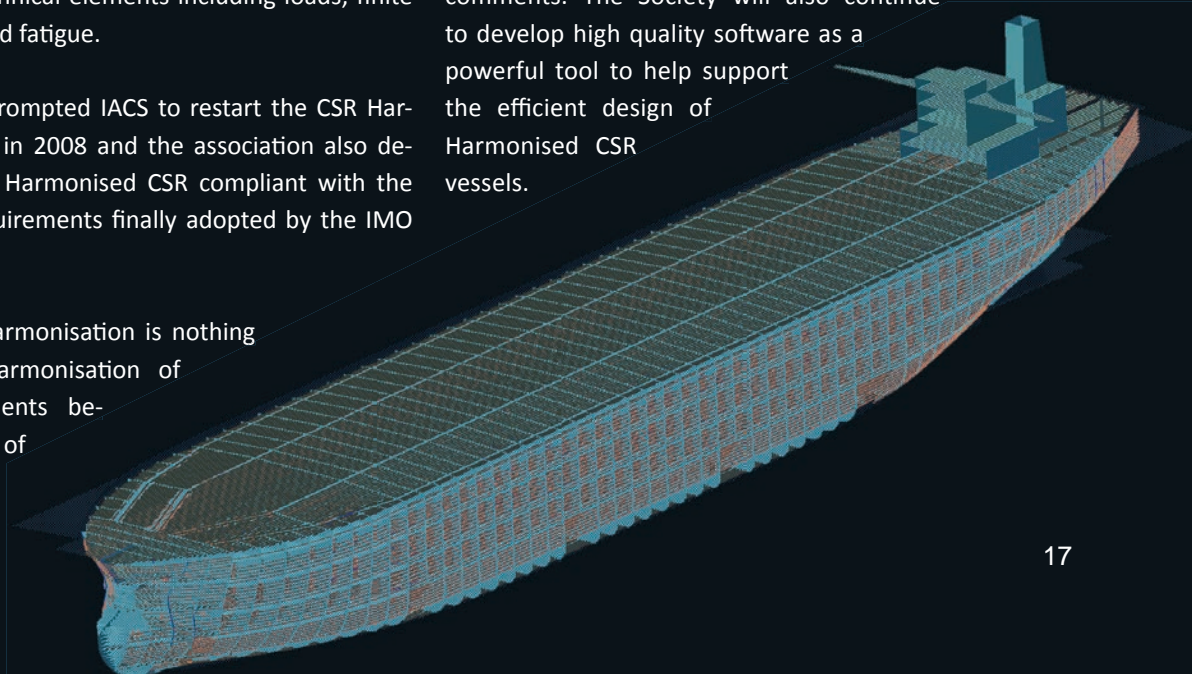
CSR, and it is not the development of new requirements. Thorough Consequence Assessments have been conducted to ensure that any necessary rule modifications that might be made would have minimal impact on the scantling compared with the design based on current CSR. Moreover, a sufficient amount of time has been set aside for an industry review of each respective draft to allow industry feedback to be sufficiently taken into account; this is in stark contrast to the approach followed during the development of the current CSR.

ClassNK has made many contributions to the harmonisation project and particularly with regard to the development of key technical elements for hull structural requirements including loads, finite element analysis, buckling and fatigue.

IACS released the first draft of Harmonised CSR on July 1 2012 followed by the first industry review, which lasted until the end of 2012. The second draft, released on April 1 2013, reflected further consequence assessments and industry feedback. The second industry review is scheduled to last until the end of August.

The Harmonised CSR is intended to harmonise the two existing CSR. However, several new requirements have been added to the draft in response to industry requests, including the introduction of oblique waves into design wave loads and the expansion of finite element analysis to cover the entire cargo area.

ClassNK intends to continue to contribute to the development of a technically rational Harmonised CSR that reflects both consequence assessments and industry comments. The Society will also continue to develop high quality software as a powerful tool to help support the efficient design of Harmonised CSR vessels.



# in focus



***Tomonori Hiratsuka, a Senior Surveyor at ClassNK, is on assignment at the International Maritime Organization in London. He has been a member of the Air Pollution and Climate Change Section of IMO's Marine Environment Division since January 2008 and is responsible for matters relating to air pollution prevention and greenhouse gas.***

“My work at the IMO headquarters builds on the knowledge and practical experience I have gathered over a long period as a maritime surveyor. This means I can make meaningful contributions to the continuing debate on preventing air pollution and reducing carbon dioxide emissions in the international maritime industry.

I have been able to play a leading role in making preliminary preparations for various environment-related working groups and in taking minutes at the Maritime Environment Protection Committee (MEPC), the Sub-committee on Bulk Liquids and Gases (BLG), the intersessional meeting of the working group on GHG Emissions from Ships (GHG-WG) and the intersessional meeting of the working group on Energy Efficiency for Ships (EE-WG).

I have become particularly involved in the substantial 2008 revisions to MARPOL Annex VI, which concern the prevention of atmospheric air pollution, as well as the 2011 revisions, which make the Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP) mandatory.

I believe that I have made a contribution to establishing regulations that are rational and can be implemented by the international maritime community and are related particularly to protecting and preserving the marine environment through my work at the IMO.

The important work in this arena, conducted over recent years by colleagues at ClassNK, has provided crucial support to my role in London.

At the time a vessel is constructed EEDI regulations now require either the flag state or a classification society to conduct a survey, select an EEDI value and issue an International Energy Efficiency (IEE) Certificate.

In this regard, ClassNK took the lead, ahead of IMO deliberations on methods of EEDI surveys in applying EEDI, and conducted trial surveys in 2009.

The survey results, highlighting any problems encountered, were incorporated in a report (MEPC60/4/5) submitted to a meeting of the MEPC, at which point it was agreed to establish guidelines regarding EEDI surveys. Using this report as a base, ClassNK drafted guidelines, which were approved in the form of *Guidelines on Survey and Certification of the EEDI (Resolution MEPC 214(59))* at MEPC63 in 2012.

ClassNK's contributions to IMO discussions also extend to areas beyond environmental issues. In a recent example, ClassNK, in consultation with the Japanese Shipowners' Association, submitted a sample format to assist in the development of plans and procedures for the recovery of persons distressed at sea, which will be required by SOLAS amendments adopted at the 91st session of Maritime Safety Committee (MSC91), which convened in November 2012.

As demonstrated by our efforts above, ClassNK is making a continued effort, both inside and outside of the IMO to realise cleaner and safer seas as well as provide improved services to the maritime community.”



# 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.or.jp](http://www.classnk.or.jp)

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