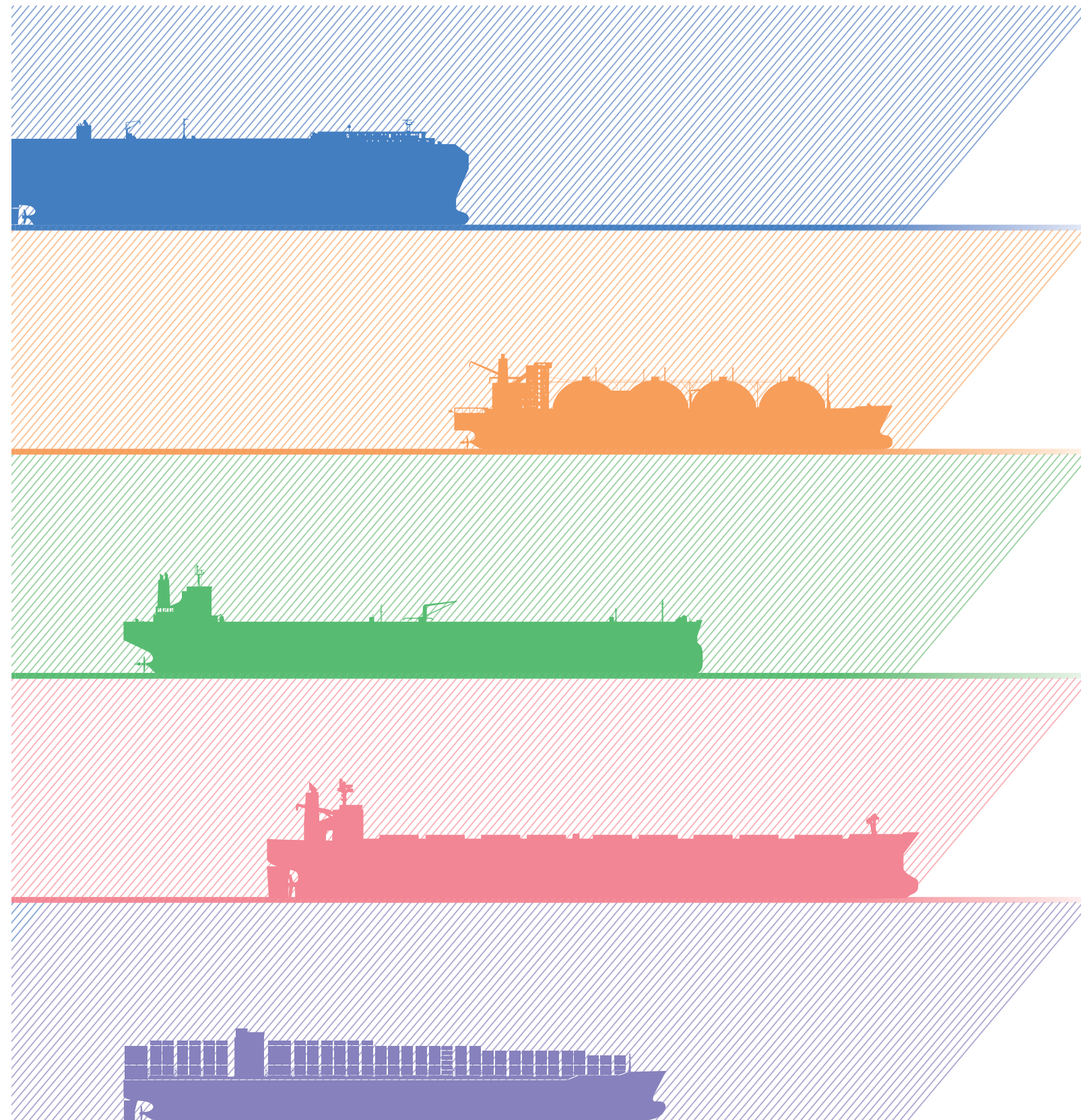


# ClassNK

ANNUAL REPORT 2011



# The ClassNK Mission

ClassNK is dedicated to ensuring the safety of life and property at sea, and to preventing pollution of the marine environment. To achieve this mission, ClassNK will:

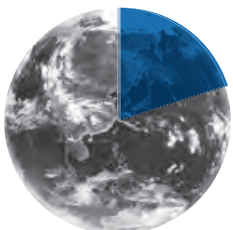
Focus on delivering the highest quality classification services, by the highest quality personnel while maintaining its totally independent third party, non-profit status;

Focus on the development of relevant rules, guidances and procedures, and maintain and develop its commitment to scientific and technological research and development; and

Maintain and develop its global operations in line with the needs of those using its services.

## Profile

Founded on 15 November 1899, Nippon Kaiji Kyokai, better known as ClassNK or simply NK, is a ship classification society dedicated to safeguarding life and property at sea and to preventing marine pollution. ClassNK offers a broad spectrum of services as a totally independent third party, non-profit organization. The principal work of the Society's expert technical staff is to conduct surveys of new and existing ships and other marine structures, including hull structures, propulsion systems, electrical and electronic systems, safety equipment, and cargo handling gear, among numerous other areas, to ensure their full compliance with classification rules developed by the Society. It also conducts a wide range of statutory surveys on behalf of more than 100 flag States around the world. Other activities include the auditing and registration of ship safety management systems, as well as certification of quality, environmental and occupational health management systems and seafarer training, technical consulting, and an extensive range of cutting-edge R&D projects.



Share of  
the Global  
Merchant Fleet

20%

194.5 million gt

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## Chairman's Message



Noboru Ueda, Chairman and President

It gives me great pleasure to report that 2011 saw ClassNK retain its position as the largest classification society in the world in terms of gross tonnage under class.

Thanks in no small part to the combined efforts of our top management and staff around the world, 644 newbuildings, totaling roughly 20 million gross tons, were added to our classed fleet over the past year.

This marks the tenth straight year of record-breaking growth in newbuilding tonnage for ClassNK.

A particularly momentous milestone came in September when our registered gross tonnage topped the 190 million gt barrier, a first in the history of ship classification. By the end of December 2011, ClassNK listed a total of 7,688 ships under class with a total tonnage of 194,540,871 gross tons. This represents some 20% of the total gross tonnage of the global fleet under class.

### NK on the World Stage

In June of 2011, ClassNK's term as the chair society of the International Association of Classification Societies (IACS) came to an end. Looking back, there

are a number of achievements that I can recall with much satisfaction.

A particularly personal achievement was the increased involvement of the Asian shipbuilding industry in IACS discussions. The needs of the Asia region were not represented as well as they could have been when one considers the region's importance within the industry. I felt, therefore that greater participation by the Asian maritime cluster was required in order to develop rules that truly reflect the needs and views of the industry as it looks today.

A second achievement was IACS' successful transition, under the leadership of ClassNK, to a more transparent and objective membership structure. Applicants are now required to meet a number of new qualitative criteria instead of the quantitative targets previously in place. Under this new system, we were delighted to welcome two new members, the Croatian Register of Shipping (CRS) and the Polish Register of Shipping (PRS), to the IACS fold. The drive for improved transparency within IACS also saw a shift in the quality scheme applied to its own quality management system. Such certification, previously carried out by

IACS based on internal audits, is now performed by independent external auditors.

Serving as the chairman of IACS was truly an honor. I will continue to make significant contributions to IACS as vice chairman, and ClassNK will continue to play a central role in the activities of IACS, and by extension the maritime industry as a whole.

### Global Approach 200

2011 was a watershed year for ClassNK in a number of respects, but none as significant for the future of our Society as our change in legal status. Changes in domestic legislation prompted our transition to a general incorporated foundation under Japanese law in April 2011. Under this new structure we have gained greater operational flexibility, including the ability to establish subsidiaries and make investments outside the Society.

In order to harness the greater freedom afforded us by our new status we developed a medium-term business plan, "Global Approach 200", the first of its kind for ClassNK and a major step in the evolution of our organization.

Three strategies form the basis of this plan: building a solid operational structure that facilitates a swift response to changes in the market environment, maintaining ClassNK's position of dominance and market share in ship classification, and a more proactive approach to business development.

A key trend at the back of our minds when formulating this plan was the increasing diversification in the needs and demands of our clients. There has been growing demand for the skills and know-how cultivated in our traditional domain, for application in other related sectors such as offshore wind power generation and seafarer training.

The standardization of the human element of shipping has become something of a hot topic as the widening internationalization of the maritime cluster

has led to a more complex division of labor. This has led to shipping becoming a much more complicated affair; a vessel flagged in Panama can be operated by a Singaporean operator, carrying cargo for a Chinese owner, with a Filipino crew sourced through a Hong Kong manning agency on a voyage chartered from Dubai for delivery to multiple ports in Northern Europe. Under such circumstances, how do you verify the safety of ship, cargo and crew when there are so many factors under the legal jurisdiction of so many different nations?

With the actual vessel itself, the "hardware" involved in the enterprise, there is a clear-cut solution. Classification by an internationally active classification society such as ClassNK means that the quality of the ship, in terms of structural components and the likes, has been checked and found to comply with internationally-recognized standards regardless of the flag administration under which it is registered. Responsibility for the quality of manpower however, lies with the many nations involved, increasing the potential for confusion for all concerned.

As regulation of seafarers is strengthened in response to the revised International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), we believe that third-party certification bodies will have a key part to play in developing new standards for maritime training and working with training centers to ensure their compliance. As a first step in this direction, we began issuing approval for generic ECDIS (Electronic Chart Display and Information System) training courses in September 2011.

In addition to such training, we are also looking at opportunities in IT development, certification services, as well as services for new conventions on the horizon such as the retrofitting of ballast water management systems.

Expanding into unexplored frontiers and addressing such new fields is an important part of our



business strategy as we move forward. To achieve this expansion there are a number of tools at our disposal, of which subsidiaries and external investment are the two most recent additions.

The establishment of subsidiaries will allow us to enter as yet untried sectors while maintaining our position as an impartial third-party organization. A prime example of this would be the growing demand at the moment for consulting services related to new conventions such as the Maritime Labour Convention and the ship recycling convention. The wealth of expertise and experience we have built up in these fields makes us perfectly placed to provide such services. Having said that, acting as both a consultant and certification body is something of a grey area in terms of impartiality. Under our new legal status however, we can set up subsidiaries as separate entities through which such services can be provided directly to clients while maintaining a transparent separation between these activities and those of the ClassNK parent organization.

In December, we unveiled our first such subsidiary, ClassNK Consulting Service Co., Ltd. This company, based in Tokyo, will focus mainly on consulting services in a range of fields including ballast water management systems and the preparation of Inventory for Hazardous Materials (IHM) for the ship recycling convention.

While subsidiaries provide access to new markets, the ability to make capital investments in third parties opens the door to know-how and innovation outside of ClassNK's traditional realm. I believe that such cooperation with outside partners will provide invaluable access to expertise essential to the future of our Society.

### Enduring Tough Times Together

The first year of this plan coincided with a number of challenges for our industry and the wider world beyond.

The uncertainty in financial markets caused by the sovereign debt crisis in the euro zone saw valuable European markets shrink as political upheaval in the Arab world sent oil prices skyrocketing. Even the economies of Brazil and China, the recent engines of global growth, began to show signs of slowing even further in the latter stages of the year.

Natural disasters, always an ever-present threat, were particularly conspicuous in 2011. The event having the greatest impact on the shipping and ship-building industries, and ClassNK was the Great East Japan Earthquake and the tsunami that followed, devastating the country's north-eastern seaboard in March. Faced with such setbacks, ClassNK is determined to provide all possible support to the maritime community both in Japan and overseas as it builds for a safer, more prosperous future in 2012.

We understand that any success we may enjoy going forward will continue only for as long as we continue to meet the needs of our clients and justify the trust they have placed in us over the past 112 years. The coming year will therefore, see us redouble our efforts in providing faster service at even higher quality.

This year's annual report describes in greater detail the activities and achievements of the Society in 2011, as well as an introduction to key developments made by our R&D departments in the past year.

In closing, I would like to take this opportunity to express my deepest appreciation for your continued patronage of our Society. We look forward to enjoying your cooperation and support again in 2012.

Noboru Ueda  
Chairman and President

# CLASSNK MEDIUM-TERM BUSINESS PLAN

## Global Approach 200

In June 2011, the Society's unveiled its first ever medium-term business plan, "Global Approach 200". The plan will cover the three-year period from 2011 through 2013.

### THREE BASIC POLICIES

Creating a stable foundation in order to respond to changes in the market environment

Maintaining ClassNK's position as the world's leading classification society and expanding our share of the classification market

Taking a more proactive approach to new opportunities



### 5 GOALS

Establishing a stable financial foundation for future growth

Reaching more than 200 million gross tons on our register

Improving the quality of our services and increasing our global presence

Expanding our business operations

Promoting new research and development

#### (1) Establish a stable financial foundation for future growth

The main source of revenue for the Society up to the present has been the survey, inspection, and classification of ships. However, in order to adapt more freely to changes in the market, the Society is committed to a sustained, sustainable expansion of its business activities. While ClassNK remains an independent, non-profit organization, stable management requires that we maintain a net level of assets at all times, a goal made easier by a broader revenue base.

#### (2) Expand classed fleet to more than 200 million gross tons

Increasing the ClassNK register to a figure in excess of 200 million gross tons will further cement our leading position in the industry and increase our presence at IACS and IMO. The importance of this target is reflected in the naming of this plan: Global Approach 200.

#### (3) Enhance service quality and boost global presence

Boost global presence by increasing service quality based on the core components of People, Training, Survey sites, IT systems, and Rules Development.

#### (4) Expand business operations

The Society intends to broaden the range of its business activities to provide flexible solutions to the new needs of the maritime community.

- Consulting services for IHM systems (ship recycling convention)
- Consulting services for the retrofit of ballast water treatment systems
- Appraisal/certification services for EEDI/EEOI
- Ship Construction File management services
- Training services

#### (5) Promote research and development

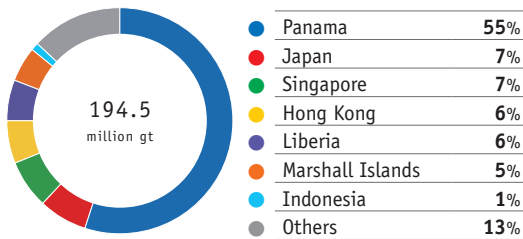
Research and development projects fall into two broad categories: research related to ship classification; and joint research based on the needs of industry. The results of this research is incorporated into new rules and released into the public domain for the further development of the maritime industry.

# 2011 at a Glance

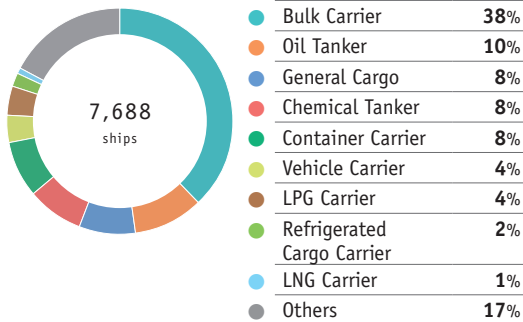
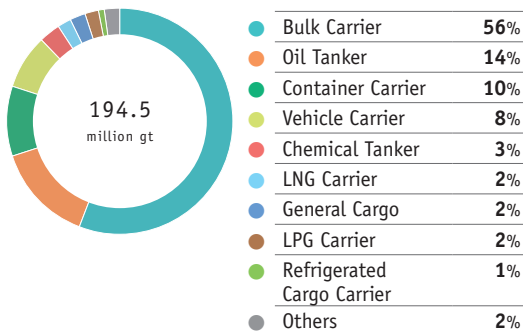
## Registered Gross Tonnage Breaks the 190 Million Barrier

The Society made history this year as the first classification society in the world to hold a classed fleet in excess of 190 million gross tons. The number of newbuildings classed with the Society reached a total of 644 ships amounting to 19,700,744 gt in 2011, surpassing the previous record for the Society set in 2010 for total newbuilding tonnage added to the register during the year. At the end of December 2011, the Society listed a total of 7,688 ships under class with a total tonnage of 194,540,871 gross tons.

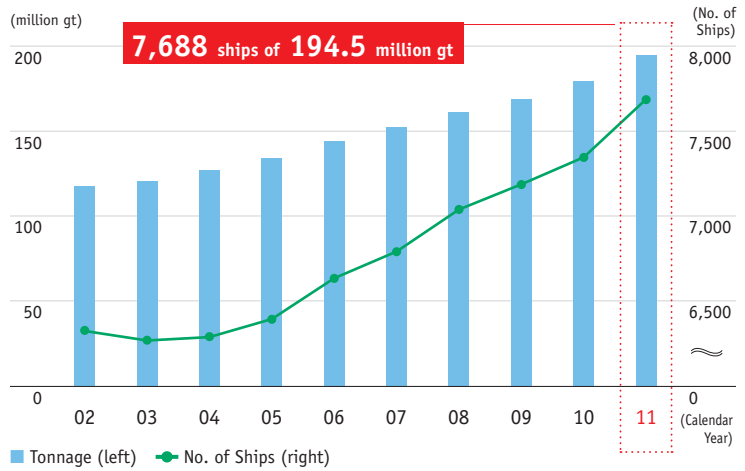
### Breakdown of NK Fleet by Flag



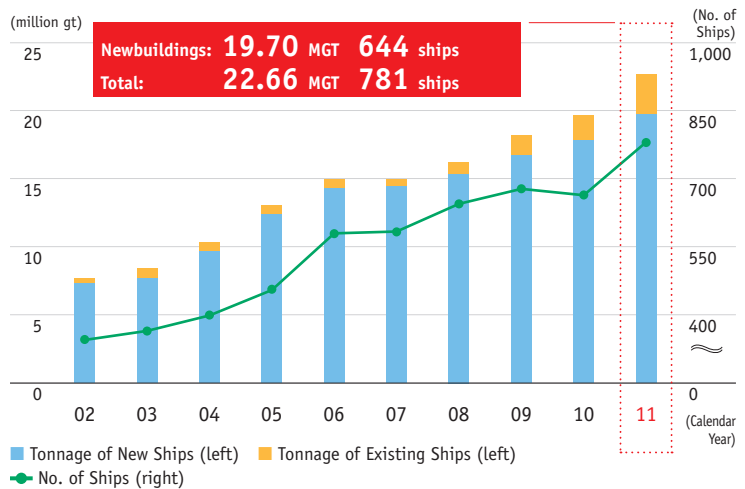
### Breakdown of NK Fleet by Ship Type



### ClassNK Fleet



### GT and No. of Ships Newly Classed







ClassNK booth at Sea Asia 2011



Signing ceremony for agreement with NMRI



Enjoying refreshments at ClassNK's CMA Shipping booth

## International Exhibitions

The Society participated in 18 major international maritime exhibitions in 2011:

- SMM Istanbul 2011  
Dates January 26–28    Location Istanbul, Turkey
- Panama Maritime  
Dates February 13–16    Location Panama City, Panama
- Maritime Vietnam 2011  
Dates March 9–11    Location Ho Chi Min City, Vietnam
- CMA Shipping  
Dates March 21–23    Location Stamford, Connecticut, USA
- Gastech  
Dates March 21–24    Location Amsterdam, the Netherlands
- Europort Istanbul  
Dates March 23–26    Location Istanbul, Turkey
- Sea Asia 2011  
Dates April 12–14    Location Singapore
- Shiptek 2011  
Dates April 18–19    Location Dubai, UAE
- BARI-SHIP 2011  
Dates May 19–21    Location Imabari, Japan
- Nor-Shipping 2011  
Dates May 24–27    Location Oslo, Norway
- Navalshore 2011  
Dates August 3–5    Location Rio de Janeiro, Brazil
- COPINAVAL 2011  
Dates September 27–30    Location Buenos Aires, Argentina
- Inmex India 2011  
Dates September 29–October 1    Location Mumbai, India
- Middle East Workboats 2011  
Dates October 3–5    Location Abu Dhabi, UAE
- Indonesia Maritime Expo 2011  
Dates October 13–15    Location Jakarta, Indonesia
- KORMARINE 2011  
Dates October 26–29    Location Busan, South Korea
- Marintec China 2011  
Dates November 29–December 2    Location Shanghai, China
- Renewable Energy 2011  
Dates December 5–7    Location Chiba, Japan

## New Technical Guidelines

As part of its ongoing efforts to improve the safety and reliability of ships at sea, the Society published numerous new technical guidelines in 2011, including those listed below. These and other guidelines can be viewed via the “Products and Services” menu of the ClassNK website (<http://www.classnk.or.jp/hp/en/index.html>) after logging in to the My Page section.

- Guidelines for Floating Offshore Facilities for LNG/LPG Production, Storage, and Offloading
- Guidelines for Strength Assessment of Membrane-type LNG Containment Systems under Sloshing Loads
- Guidelines for the Safe Carriage of Nickel Ore
- Noise and Vibration Guideline
- Guidelines for the Inventory of Hazardous Materials
- Guidelines for SCR Systems and Reductant Agent Supply Systems

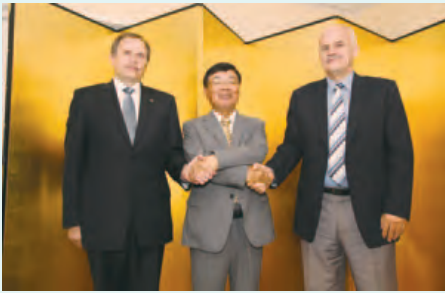
## Change in Legal Status to a General Incorporated Foundation

In accordance with changes to Japanese law, the Society was faced with a choice regarding its future legal status. After much deliberation on the respective advantages and disadvantages, the Society opted to transfer its legal status from an “incorporated foundation” to become a “general incorporated foundation” under Japanese law. The change, effective as of 1 April 2011, grants the Society much greater operational flexibility than it previously enjoyed, including the ability to establish subsidiary entities and make capital investments in new enterprises. Such strategies will be instrumental in the Society’s expansion into as yet untried business fields.

## First Ever Subsidiary Established

As the year drew to a close, the Society witnessed another landmark event. Taking advantage of the new freedoms granted by its change in legal status, the Society established its first ever wholly-owned subsidiary—ClassNK Consulting Service Co., Ltd. This new Tokyo-based company, is, by virtue of its independence from ClassNK capable of providing the kind of consulting services





Mr. Ueda welcoming the Croatian Register of Shipping and the Polish register of shipping to IACS



Award ceremony for seafarer recruitment certification



PrimeShip-GREEN/EEOI software

that ClassNK, as an independent non-profit organization, can not. The main focus of its business activities are IHM preparation based on the Hong Kong (Ship Recycling) Convention, and consulting services for ballast water management systems and the Maritime Labour Convention.

### Tie-up with Japan Marine Science Inc.

In June, the Society entered into a capital tie-up with Tokyo-based Japan Marine Science Inc., the largest maritime consulting firm in Japan. Japan Marine Science Inc., first established in 1985, has cultivated a wealth of expertise in the development and application of analysis, training, and software systems in the maritime field making it a promising partner in future research collaboration.

Under the agreement, the company issued new shares commensurate to the 20% stake taken by the Society, and offered a place on its board, which was subsequently filled by ClassNK Executive Vice President Koichi Fujiwara. This investment marks the first time in the Society's history that it has invested money directly in an outside organization.

### New Management Structure Introduced

The Society reorganized its management structure in July to provide greater flexibility in decision-making as the maritime industry grows and changes. A major element of this reorganization was the reshuffle at the top. The post of managing director was removed in favor of a system of six executive vice presidents serving under Chairman and President, Noboru Ueda. An operating officer system was also introduced to further strengthen oversight of day-to-day operations.

### Key Departments Reorganized

A number of changes were made to the organizational structure of the Society over the year.

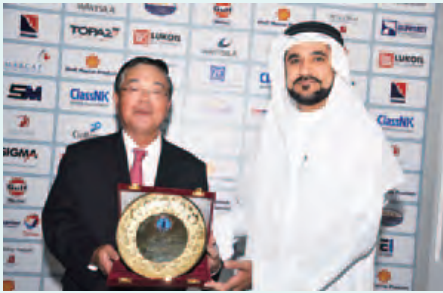
1. In July ClassNK's Business Department was expanded in order to provide a faster, more tailored service to our clients. The Business Operations Headquarters as it is now called, is comprised of three departments:

the original Business Department, charged with ClassNK's business activities; the Business Planning Department which oversees new market development, the Society's international committees and Academy program; and the Executive Operations Division which deals with executive planning and corporate communications.

2. The Quality Assurance Department was renamed the Certification Services Department on 1 July 2011. In addition to the assessment and registration services previously performed for ISO 9001, ISO 14001, and OHSAS standards, the department also now offers new certification services for maritime training and the Maritime Labour Convention 2006.
3. A new department, the Natural Resource and Energy Development Department, was set up in October as part of the Society's diversification into the promising offshore sector of the energy industry. This department takes on the role of the now defunct tanker section of the Hull Department, and is building upon its vast array of expertise to develop a range of services tailored to the needs of clients at every stage of the offshore process from extraction through to delivery.
4. The Society's development function also underwent a major transformation in October. The Development Operations Headquarters was established, overseeing three departments: the Hull Rules Development Department, the Machinery Rules Development Department, and the International Rules Development Department. By dividing operations in this way, each department has been given a clearer view of its overall mission and the tasks involved. This, in turn, results in better products and services for our clients.

### New Certification Services for Maritime Training

As part of its policy of supporting the maritime community on regulatory issues, the Society began performing inspections and certification for training courses provided by maritime educational institutions and



Marine BizTV International Maritime Awards

Signing ceremony at the Norwegian Embassy  
in Japan

Seatrade Asia Awards 2011

training centers. The scope of these services is broad. For example, in 2011 ClassNK granted certification to 3 organizations for ECDIS (Electronic Chart Display and Information System) training courses, certifying that these courses were in compliance with International Maritime Organization (IMO) standards. The Society also issued approval for seafarer recruitment and placement service providers in line with the Maritime Labour Convention 2006 (MLC 2006) to 2 organizations in 2011. As part of its PrimeManagement service package, ClassNK also began offering its NK Training Course for Maritime Instructors. Through these and other developments, the Society is determined to apply the expertise and experience it has amassed in over a century to the changing demands of the maritime community in the fields of both certification and training.

### New Authorizations Earned from Major Flag Administrations

The latter half of the year saw the Society convince the governments of both Norway, the United States and the Union of the Comoros of the benefits of ClassNK services. The Government of Norway officially recognized ClassNK as a Recognized Organization (RO) at a signing ceremony at the Royal Norwegian Embassy in Tokyo on 8 November. Under the agreement, signed by Deputy Minister Lind and ClassNK Chairman and President Noboru Ueda, the Society has been granted authority to perform surveys and issue certificates for Norwegian flagged vessels. One month later, the United States Coast Guard (USCG) concluded a similar agreement with the Society, under which ClassNK has been delegated authority for certification of US flagged vessels in accordance with the International Convention on Tonnage Measurement of Ships and the International Convention on Load Lines. Going forward, ClassNK expects to enter further agreements with USCG regarding the MARPOL and SOLAS conventions.

### New Emission Analysis Software PrimeShip-GREEN/EEOI Released

April saw the release of a new shipboard and web based software system designed to calculate the environmental

performance of vessels in service and their compliance with the IMO's Energy Efficiency Operational Index (EEOI). This powerful analysis tool, distributed free of charge, allows ship owners and managers to visually assess the CO<sub>2</sub> emission volumes of their fleet, compare the operational efficiency of ships within their own fleets, establish emission targets, and identify factors affecting operational efficiency with ease.

### Chairman and President Noboru Ueda Named "Personality of the Year" at the Marine BizTV International Maritime Awards

The Marine BizTV International Maritime Awards ceremony was held in Dubai on 18-19 April 2011. The awards bring together the major players in the maritime industry to honor those organizations and individuals that have contributed the most over the past year. ClassNK Chairman and President and then Chairman of the International Association of Classification Societies (IACS) Noboru Ueda received one of the highest honors when he was named "Personality of the Year". This award was in recognition of his achievements at the head of both IACS, where he oversaw a move towards greater consideration of the needs of the maritime industry in international regulations, and ClassNK, where his tireless efforts paid off with another successful year for the world's largest classification society on a gross tonnage basis.

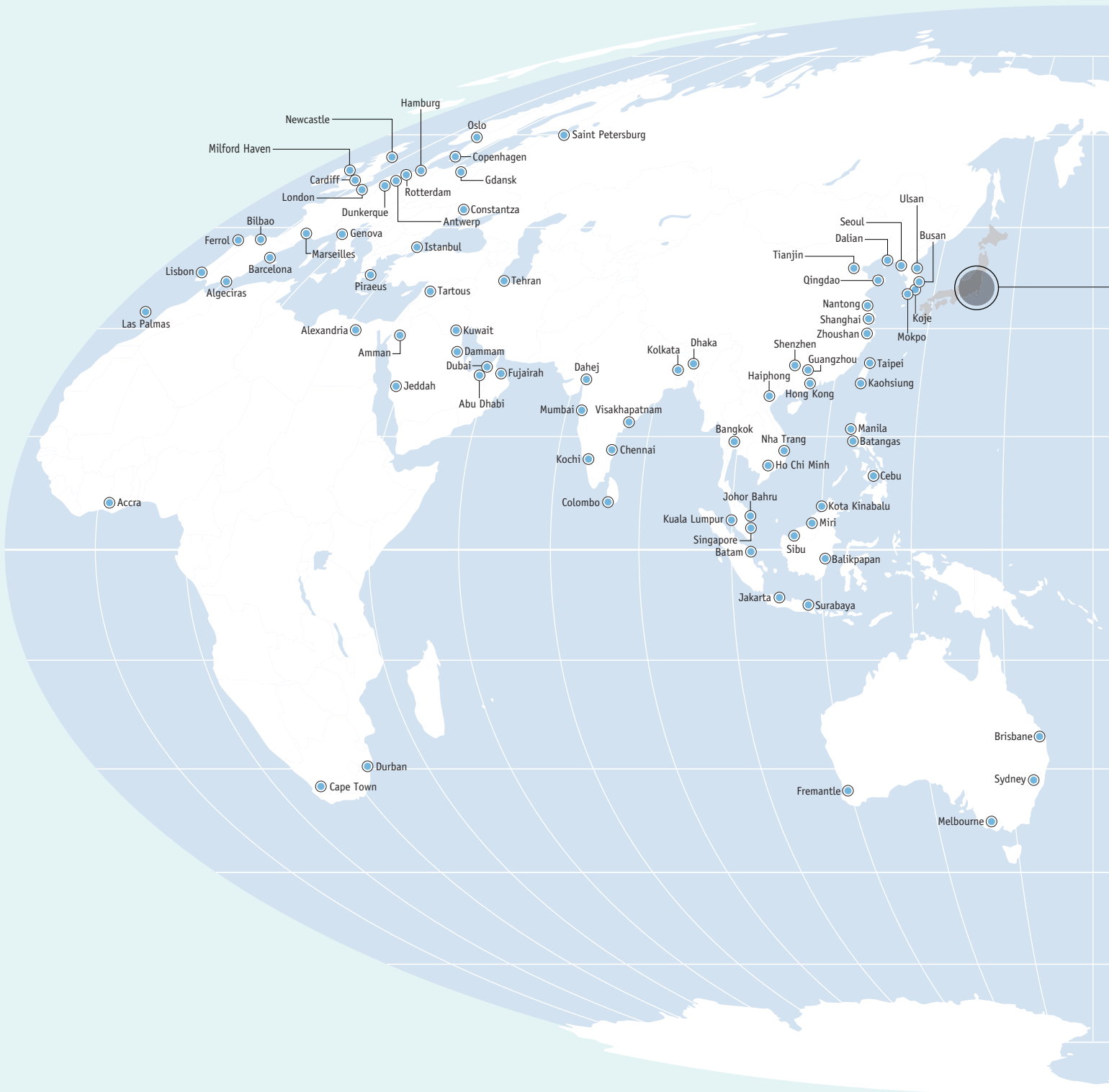
### ClassNK Named "Classification Society Award" at the Seatrade Asia Awards 2011

The Seatrade Asia Awards 2011 ceremony was held in Hong Kong on 20 June 2011. The awards are presented by the London-based maritime media company Seatrade Communications in recognition of significant contributions to the marine industry in Asia during the previous year. The Society beat off competition from three of the top four regional classification societies to be named the best classification society in Asia. This marks the second time the Society has won the award since the event began in 2008 and underlines the Society's commitment to supporting the Asian maritime community.

# Service Network

## Service Network Expansion

In order to further improve customer service and expand its worldwide service network, ClassNK established two new exclusive surveyor sites in 2011. By the end of the year, the number of ClassNK exclusive surveyor sites grew to 120 in total, including 21 sites in Japan and 99 sites outside Japan.



**March 31** Shenzhen, China (under jurisdiction of Guangzhou Office)  
Local Area Representative office established

**December 30** Abu Dhabi, UAE (under jurisdiction of Dubai Office)  
Local Area Representative office established

○ Japan

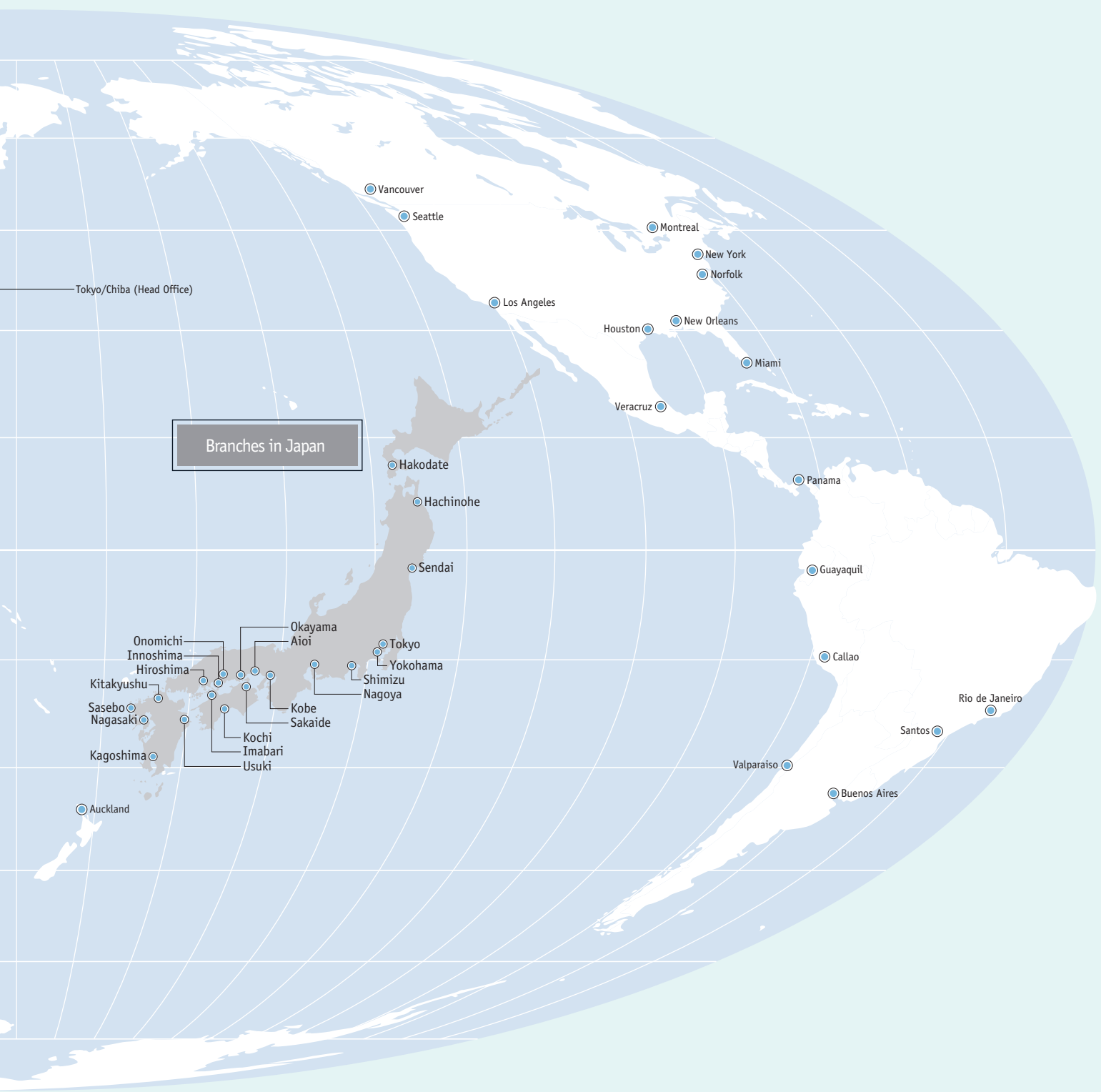
21

○ Overseas

99(+2)

(Established in 2011)

120 total



Branches in Japan

Tokyo/Chiba (Head Office)

# Major Activities





## SHIP CLASSIFICATION SERVICES



SHIP CLASSIFICATION  
SERVICES

ClassNK offers a broad range of services that encompass every aspect of ship classification from the approval of vessel and machinery plans to the survey and registration of ship installations, approval of materials, equipment and outfitting gear, as well as the assessment and registration of ship safety management systems and security systems. ClassNK has also been authorized by over 100 flag states across the world to perform surveys and issue certificates on their behalf in accordance with international conventions.

## TECHNICAL SUPPORT AND CONSULTING



TECHNICAL SUPPORT  
AND CONSULTING

ClassNK also offers a wide variety of consulting and support services based on the technical expertise we have developed over more than a century classification experience. These services include technical consulting, appraisal and certification of ships and offshore structures, newbuilding superintendence, inspection of industrial machinery and equipment, tonnage measurement and certification, as well various types of testing, research, and computer analysis.

## CERTIFICATION SERVICES



CERTIFICATION  
SERVICES

Industries across the full spectrum of the maritime community, from shipping and shipbuilding to seafarer training, are looking for ways in which to thrive in today's globalized world. Management systems certified to international standards have come to be seen as a key tool in boosting competitiveness and ensuring sustainable growth. As a result, demand for services supporting the development of such systems is on the increase.

Through its PrimeManagement service, among others, ClassNK provides certification for a range of management systems including quality assurance, environmental management, occupational health and safety, and seafarer education and training. ClassNK's certification activities are accredited by leading bodies both in Japan and internationally, and ClassNK certification is recognized as a mark of quality throughout the world.

## EDUCATIONAL AND TRAINING SERVICES



EDUCATIONAL AND  
TRAINING SERVICES

ClassNK makes its extensive experience, expertise, and technical knowledge available to the entire maritime community via a number of different educational and training programs. These include training programs carried out at the request of the Japanese government and other flag and port administrations, as well technical seminars and the ClassNK Academy Program of courses. ClassNK is constantly expanding its educational and training activities for a broad spectrum of people, from those new to the industry to specialized experts, as part of its efforts to further contribute to the growth and development of the maritime community.

## INTERNATIONAL ACTIVITIES



INTERNATIONAL  
ACTIVITIES

As a global organization, ClassNK maintains membership in a number of international decision and rule making bodies, and contributes to numerous maritime bodies around the globe. ClassNK is an active participant in the International Association of Classification Societies (IACS), and greatly contributes to the formulation of rules and regulations, such as the IACS Unified Requirements (UR) and Unified Interpretations (UI). ClassNK also dispatches experts and researchers to meetings of the International Maritime Organization (IMO), both as representatives of IACS and the Japanese government, among other international activities conducted by the Society.

# ClassNK in Action





SHIP CLASSIFICATION  
SERVICESTECHNICAL SUPPORT  
AND CONSULTINGCERTIFICATION  
SERVICESEDUCATIONAL AND  
TRAINING SERVICES

Thanks to the superior quality and client-oriented approach of ClassNK services, the Society has retained its leading share of the global merchant fleet. As of the end of December 2011, ClassNK listed a total of 7,688 ships under class, a net increase of 341 ships over the year-end total for 2010. The total tonnage on the NK class register as of the end of 2011 was 194,540,871 gross tons, a net increase of 15,062,787 gt over the end of 2010.

By the end of 2011, the number of NK classed ships flagged outside of Japan stood at 6,724 vessels, or some 87% of the ships registered with the Society. These ships comprised 179,996,195 gt or 92.5% of the Society's total fleet. Ships registered with the Society continue to bear the flags of many different nations and territories, with NK classed ships registered to 72 different flag administrations. In addition, the average age of the NK fleet lessened slightly to 9.73 years.

A total of 781 ships of 22,666,948 gt were added to the register during the year 2011. Of these, a total of 644 ships consisted of newbuildings comprising 19,700,744 gt, a significant increase over the 2010 record total of 17,807,446 gt. In terms of ship numbers, newbuildings accounted for 82.4% of all ships added to the register in 2011, while on a gross ton basis, these newbuildings accounted for 86.9% of the total gross tonnage added to the register.

## Domestic Newbuilding Highlights

The highly qualified surveyors at ClassNK's 21 offices in Japan had another very busy year in 2011. As the sheer number of newbuildings constructed under the auspices of our domestic service network prevents a comprehensive list being presented here, a brief overview of the year's most eye-catching events is provided below.

### Hakodate Branch

During the year, the Hakodate Branch Office had a total of 9 new ships of 164,174 gt in total enter NK class in 2011. Representative of these ships was the 5,730 gt cement carrier, *HOKUTO MARU*, built by The Hakodate Dock Co., Ltd. for Daiichi Chuo Kisen Kaisha, Daiichi Chuo Senpaku Kaisha, and Japan Railway Construction, Transport and Technology Agency.

### Hiroshima Branch

In 2011, the Hiroshima Branch Office oversaw the construction of 25 newbuildings totaling 952,072 gt. IHI Marine United Inc., Kure Shipyard built the *DST QUEEN*, a 31,540 gt bulk carrier, for DST Shipping Inc. This was the first vessel built by the yard in accordance with the *Performance Standard for Protective Coatings* (PSPC).

**SOUTHERN CROSS DREAM**

a 92,152 gt bulk carrier built by Tsuneishi Heavy Industries (Cebu), Inc. for Mimosa Maritima Ltd.

**ANANYA NAREE**

a 23,670 gt bulk/lumber carrier built by ABG Shipyard Ltd. for Precious Forests Pte. Ltd.

**Imabari Branch**

The Imabari Branch Office had another busy year in 2011 overseeing the construction and entry into NK class of 89 newbuildings totaling 1,991,162 gt. Notable among these ships was the *AKEBONO MARU*, a 4,505 gt LNG carrier built by Higaki Ship Building Co., Ltd. for Chuo Kaiun Kaisha Ltd. Also in the same region, Shin Kurushima Hashihama Dockyard built the *BALSA 86*, a 5,715 gt general cargo vessel incorporating a ballast water treatment system for Floramonte Shipping Inc.

**Kobe Branch**

The Kobe Branch Office oversaw the construction of 20 newbuildings totaling 632,029 gt in 2011. Representative ships include the *MOL MANEUVER*, a 78,316 gt container carrier built by Mitsubishi Heavy Industries Ltd., Kobe Shipyard & Machinery Works, for Ural Container Carriers S.A. The same yard also built the *ANTARES LEADER*, a 38,569 gt vehicle carrier, for Rudder Leasing Co., Ltd. The vessel was the first of a series of six with a loading capacity of 6400 vehicles.

**Kochi Office**

During the year, the Kochi Office saw a total of 8 newbuildings totaling 108,019 gt enter NK class. Among the ships built under the watchful eye of the surveyors of the Kochi Office was the *HOKUSHO MARU*, a 4,675 gt general cargo carrier built by Shin Kochi Juko Co., Ltd. for Hokusei Kaiun Co., Ltd. and Japan Railway Construction, Transport and Technology Agency. This vessel was built with the financial assistance of the Japanese Government as part of a "Super Eco-Ship" project.

**Nagasaki Branch**

In 2011, the Nagasaki Branch Office oversaw the construction of 15 newbuildings totaling 1,060,727 gt. One of the notable ships built to NK class was the *HAKUSAN* a 160,059 gt VLCC built for Taurus Transport & Marine S.A. at the Nagasaki Shipyard & Machinery Works of Mitsubishi Heavy Industries, Ltd. This is the first vessel constructed for the Nagasaki Branch to be registered in the Isle of Man. The same yard also built another vessel of note, the *TOKITSU MARU*, a 159,963 gt VLCC, this time for Nippon Yusen Kabushiki Kaisha. This is the first VLCC to be constructed in accordance with PSPC. Elsewhere, the Ariake Shipyard of Universal Shipbuilding Corporation built the *MAERSK HIRADO*, a 159,806 gt VLCC for Stellar Energy Pte. Ltd.

**Nagoya Branch**

In 2011, the Nagoya Branch Office oversaw the construction of 12 newbuildings totaling 844,412 gt. Notable newbuildings in the region built to NK class include the *SHIN KOHO*, a 93,031 gt bulk carrier built by Universal Shipbuilding Corporation's Tsu Shipyard for Magnus Line Inc. The vessel is of particular interest as it is installed with a hybrid turbo charger generating system developed in collaboration between ClassNK, Nippon Yusen Kabushiki Kaisha, Universal Shipbuilding Corporation, and Mitsubishi Heavy Industries Ltd. for greater fuel efficiency.

**Okayama Branch**

The Okayama Branch Office oversaw the construction and entry into NK class of 24 newbuildings totaling 933,128 gt. Of these 24 vessels, 13 (totaling 407,116 gt) were built by Mitsui Engineering & Shipbuilding Co., Ltd.'s Tamano Works and 11 (totaling 526,012 gt) were built by Sanoyas Hishino Meisho Corporation ("Sanoyas Shipbuilding Corporation" as of 4 January 2012).

**HOKUTO MARU**

a 5,730 gt cement carrier built by The Hakodate Dock Co., Ltd. for Daiichi Chuo Kisen Kaisha, Daiichi Chuo Senpaku Kaisha, and Japan Railway Construction, Transport and Technology Agency

**SULPHUR GUARDIAN**

a 9,465 gt chemical carrier built by Shitanoe Shipbuilding Co., Ltd. for Daiichi Tanker Co., Ltd.

**Onomichi Branch**

The year was another busy year for the NK Onomichi Branch Office. The Office oversaw the construction and entry into NK class of 47 newbuildings totaling 2,418,270 gt in 2011. Representative of these was the *SANTA VISTA*, a 23,857 gt general dry cargo carrier built by the Setoda yard of Naikai Zosen Corporation for BOT Lease Co., Ltd. and equipped with selective catalytic reduction meeting Tier III standards for NOx emissions.

**Sakaide Branch**

The Sakaide Branch Office oversaw the construction of 31 newbuildings totaling 1,604,382 gt during the year. The Sakaide yard of Kawasaki Heavy Industries, Ltd. Ship and Offshore Company built the world's largest LNG carrier incorporating Moss spherical tanks, the 141,136 gt *ENERGY HORIZON*, for Nippon Yusen Kabushiki Kaisha and Tokyo LNG Tanker Co., Ltd. This vessel is also equipped with Kawasaki's newly developed re-heat steam turbine propulsion plant, improving fuel consumption by 15%. Elsewhere, the *MORNING CRYSTAL*, a 59,524 gt vehicle carrier was built by the Marugame Headquarters of Imabari Shipbuilding Co., Ltd. for Fleet Ship Management Pte. Ltd. This ship was designed to harness solar and wind power in order to reduce its environmental load. ClassNK is cooperating with Mayekawa Mfg. Co., Ltd. in gathering data on vessel performance.

**Sasebo Branch**

During the year, the Sasebo Branch Office oversaw the construction of 41 newbuildings totaling 2,116,648 gt. Representative of these ships was the *BAOSTEEL EMOTION*, a 119,446 gt ore carrier built by Namura Shipbuilding Co., Ltd. for Mitsui O.S.K. Lines, Ltd., and the *INITIAL SALUTE*, a 50,987 gt bulk carrier equipped with a trial SCR system and built by Oshima Shipbuilding Co., Ltd. for Shirahama Maritime S.A.

**Tokyo Branch**

The Tokyo Branch Office oversaw the construction and entry into NK class of 11 newbuildings totaling 733,039 gt. This included 10 (totaling 717,178 gt) vessels built by Mitsui Engineering & Shipbuilding Co., Ltd.'s Chiba Works.

**Usuki Branch**

The Usuki Branch Office had a busy year in 2011, overseeing the entry into class of 35 newbuildings totaling 607,508 gt. Of particular interest was the *MARATHA PRIDE*, a 22,863 gt bulk carrier built by Saiki Heavy Industries Co., Ltd. for Sea Bird LLC, the *SUPREME ACE*, a 59,022 gt vehicle carrier built by Minami-nippon Shipbuilding Co., Ltd. for Chloe Navigation S.A., and the *SULPHUR GUARDIAN*, a 9,465 gt chemical tanker designed exclusively for the transport of molten sulfur built by Shitanoe Shipbuilding Co., Ltd. for Palm S.A.

**Yokohama Branch**

The Yokohama Branch Office oversaw the construction and entry into NK class of 9 newbuildings totaling 261,907 gt. Of these 9 vessels, 8 (totaling 252,312 gt) were part of the 56BC series built by IHI Marine United Inc.'s Yokohama Shipyard.

**NYK ARCADIA**

a 105,644 gt container carrier built by IHI Marine United Inc.'s Kure Shipyard for Nippon Yusen Kabushiki Kaisha

**HOKUSHO MARU**

a 4,675 gt general cargo carrier built by Shin Kochi Juko Co., Ltd. for Hokusei Kaiun Co., Ltd. and Japan Railway Construction, Transport and Technology Agency

## International Newbuilding Highlights

As the global network of the Society rapidly approaches 100 offices worldwide, the number of surveys, including newbuilding surveys, has increased accordingly. A brief summary of international newbuilding highlights for some of ClassNK's 99 exclusive surveyor offices overseas during the year 2011 is given below.

### China

The Society established a new Local Area Representative office in China, in Shenzhen, bringing the total number of offices in the country to 11.

The Society's Nantong Office in particular had a large number of newbuildings enter NK class in the China region during the year. Some key examples include the *JOSCO CHANGZHOU*, a 33,188 gt bulk carrier built by Nantong Cosco KHI Ship Engineering Co., Ltd. (NACKS) for Jiangsu Ocean Shipping Co., Ltd. (JOSCO) and the *CAPE SASANQUA*, a 106,251 gt bulk carrier also built by NACKS, this time for Mariaspes Compania Naviera, S.A.

The Society's Shanghai Office oversaw the construction of the *INGE KOSAN*, a 3,728 gt LPG tanker, the first series of this type to be classed by ClassNK in China, built by Yangzhou Kejin Shipyard Co., Ltd. for Lauritzen Kosan A/S, the *YASA ANATOLIA*, a 19,999 gt bulk carrier built by Tsuji Heavy Industries (Jiangsu) Co., Ltd. for Yasa Anatolia S.A., and the *RUI LEE*, a 32,983 gt bulk carrier built by Jiangsu New Hantong Heavy Industries Co., Ltd. for Winland International Shipping Co., Ltd.

Elsewhere in China, the Society's Guangzhou Office oversaw the construction of its first electrical propulsion vessel, the 4,189 gt oil carrier *EMISSARY* built by Guangzhou Hangtong Shipbuilding and Shipping Co., Ltd. for Hong Lam Marine Pte. Ltd. Meanwhile, the Kaohsiung Office oversaw the construction of three general cargo carriers, the 7,141 gt *TRI FRIEND* built by

Jade Shipbuilding Co., Ltd. for Ocean Friend Corp. Limited, and the 7,141 gt *MARION ACE* and the 7,141 gt *EASTERN FRONTIER*, both built by Jong Shyn Shipbuilding Co., Ltd. for Earnest Marion S.A. and Tri-Net Logistics (Asia) Pte. Ltd. respectively.

The Society's Dalian Office conducted newbuilding surveys for, among others, three general bulk carriers, the 89,985 gt *MANGAS* built by Bohai Shipbuilding Heavy Industry Co., Ltd. for Atlantic Pearl Shipping Limited, and the 32,983 gt *CHRISTINE STAR* and the 32,983 gt *HARMONY STAR*, both built by COSCO (Dalian) Shipyard Co., Ltd. for Dexter Line Co., Ltd. Inc. and Christine Marine S.A. respectively.

### Korea

The Society's Busan Office oversaw the construction of the *DELMAR*, a 44,261 gt bulk carrier built by Hyundai Samho Heavy Industries Co., Ltd. for Meadway Shipping and Trading Inc. The office also oversaw the construction of the 93,169 gt bulk carrier *HANJIN MATSUYAMA* for Southern Pacific Holding Corporation, the first vessel built to NK class by Sungdong Shipbuilding & Marine Engineering Co., Ltd. In addition, the Gunsan Shipyard of Hyundai Heavy Industries Co., Ltd. built the *SHAGANGFIRST POWER*, a 93,228 gt bulk carrier, installed with a hull monitoring system, for Long Glory S.A.

Among the many ships handled by the Society's Ulsan Office during the year, the office oversaw the construction of the 44,925 gt container carrier *NYK FUJI*, capable of carrying 4,500 containers. The ship was built by Hyundai Heavy Industries Co., Ltd. for Buddhi Shipping Pte. Ltd. Additionally, the office also oversaw the construction of the *CAPE ALTHEA*, a 93,227 gt bulk carrier for Libera Corporation, also built by Hyundai Heavy Industries Co., Ltd., and the 22,662 gt *OCEAN FALCON*, another bulk carrier, built by Hyundai Mipo Dockyard Co., Ltd. for Dawn Shipping S.A.

**NAIKAI MARU NO. 2**

a 3,854 gt oil carrier built by Hakata Shipbuilding Co., Ltd. for Naikai Kisen K.K.

**AKEBONO MARU**

a 4,505 gt LNG carrier built by Higaki Shipbuilding Co., Ltd. for Chuo Kaiun Kaisha, Ltd.

## The Philippines

The Society's Cebu Office oversaw the construction of the 92,152 gt *SOUTHERN CROSS DREAM*, the first Japan-flagged cape size bulk carrier to be built by Tsuneishi Heavy Industries (Cebu) Inc. The ship was built for Mimososa Maritima Ltd. Other ships built at the same yard include the *TESS BULKER*, a 32,309 gt bulk carrier built for Lauritzen Bulkera A/S, and the 32,351 gt bulk carrier *DORIC VALOUR*, built for Ocean Unity Navigation Inc. The Manila Office meanwhile saw two new bulk carriers enter into class in 2011. They were the 93,681 gt *NEW MIGHTY* and the 93,684 gt *HOUHENG 2*, both built by HHIC-Phil Inc. for N & H Maritime S.A. and Hengli Industries (Hong Kong) Limited respectively.

## Malaysia

ClassNK currently has five offices in Malaysia: Johor Bahru, Kota Kinabalu, Kuala Lumpur, Miri and Sibul. Of particular interest this year was the *SHINLINE 10*, a 9,799 gt general cargo carrier built by Shin Yang Shipyard Sdn. Bhd. (2) for Shinline Sdn. Bhd., and the *OCEANBRAVE 20516*, a 1,132 gt chemical barge, the first barge of its type designed specifically for the carriage of palm oil, built by Pleasant Engineering Sdn. Bhd.

## India

The Society currently has six offices in India: Mumbai, Chennai, Visakhapatnam, Kochi, Dahej, and Kolkata. A particular highlight of NK activity in the region was the entry into class of the *ANANYA NAREE*, a 23,670 gt bulk/lumber carrier built by ABG Shipyard Ltd. for Precious Forests Pte. Ltd. The ship, compliant with requirements for CSR and PSPC, is the first vessel built under NK class in India.

## Viet Nam

The Haiphong Office oversaw the construction of another general cargo carrier, the 4,219 gt *NOSCO TRADER* built by Bach Dang Shipbuilding Industry Co., Ltd. for Northern Shipping Joint Stock Company (NOSCO).

## Class Surveys and Statutory Surveys

### Class Surveys

2011 was once again a very busy year for ClassNK in terms of surveys of ships. Over the course of the year, the Society carried out a total of 3,557 surveys in Japan. Of these, 397 were registration surveys, and 3,160 were maintenance surveys. Surveys conducted overseas totaled 11,616, of which 384 were registration surveys, and 11,232 were maintenance surveys.

### Statutory Surveys

At present, a total of 108 government Administrations around the world recognize and authorize ClassNK to act on their behalf to conduct surveys and issue certificates in accordance with international conventions and codes, as well as national requirements pertaining to ship safety and the prevention of marine pollution. In 2011, the Society carried out inspections and issued almost 52,000 statutory certificates based on these authorizations as follows:

- International Load certificates: 7,764
- SOLAS related certificates: 24,111
- MARPOL related certificates: 16,015
- Anti-fouling system certificates: 3,929

**ENERGY HORIZON**

a 141,136 gt LNG carrier built by Kawasaki Heavy Industries, Ltd. Ship & Off-shore Structure Company's Sakaide Shipyard for Nippon Yusen Kabushiki Kaisha

**SEP KUROSHIO**

an offshore platform built by Awakyo Co., Ltd. for Daiichi Kensetsu Kiko Co., Ltd.

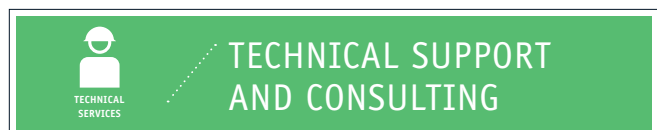
## Inspection and Approval Services

The Society provided a range of company approval related services including testing and measurement services related to class and equipment maintenance surveys as well as for maintaining the registration of approved firms during the year. Firms providing the following types of services were approved by the Society in 2011:

1. In-water survey of ships: 17
2. Thickness measurements on ships: 13
3. Radio inspection services: 26
4. Maintenance of fire fighting systems and equipment: 27
5. Maintenance of life saving equipment and appliances: 20
6. Voyage data recorders: 24
7. Hatch tightness testing: 1
8. Coating systems: 1

## Port State Control (PSC)

As with previous years, the Society continues to work with the managers and owners of detained vessels to help improve ship conditions and increase safety awareness. To this end, the Society's Survey Department published the Annual Report on Port State Control (August 2011), a compilation and analysis of PSC related statistics for the previous year, and distributed it to ship owners, ship managers, and other concerned parties. In addition, high-ranking members of the Society visited key maritime authorities around the world, including the Australian Maritime Safety Authority (AMSA), China MSA, Transport Canada, and the U.S. Coast Guard during the course of the year. ClassNK also sent representatives to bilateral Korea-Japan meetings, held in Korea, on inspection related matters and gave presentations on the Society's efforts to reduce the detention ratio of NK classed ships.



During 2011, ClassNK issued Statements of Compliance to 35 vessels under the Society's Condition Assessment Program (CAP). Statements of Compliance were also issued for the ballast water management plans of 737 ships. As of the end of 2011, the aggregate total number of Statements of Compliance issued by the Society stood at 258 for CAP and 5,057 for ballast water management plans.

No one is immune to the risk of incidents at sea as the rate of ship casualties of recent years can testify. The Society's Emergency Technical Assistance Service (ETAS) team is on call 24/7 to support the owners and operators of ships registered for this service in ensuring the safety of their vessels and minimizing the environmental impact if disaster should strike. In 2011, 84 more vessels registered for the Society's ETAS service, giving a total of 1,069 in all. In 2011, this team was called into action for 6 incidents related to maritime casualties to provide technical support.

**SHIN-25000II**

a 10,715 gt barge built by Nantong Yahua Shipbuilding Co., Ltd. for Yorigami Maritime Construction Co., Ltd.

**BAOSTEEL EMOTION**

a 119,446 gt ore carrier built by Namura Shipbuilding Co., Ltd.'s Imari Works for Mitsui O.S.K. Lines, Ltd.

**GENTA MARU**

a 3,989 gt refrigerated cargo carrier built by Kurinoura Dockyard Co., Ltd. for Toei Reefer Line Ltd.

**CERTIFICATION SERVICES**

### Audit and Registration of ISM Code and ISPS Code related Systems

In 2011, ClassNK had another busy year conducting ISM Code and ISPS Code related audits as a Recognized Organization on behalf of various flag administrations. Over the course of the year, the Society registered 57 new companies in accordance with ISM requirements, bringing the total number of companies registered with the Society to 625. Safety Management Certificates (SMC's) were issued to 878 ships in 2011, bringing the total number of vessels registered with the Society to 4,875. As of the end of 2011, NK conducts ISM authorizations on behalf of 64 Administrations. The Society also registered 795 ships to

ISPS Code requirements during the year, bringing the total number of ships registered with the Society under the ISPS Code to 4,179. NK currently conducts ISPS authorizations on behalf of 53 Administrations.

**ALBION BAY**

a 33,232 gt bulk carrier built by Nantong Cosco KHI Ship Engineering Co., Ltd. for "K" Line Bulk Shipping (UK) Limited

**INITIAL SALUTE**

a 50,987 gt bulk carrier built by Oshima Shipbuilding Co., Ltd. for Nippon Yusen Kabushiki Kaisha

**MORNING CRYSTAL**

a 59,524 gt vehicle carrier built by Imabari Shipbuilding Co., Ltd.'s Marugame Shipyard for Fleet Ship Management Pte. Ltd.

**CHRISTINA BULKER**

a 93,715 gt bulk carrier built by Hanjin Heavy Industries & Construction Co., Ltd. for Lauritzen Bulkers A/S

## Quality, Environmental Management, and Occupational Health & Safety Management Systems

ClassNK also conducts certification of quality management systems under the ISO 9001 standard, environmental management systems under the ISO 14001 standard, and occupational health and safety management systems under the OHSAS18001 standard. In 2011, a total of 15 organizations were newly registered under ISO 9001, bringing the total number registered with the Society to 383. The Society also registered 9 organizations to the ISO 14001 standard during the year, bringing the total number to 110. ClassNK registered 6 organizations to the OHSAS18001 standard under its new service started in 2010.

## Maritime Education and Training

The Society began offering the following new services in 2011 in response to growing demand for certification covering the education of maritime professionals.

### (1) Certification for Maritime Education & Training

The Society assesses and certifies the quality of courses offered by training centers and other institutions of learning based on a number of standards, including those of IMO model courses. In addition, the Society has also started a training course designed to develop skilled instructors capable of educating trainees in a range of maritime professions.

### (2) Certification for Seafarer Recruitment and Placement Services

This certification is awarded to manning agencies in the maritime sector whose service is assessed and found to conform to the standards set out in the applicable code (1.4) of the International Labour Organization's Maritime Labour Convention.





**HANJIN MATSUYAMA**

a 93,169 gt bulk carrier built by Sungdong Shipbuilding & Marine Engineering Co., Ltd. for Kumiai Senpaku Co., Ltd.

**WANGARATTA**

a 43,012 gt bulk carrier built by Tsuneishi Shipbuilding Co., Ltd. for Misuga Kaiun Co., Ltd.

**ClassNK Academy**

Drawing upon its extensive expertise in the survey of ships and audit of ship management systems, the Society has been holding Academy courses to help disseminate information on the fundamentals of shipbuilding, and the maintenance and operation of ships. 2011 saw ClassNK offer the 12 ClassNK Academy courses listed below at 9 locations in Japan, namely: Tokyo, Kobe, Hiroshima, Onomichi, Imabari, Yokohama, Fukuoka, Nagasaki, and Shimonoseki. The courses were attended by approximately 1,500 participants from shipowners, shipyards, manufacturers, and others with an interest in maritime affairs. In addition, courses were also offered overseas in China, Korea, the Philippines, Singapore, Malaysia, Indonesia, the United Arab Emirates, and Brazil. A combined total of roughly 2,000 persons attended these ClassNK Academy courses outside Japan. The core components of this program are as follows:

**Courses Related to Newbuildings**

- Classification Societies and Statutory Issues Course
- New Shipbuilding Course (Hull)
- New Shipbuilding Course (Machinery and Electrical Installations)
- Material and Welding Course

**Courses Related to Existing Ships**

- Damage and Maintenance Course (Hull)



- Damage and Maintenance Course (Machinery and Electrical Installations)
- Cargo Handling Appliance Course
- Safety Equipment Course
- Port State Control (PSC) Course

**Courses Related to Ship Management**

- Incident Investigation and Analysis
- Risk Management
- Internal Audits

**Training**

ClassNK actively runs and participates in a number of different training activities both for internal staff development and in cooperation with outside organizations. These training programs cover everything from surveyor training to internships, lectures, and other cooperative training programs designed to meet the needs of government agencies and the maritime industry. Some of the more notable training programs ClassNK conducted in 2011 are briefly introduced below.

**Surveyor Training**

In order to provide an unparalleled quality of service to its clients, the Society is dedicated to maintaining and improving the quality of its surveyors. To this end, ClassNK conducted a range of surveyor training programs for its surveyors (including new graduates) around the world during the year. In addition to the training provided by the Society's Head Office, many surveyors also underwent practical training aboard ship, notably the training vessel SEIUN MARU of the National Institute for Sea Training, or took additional survey training at one of the Society's local offices either in Japan or overseas. Practical training was also provided for NK surveyors on marine engines at Yanmar Co. Ltd.'s Amagaseki Factory T. T. School. In addition, plan examination training was also provided to surveyors assigned at the Society's various Plan Approval Centers around the world.

**DELHI HIGHWAY**

a 58,997 gt vehicle carrier built by Shin Kurushima Toyohashi Shipbuilding Co., Ltd. for Anson Steamship Inc.

**IRIS ACE**

a 43,709 gt vehicle carrier built by Shin Kurushima Dockyard Co., Ltd. for White Bear Maritime Limited

### **Marine Management Systems Auditor Training**

ClassNK conducted Maritime Security Auditor training for its surveyors at the Society's Training Center in Japan as well as at its Singapore and London Offices. Surveyors who have successfully completed Marine Management Systems Auditor training are qualified to perform audits of safety management systems and ship security systems.

### **Maritime Labor Inspector Training**

ClassNK conducted Maritime Labor Inspector training for surveyors at its Training Center in Japan as well as at the Society's Shanghai, Singapore, Piraeus, Genoa, London, New Orleans, and Panama Offices. The training is provided in anticipation of the Maritime Labour Convention coming into effect in 2012.

### **Lectures at the Eastern Japan Training Center for Shipbuilding Skills**

At the request of the Eastern Japan Training Center for Shipbuilding Skills, the Society presented lectures on the quality of defective welding to technical staff members new to the field of shipbuilding.

### **Lectures at the Innoshima Technical Center**

At the request of the Innoshima Technical Center, the Society presented lectures on "Case Studies of Ship Damage and Lessons Learned" to staff members at the Center.

### **Lectures for the Japanese Ministry of Land, Infrastructure, Transport and Tourism**

In 2011 ClassNK conducted a variety of lectures at the request of the Japanese Ministry of Land, Infrastructure, Transport and Tourism (MLIT). These included a lecture on "Principles of Ship Security Risk Assessments at Classification Societies" at its ISPS Code Seminar.

### **Cooperation with the International Mariners Management Association of Japan and the All Japan Seamen's Union**

Following a request from the International Mariners Management Association of Japan and the All Japan Seamen's Union, ClassNK provided lectures on maritime conventions and rules/regulations for related organizations at a training course held by Japan Marine Science Inc. for junior technical superintendents.

### **Cooperation with JICA**

Following a request from Japan International Cooperation Agency (JICA), the Society also presented lectures on the SOLAS and MARPOL conventions as well as on newbuilding surveys at the "Group Training Course in International Maritime Conventions and Ship Safety Inspection" held by the Ship Research Centre of Japan for maritime officials from various countries overseas.

### **ClassNK Technical Seminars Held in Japan**

Providing clients with the latest and most up to date technical information is one of the most important tasks undertaken by the Society. To this end, each year ClassNK conducts a number of technical seminars on a wide variety of timely topics. In 2011, ClassNK Technical Seminars were held twice in five locations across Japan, namely: Tokyo, Kobe, Imabari, Onomichi, and Fukuoka. The seminars drew roughly 1,380 attendees from across the entire spectrum of the maritime industry, including



**DORSET**

a 45,812 gt LPG carrier built by Kawasaki Heavy Industries, Ltd. Ship & Offshore-Structure Company's Sakaide Shipyard for Aither Maritime Limited

**SHIN KOHO**

a 93,031 gt bulk carrier built by Universal Shipbuilding Corporation, Tsu Shipyard for Magnus Line Inc.

shipowners, shipyard staff, and manufacturers, among others. The Japanese version of the Technical Seminar materials can be downloaded from the Technical Seminar Materials page of the Japanese version of the website only. A summary of the material covered in the seminars is listed below.

**ClassNK Spring Technical Seminar**

- (1) Report on the R&D Activities of the Society related to ship classification
  - Research on strength assessment against sloshing in membrane LNG carriers
- (2) Report on joint research projects based of the needs of industry
  - Introduction
  - Research on Resource Recycling Technologies in Ships
  - Research and Development on Heat Resistant Wireless (communication) Tags
  - Study on IT Applications in Ship Design
- (3) Latest international trends affecting shipbuilding and shipping
  - IMO and IACS trends

**ClassNK Autumn Technical Seminar**

- (1) Explanation of amendments to the Rules, etc. enacted since November 2010
  - Explanation of Rules related to machinery and electrical systems
  - Explanation of Rules related to equipment and materials
  - Explanation of Rules related to hull structures
  - Latest activities of IACS Hull/Machinery/Survey/Statutory Panel
- (2) Latest trends in international conventions and statutory requirements, etc.
- (3) Technical topics
  - NK activities regarding the Ballast Water Management Convention
    - An introduction to experimental models for system retrofit on existing vessels

- NK activities regarding the safe carriage of nickel ore
  - An introduction to ClassNK's "Guidelines for the Safe Carriage of Nickel Ore"

**ClassNK Award**

The "ClassNK 100 Awards" were originally established in 1999 to commemorate the 100th anniversary of the Society's founding. Since renamed the "ClassNK Award", the award is presented each year in recognition of outstanding research papers prepared by students at participating universities pursuing courses of study in naval architecture, marine engineering, as well as marine technology and ocean engineering. In 2011, awards were presented to select students at universities in Korea, China, and India.

**ClassNK Website**

ClassNK implemented a major upgrade of its Website in December 2011. The result is a Website that is more user-friendly and easier to navigate.

An important new feature of the site is the "My page" section. Creating a new account is simple, and, once registered, a user has free access to downloadable versions of the latest technical rules and guidelines.



<http://www.classnk.or.jp>

# ClassNK in Research



## Overview of Research and Development

The Society engages in a wide range of R&D activities related to ship classification. The guiding principle behind this R&D is the Society's dedication to ensuring the safety of life and property at sea, and preventing pollution of the marine environment. The Society also conducts joint research with various industry partners including public and private entities alike based on demands from the relevant sector. This not only includes R&D work concerned with conventional ship classification but also encompasses a wide variety of topics beneficial to the maritime and offshore industry as a whole.

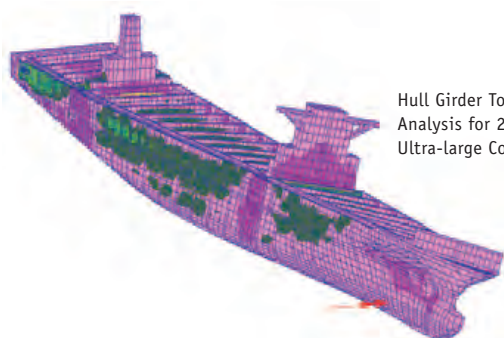
### 1. Research and Development related to Ship Classification

In 2011, ClassNK continued to pursue a number of R&D projects under its practical research and development program. These projects are aimed at developing a foundation of core technologies that will provide a basis for innovative, practical solutions, as well as research that can be adapted to create new and improved guidelines, and broaden the already expansive variety of technical services offered by ClassNK. These projects are focused mainly on two major areas: ultra large container ships, and protecting the marine environment.

Some of the research projects undertaken in 2011 as part of this program are briefly described below.

#### 1) Ultra-large container ships

- As container ships grow in size, some designs have begun experimenting with different arrangements of engine room and deck house. One example would be the 2-islander model in which the engine room is semi-aft and the deck house is located amidships. This project examined the effects of these different arrangements on structural strength and used the results obtained as the basis for revisions to "Guidelines for Container Carrier Structures (Guidelines for Hull Girder Torsional Strength Assessment)".
- Longitudinal bending strength assessments, with whipping taken into account, and measurements on actual ships were used to quantify the impact of hydroelastic response on the longitudinal strength and fatigue strength of a typical container carrier. The results obtained were reflected in discussions on related topics at organizations such as IACS, and presented at academic conferences and international meetings.
- Large-scale and full-scale structural model tests were carried out as part of a project designed to improve upon the guideline for brittle crack arrest design released in 2009. Brittle crack arrest



Hull Girder Torsional Strength  
Analysis for 2-islander Type  
Ultra-large Container Ships

tests (ultra-wide duplex ESSO tests) were also performed in order to determine the effect of plate thickness on the toughness value of steel required to arrest brittle crack.

#### 2) Protection of the marine environment

- This project focused on water emission fuels, a technology developed to reduce NOx emissions. More specifically, investigative research was carried out to determine the degree to which combustion of water emission fuels results in sulfuric acid corrosion of the exhaust pipe outlet. The results showed that under normal conditions, the possibility of increased corrosion was low. These results were compiled and summarized in various technical materials.



Large-scale Brittle Fracture Tests

## 2. Joint Research based on the Needs of Industry

The Society also engages in a range of joint research projects to meet the needs of the marine industry. Under this unique joint research scheme, the Society provides both technical as well as financial support based on proposals or requests from various external entities. As of the end of December 2011, 29 projects reached completion, while 82 are still ongoing. The following is an example of those projects completed in the past year.

### 1) R&D on retrofitting ballast water management systems on existing vessels\*<sup>1</sup>

In order to assist the maritime industry in achieving a smooth transition upon the coming into force of the Ballast Water Management Convention, the Society cooperated in the development of a prototype design for retrofitting an existing vessel with a ballast water management system. The prototype was used to pinpoint potential problems at the design stage. Based on these conclusions, the investigation then went on to explore viable solutions. The results obtained were compiled and reflected in materials used for the design of ship installations.

### 2) R&D on incorporating Cloud Computing to improve Coating Technical File (CTF) systems\*<sup>2</sup>

The purpose of this project was to examine the potential benefits to users of CTF systems of using the "cloud" in the creation and maintenance of coating technical files. This research used the CTF software system developed in 2010 as its base. It then introduced "cloud"-based elements to allow new functionality such as file sharing between shipyards. The end result was a software tool with much improved usability well equipped to reduce the burden on shipyards associated with managing CTF files.

### 3) R&D of the application of blast technologies utilizing the Konki-Jet on ships under repair\*<sup>3</sup>

The Society previously cooperated in the development of the Konki-Jet, an environmentally-friendly alternative to sand blasting, used in the surface treatment of ballast tanks. Practical application of the Konki-Jet in newbuildings is just over the horizon. While initially designed for treating the primer surfaces of ballast tanks of newbuildings, the results of R&D conducted up to 2010 indicated that there was potential in its application in other fields including in ships under repair. The driving concept behind this particular project was to facilitate the spread of this technology throughout the maritime industry by establishing workable applications in the repair of existing ships.



Test demonstration of application on existing ships

#### 4) Research into the development of heat-resistant wireless transmission tags (for hot-dip galvanization)\*<sup>4</sup>

In 2010, work was completed on the development of highly workable and long lasting radio-frequency identification tags (RFID) that are heat resistant to the point of even being capable of use in hot-dip galvanization. Using this technology, the 2011 project looked into developing a logistics system based on these RFID that would make process flows at shipyards more efficient. The research, which included trial application at an actual shipyard, bore positive results.



#### 5) Investigative research into development of NAPA based application (Part 2)\*<sup>5</sup>

The aim of this project was to customize the ship design software developed by Finland's NAPA to provide the additional functionality in basic tasks such as performance calculations and greater ease-of-use desired by designers.



Heat-resistant RFID tags  
Toppan Printing Co., Ltd.,  
Nippon Sheet Glass Co. Ltd.



### 2-1. Joint Research based on the Needs of Industry (Joint R&D on Reduction of GHG)

The Society also actively participates in a national project overseen by the Japanese government aimed at developing and applying greenhouse gas reduction technologies. In addition to providing technical support, it also includes significant financial support as well as participation in joint research.

The Society is dedicated to finding effective solutions to the problem of global warming while working towards the betterment of the international maritime community as a whole.

#### Cooperating Organizations (in random order):

\*1 The Cooperative Association of Japan Shipbuilders (CAJS) and various member companies of the Association including The Hakodate Dock Co., Ltd. Muroran Manufactory, Yamanishi Co., Ltd., Shin Kurushima Dockyard Co., Ltd., Sasebo Heavy Industries Co., Ltd., Kanasashi Heavy Industries Co., Ltd., IHI AMTEC Co., Ltd., Onomichi Dockyard Co., Ltd., Sanwa Dock Co., Ltd., Tsuneishi Shipbuilding Co., Ltd., Naikai Zosen Corporation, Asakawa Shipbuilding Co., Ltd.

\*2 Imabari Shipbuilding Co., Ltd., Kawasaki Heavy Industries, Ltd., Mitsubishi Heavy Industries, Ltd., Mitsui Engineering & Shipbuilding Co., Ltd., Naikai Zosen Corporation, Aso Central Corporation, Japan Ship Technology Research Association

\*3 IHI AMTEC Co., Ltd., Shibuya Machinery Co., Ltd., Chugoku Marine Paints, Ltd., Naikai Zosen Corporation, Mikami Shipbuilding Co., Ltd., Japan Ship Technology Research Association

\*4 Shin Kurushima Dockyard Co., Ltd.

\*5 The Shipbuilders' Association of Japan (SAJ) and various member companies of the Association

# Special Article

## The ClassNK Approach to the Maritime Labour Convention







International Labour Organization/Crozet M.

## 1. Development of the Maritime Labour Convention

Of the many driving forces behind globalization, the maritime industry is perhaps one of the largest, and has been for many decades. Indeed, 90 per cent of world trade is currently shipped by sea, making this “the world’s first genuinely global industry” according to a joint resolution by related organizations in 2001. Despite its worldwide scope and cross-border nature, there has hereto been a lack of global standards covering working conditions that were uniformly applicable right across the industry and the more than 1.2 million seafarers it employs. The increasing division of labor in shipping means that shipowners and seafarers have to grapple with a confusing array of national laws based on different international standards. While there is a framework of maritime conventions under the auspices of the International Labour Organization (ILO), their sheer number, close to 70 in all, made enforcement by government a problematic task. In response, the ILO drafted the Maritime Labour Convention (MLC) to consolidate and modernize this fragmented raft of existing regulations into a single standard. This standard forms the “fourth pillar” in a maritime regulatory regime alongside the International Convention for the Safety of Life at Sea (SOLAS), the International Convention on Standards of Training, Certification and Watchkeeping (STCW), and the International Convention for the Prevention of Pollution from Ships (MARPOL).

The MLC, while often referred to as a “seafarers’ bill of rights” is not devoted solely to protection of the employee, but also provides support to other stakeholders in the maritime industry.

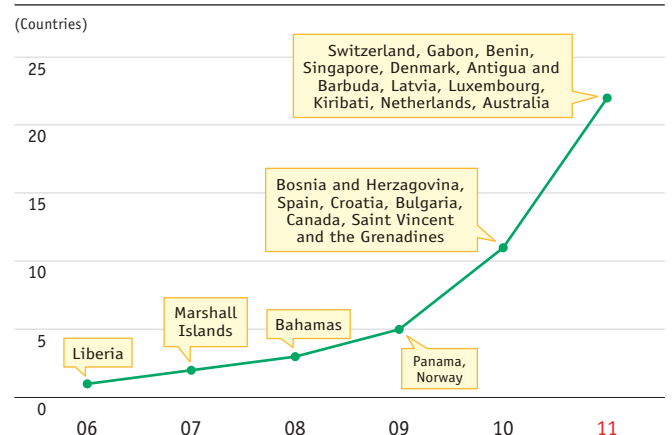
This brings us to a second goal of the Convention, the creation of a level playing field whereby best practice shipowners could provide the seafarers aboard their vessels with decent conditions of work without fear of being outcompeted on price by shipowners operating vessels flagged in non-ratifying nations and manned under less stringent conditions. The Convention achieves this by requiring ratifying states to apply the MLC’s standards to all foreign vessels coming into their ports regardless of whether or not that ship’s flag state is a ratifying member of the MLC.

By removing this favorable treatment for ships of non-ratifying members, the MLC removes the financial incentives for operators to deny their crews acceptable working and living conditions. This provision also makes ratification by member states more attractive from an economic perspective. Ships from a non-ratifying state may be detained under Port State Control inspections for relatively longer periods if the inspection indicates that the vessel in question does not satisfy the MLC’s minimum requirements. Shipowners of a non-ratifying member may, faced with the potential costs of such detention, decide that it is in their interests to flag their fleet elsewhere, in a state that has ratified the MLC.

## 2. Conditions for Ratification

The MLC will enter into force “...12 months after the date on which there have been registered ratifications by at least 30 Members with a total share in the world gross tonnage of ships of 33 per cent”. As of December 2011, the 22 members (see graph below) representing over 50 per cent of the world gross tonnage of ships have ratified the Convention. This means that the tonnage requirement for its entry into force has been met and all that is now required is the ratification of a further eight nations.

Number of Ratifications



### 3. Structure of the Maritime Labour Convention

The MLC is divided into three main sections: the Articles, setting out the principles and obligations of members, followed by the Regulations and Code (divided into Parts A and B covering mandatory and non-mandatory provisions respectively). The Regulations and the Code are then further broken down into general areas under the five "Titles" outlined below.

An important feature of this Convention that, it is believed, will accelerate ratification and implementation is flexibility. In the event that a member is unable to implement a mandatory provision under Part A in full accordance with the Convention text, implementation through national laws and regulations alone will be accepted and requirements deemed met on the condition that said laws and regulations contribute to the aim of the relevant provision, and that measures employed are "substantially equivalent" to those of the MLC.

#### 5 TITLES

##### Title 1

###### Minimum requirements for seafarers to work on a ship

This includes a minimum age of 16 for all workers employed or engaged on a ship, a valid medical certificate attesting that the holder is medically fit to perform their duties at sea, training and qualifications relevant to the duties being performed, and access to efficient and well-regulated recruitment and placement services.

##### Title 2

###### Conditions of employment

This section is designed to ensure that: agreements governing seafarer employment conditions are drawn up in conformance with set standards, seafarers are properly paid for their work, their hours of work or rest are regulated, they are given paid annual leave, provision is made to allow each seafarer to be repatriated at no cost to themselves, each seafarer is entitled to compensation in the event of the loss or foundering of their ship, manning levels on board are sufficient to operate the ship safely, efficiently, and with an adequate level of security, possibilities are in place for seafarers to pursue career and skill development.

##### Title 3

###### Accommodation, recreational facilities, food and catering

The aim of this section is the promotion of the health and wellbeing of seafarers through the provision of working and living conditions which meet requirements on such factors as room size, heating and ventilation, noise and vibration, recreational, and sanitary facilities. There are also standards laid down regarding the access to and quality of food and drinking water, as well as the conditions under which they are prepared and served.

##### Title 4

###### Health protection, medical care, welfare and social security protection

The purpose of this section is to ensure that all seafarers on the ship have access to adequate health protection and medical care, comparable to that available ashore, and that conditions on board are conducive to the prevention of accidents.

##### Title 5

###### Compliance and enforcement

The purpose of this title is to specify the obligations and responsibilities of members with regard the implementation and enforcement of the Convention, including the issuing of maritime labour certificates and declarations of maritime labour compliance, and the inspection and monitoring of seafarer recruitment and placement services.

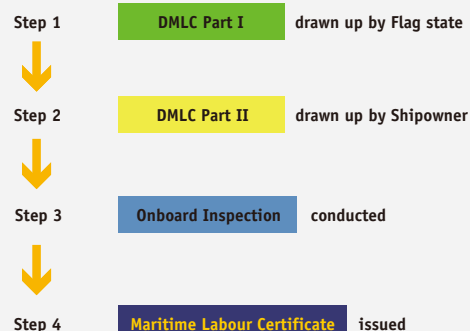
### 4. Maritime Labour Certificates

Under the Convention, ships of 500 gross tons or above on voyages to or between foreign ports are subject to inspections by the flag state or a Recognized Organization (RO), such as ClassNK, authorized to act on the flag state's behalf, after which a Maritime Labour Certificate is issued. The process begins with the preparation of a Declaration of Maritime Labour Compliance (DMLC). This document is divided into two parts: Part I specifying the national laws and regulations through which a list of 14 pre-approved areas of the MLC are to be implemented; and Part II, under which the owner or operator of the vessel sets out their plan for ensuring the continued compliance with the requirements of Part I between inspections. The inspection carried out by the flag state or RO will verify that the plan of Part II is in place and being implemented. A certificate is issued on successful conclusion of this inspection.

#### Maritime Labour Certificate (5 years validity)

Application: Ships of 500 GT or over which engage in international voyages

##### Flow of issuing Maritime Labour Certificate



## Shipboard Inspection

Methods of inspection

- ① Check documentation
- ② Interview seafarers

### Items inspected (14 items)

- |  |  |
|--|--|
| 1. Minimum age                                       | 8. Accommodation facilities                |
| 2. Medical certification                             | 9. Recreational facilities                 |
| 3. Qualifications of seafarers                       | 10. Food and catering                      |
| 4. Seafarers' employment agreements                  | 11. Health, safety and accident protection |
| 5. Use of private recruitment and placement services | 12. On-board medical care                  |
| 6. Hours of work or rest                             | 13. On-board complaint procedures          |
| 7. Manning levels                                    | 14. Payment of wages                       |

## 5. The Class NK Approach

As an organization committed to ensuring the safety of life at sea, the implications of this Convention for ClassNK are considerable. This importance is illustrated further by the fact that close to 75% of the Society's register in tonnage terms is flagged in states that have already ratified the MLC. While understanding the clear benefits that implementation of the MLC will bring, ClassNK also recognizes the complexity of the task faced by the maritime community in adapting to this transition. Since development of the Convention began, ClassNK has been actively promoting a program of activities designed to provide our clients with the necessary support. The focus of this support is identifying areas of internal rules and regulations currently implemented by owners and operators that fall short of meeting the MLC's mandatory requirements on labor conditions (Gap Analysis). The next step is to devise strategies for bridging this gap and setting down the plan required under Part II of the DMLC. With this in mind, the Society established its first ever subsidiary, ClassNK Consulting Service Co., Ltd., to provide a dedicated consulting service independent of ClassNK's survey arm.

The ClassNK approach can be broken down into the following four areas of activity:

1. Inspection, Assessment, and Certification
  - a) Perform inspections and issue certificates as an RO of authorizing flag states
  - b) Perform assessments and issue certificates for maritime manning services (Certificate for Seafarer Recruitment and Placement Services)
  - c) Develop related Guidance (Technical Rules, ClassNK Instructions, etc.)
2. Additional Client Services
  - a) Hold MLC-related seminars (Seminars held in 2011: BARI-SHIP 2011, International Mariners Management Association of Japan, shipowner round-table conferences, etc.)

- b) Distribute guidance for inspection/assessment applications
  - c) Provide related information (flag state legislation, etc.) via the ClassNK Website
3. Interaction with Flag States
  - a) Apply for authorization as an RO
  - b) Liaise with flag states on necessary requirements
4. Ongoing Education of ClassNK Technical Staff
  - a) Establish a training course to maintain and improve quality of the Society's surveyors and assessors

ClassNK has lost little time in taking a leadership role in MLC implementation. As part of the Inspection, Assessment, and Certification activities mentioned above, the Society has already begun issuing Statements of Compliance to vessels flagged in the Marshall Islands. These documents are issued upon successful inspection prior to the MLC coming into effect and allow for a smooth transition to the official convention certification once the Convention enters into force. In February 2011, the Panama Maritime Authority (PMA), the world's largest flag administration authorized ClassNK to perform inspection and certification in accordance with the MLC on its behalf. ClassNK thus became the first RO to have been delegated such authority by the PMA. As the MLC approaches the required numbers for ratification, ClassNK expects to be authorized as an RO by all major flag administrations that delegate such responsibilities. The activities outlined above fall within the scope of the "Working Conditions" element of the Society's "PrimeManagement" solution. This comprehensive services package consolidates ClassNK's approach to the human element of maritime management: education, training, safety and environment, and working conditions.

# International Activities



## Participation at the International Maritime Organization (IMO)

As part of its many international activities, ClassNK contributes to the International Maritime Organization (IMO) on a wide range of technical issues. In 2011, the Society attended the IMO meetings listed below, either as a member of the Japanese Government delegation or as a representative of the International Association of Classification Societies. In addition, the Society continues to dispatch a member of its staff to the IMO secretariat on a full-time basis.

Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF) — 53rd session	(January)
Sub-Committee on Bulk Liquids and Gases (BLG) — 15th session	(February)
Sub-Committee on Flag State Implementation (FSI) — 19th session	(February)
Sub-Committee on Ship Design and Equipment (DE) — 55th session	(March)
Maritime Safety Committee (MSC) — 89th session	(May)
Sub-Committee on Safety of Navigation (NAV) — 57th session	(June)
Technical Cooperation Committee (TC) — 61st session	(June)
Marine Environment Protection Committee (MEPC) — 62nd session	(July)
Sub-Committee on Fire Protection (FP) — 55th session	(July)
Sub-Committee on the Carriage of Dangerous Goods, Solid Cargoes and Containers (DSC) — 16th session	(September)

ClassNK conveys the outcomes of major meetings such as those of the Maritime Safety Committee (MSC) and the Marine Environmental Protection Committee (MEPC) to clients of the Society and related organizations through a variety of means, including a special mail service, the timely release of “NK Technical Information” bulletins, and updates to the “IMO International Convention Calendar” section of the ClassNK Website ([www.classnk.or.jp/hp/en/imo\\_conv\\_schedule/conv\\_schedule.asp](http://www.classnk.or.jp/hp/en/imo_conv_schedule/conv_schedule.asp)).



## Participation in the International Association of Classification Societies (IACS)

In recognition of its leading role in ship classification the Society was appointed chair Society of IACS for the period July 2010 through June 2011. In this role, ClassNK oversaw another busy year for the organization, chairing meetings of the IACS Council and General Policy Group, and spearheading the actions of these bodies in a number of central themes. These themes included the following:

- Technical contributions to the maritime industry and the IMO
- A more balanced reflection of the needs of the entire maritime industry
- Reinforcement of IACS’ commitment to the European Commission and a transition to a more transparent structure

In July 2011, the Society was made vice chair of IACS. In both this role and that of chair society, ClassNK has been actively involved in discussions with representatives of related maritime industries across the globe as well as speaking at international conferences.





As chairman of the IACS Expert Group on IMO Goal Based Standards (GBS), ClassNK was at the heart of the debate on the harmonized Common Structural Rules (CSR) and their compliance with the IMO's GBS. In order to ensure completion of the harmonization process, several groups were dedicated to this project, including the Small Group answering directly to the Council, the Hull Panel, and 10 project teams under its control. Together, these groups brought together input received from the maritime community and reflected this input in the development of the CSR.

The Society also plays an active role in meetings of the IACS Hull, Machinery, Survey, and Statutory Panels, as well as the 25 Project Teams taking into account the views of the maritime industries concerned in the development of Unified Requirements (UR) and Unified Interpretations (UI). The Society will also serve a three-year term as chair of the Survey Panel through January 2014, presiding over its biannual meetings held in March and September, and guiding the course of its activities.

The following meetings were held during 2011:

Council Meeting	2 times
General Policy Group Meeting	2 times
Quality Committee Meeting	2 times
Chairman's Office Meeting	4 times
Small Group Meeting (CSR and Quality Policy)	4 times
Expert Group Meeting (6 groups incl. GBS, EU, ILO)	7 times
Technical Panel Meeting (Hull, Machinery, Survey, and Statutory Panels)	9 times
Project Team Meeting (10 teams)	24 times
Small Group Meeting	4 times
IACS/Industry Joint Working Group Meeting (4 working groups incl. EEDI and ILO)	9 times

### Activities regarding ACS (The Association of Asian Classification Societies)

The Association of Asian Classification Societies is a group of six classification societies, including ClassNK, based in different nations in Asia with a keen interest in promoting safer, cleaner seas. ACS has met annually on an informal basis since 1993. During a special meeting held on 1 February 2010, the members unanimously agreed to formalize the ACS association by adopting an ACS Charter. In 2011, a major step was taken towards one of ACS's chief goals, enhancing technical research, with the establishment of seven working groups. These groups, chaired by ClassNK, were set up to develop each member's capabilities in the fields of ship recycling, Goal Based Standards, machinery seaworthiness, quality, Port State Control, ballast water management/GHG, and risk based design. In addition, ClassNK also took an active role in the association's Executive Committee and Technical Management Group, and served as ACS' liaison with the Safe Navigation & Environment Committee (SNEC) of the Asian Shipowners Forum (ASF), hosting the ASF/ACS Seminar on Safe Navigation & Environment Protection in September. Moreover, the Society's desire to nurture ever stronger ties with the Asian maritime community was illustrated further in December as ClassNK participated in the 5th Asian Shipbuilding Experts' Forum, an event bringing the region's shipbuilding industries together under one roof.



Left: 4th Middle East Technical Committee meeting in Dubai at the Hyatt Regency Hotel

Right: 9th British Committee meeting in London at Trinity House

## International Committees

As part of its goal of improving customer service and better meeting the needs of the global maritime industry, ClassNK holds many overseas committee meetings around the world. These meetings are an important venue for the two-way exchange of information and advice between the Society and key industry and regional stakeholders in local regions around the world.

One new overseas committee was established in 2011: the Indian Technical Committee. Each committee is comprised of distinguished members of the maritime community in each respective country. A full list of the ClassNK Committee meetings held during 2011 is shown in the following table.

Name of Committee Meeting	Date	Venue
17th Indian Committee	28 January	Mumbai
20th Greek Committee	3 February	Piraeus
4th Middle East Technical Committee	27 February	Dubai
2nd North American Committee	18 March	New York
9th British Committee	6 April	London
11th Taiwan Technical Committee	27 April	Taipei
16th China Technical Committee	13 May	Shanghai
22nd Korean Committee	13 May	Seoul
9th Hong Kong Technical Committee	17 May	Hong Kong
8th Turkish Committee	31 May	Istanbul
7th Malaysian Committee	8 July	Johor Bahru
8th Singapore Committee	15 July	Singapore
9th Philippine Committee	28 July	Manila
21st Danish Technical Committee	2 September	Copenhagen
15th Singapore Technical Committee	12 September	Singapore
1st Indian Technical Committee	4 October	Mumbai
18th China Committee	20 October	Kunming
37th Hong Kong Committee	21 October	Hong Kong
3rd Greek Technical Committee	8 November	Piraeus
18th Korean Technical Committee	9 November	Busan
12th Taiwan Committee	11 November	Taipei
3rd Turkish Technical Committee	30 November	Istanbul
2nd Latin American Committee	1 December	Rio de Janeiro
9th Indonesia Committee	2 December	Jakarta

# Authorizations Granted to ClassNK

As of 1 December 2011

Countries	Conventions	TM	LL	SOLAS				MARPOL 73/78				AFS	
				SC	SE	SR	ISM	ISPS	I	II	IV		VI
Algeria		★	★	★	★	★		★	★				
Antigua and Barbuda		●	●	●	●	●	●		●	●	●	●	●
Argentina			★	★	★	★						★	★
Aruba			★	★	★	★	●		★	★	★		
Australia		●	●	●	●	●			●	●	●	●	●
Austria*													
Bahamas		●	●	●	●	●	●	●	●	●	●	●	●
Bahrain		●	●	●	●	●	●	●	●	●	●	●	●
Bangladesh		●	●	●			●	●	●	●	●	●	
Barbados		●	●	●	●	●	●	●	●	●	●	●	●
Belgium		★	●	●	★	★	★	★	★	●	●	●	●
Belize		●	●	●	●	●	●	●	●	●	●	●	●
Bermuda		●	●	★	●	●			●	●	●	●	●
Bolivia		●	●	●	●	●	●		●	●	●		★
Brazil		●	●	●	●	●	●	●	●	●	●	●	●
British Virgin Islands		●	●	★					●	●	●	★	●
Brunei		●	●	●	●	●	●		●	●	●	●	●
Canada			●										★
Cape Verde		●	●	●	●	●	●		●	●	●	●	●
Cayman Islands		●	●	●	★	★			★	●	●	●	●
Chile		★	★	★	★	★	★	★	★	★	★	★	★
Comoros		●	●	●	●	●	★	★	●	●	●	●	●
Cook Islands		●	●	●	●	●	●	●	●	●	●	●	●
Cuba			★	★	★	★							★
Curacao			★	★	★	★	★	★	★	★	★	★	★
Cyprus		●	●	●	●	●	★	●	●	●	●	●	●
Denmark		●	●	●	●	●	●	●	●	●	●	●	●
Djibouti		●	●	●	●	●			●	●			
Dominica		●	●	●	●	●	●	★	●	●	●	●	
Dominican Republic		●	●	●	●	●			●	●			
Ecuador			★	★	★	★			★	★			★
Egypt		★	●	★	★	★	★	●	★			★	
Equatorial Guinea		●	●	●	●	●	★	●	●	●			●
Fiji		★	★	★	★	★			★				
Finland													
Gambia		★	★	★	★	★			★				
Georgia		●	●	●	●	●	●	●	●	●	●	●	●
Ghana		●	●	●	●	★			●	●	●	●	●
Gibraltar		●	●	●	●	●			●	●	●	●	●
Greece		●	●	●	●	●	●	●	●	●	●	●	●
Honduras		●	●	●	●	●	●	●	●	●	●	●	●
Hong Kong		●	●	●	●	●	●	●	●	●	●	●	●
Iceland		★	●	●	●	●	●		●	●	★		
India			★	★	★	★			★	★	★		★
Indonesia		★	★	★	★	★			★	★	★	★	
Iraq			★	★	★	★							
Ireland			●	★		★	●	●	●	●	★	●	●
Isle of Man		●	●	●	●	●			●	●	●	●	●
Israel		●	●	●	★	★	★		★			●	●
Jamaica		●	●	●	●	●	●	●	●	●	●	●	●
Japan			●	●	●	●	●	★	★	★	★	★	●
Jordan			●	●	●	●	●	●	●	●	●	●	●
Kenya			●										
Kiribati		●	●	●	●	●	●	●	●	●	●	●	●
Kuwait		●	●	●	★	★	★	●	●	●	●	●	●
Lebanon			●	★	★	★	★						★
Liberia		●	●	●	●	●	●	●	●	●	●	●	●
Libya		★	●	●	●	●	●	●	●	★			
Luxembourg		●	●	●	●	●	●	●	●	●	●	●	●
Madeira		●	●	●	●	●			●	●			



Countries	Conventions		SOLAS					MARPOL 73/78				AFS
	TM	LL	SC	SE	SR	ISM	ISPS	I	II	IV	VI	
Malaysia	●	●	●	●	●	●	●	●	●	●	●	●
Maldives	●	●	●	●	●	●	●	●	●	●	●	●
Malta	★	★	★	★	★	●	★	★	★	●	●	●
Marshall Islands	●	●	●	●	●	●	●	●	●	●	●	●
Mauritius	●	●	●	●	●	●	●	●	●	●	●	●
Mexico	★	★	★	★	★	●	●	★	●	●	●	●
Morocco	★	●	★	★	★	★	●	★	★	●	●	●
Mozambique	●	●	●	●	●	●	●	●	●	●	●	●
Myanmar	●	●	●	●	●	●	●	●	●	●	●	●
Namibia	●	●	●	●	●	●	●	●	●	●	●	●
Netherlands	●	●	★	★	★	●	●	●	●	●	●	●
New Zealand*	●	●	●	●	●	●	●	●	●	●	●	●
Norway	●	●	●	●	●	●	●	●	●	●	●	●
Oman	●	●	●	●	●	●	●	●	●	●	●	●
Pakistan	●	●	●	●	●	●	★	●	●	●	●	●
Panama	●	●	●	●	●	●	●	★	●	●	●	●
Papua New Guinea	●	●	●	●	●	●	●	●	●	●	●	●
Paraguay	★	★	★	★	★	★	●	●	●	●	●	●
Peru*	●	●	●	●	●	●	●	●	●	●	●	●
Philippines	●	●	●	●	●	●	●	●	●	●	●	●
Portugal	●	★	★	●	●	●	●	★	●	●	●	●
Qatar	●	●	●	●	●	●	●	●	●	●	●	●
Saudi Arabia	●	●	●	●	●	●	●	●	●	●	●	●
Seychelles	●	●	●	●	●	●	●	●	●	●	●	●
Singapore	●	●	●	●	●	●	●	●	●	●	●	●
Solomon Islands	●	●	●	●	●	●	●	●	●	●	●	●
Somalia	●	●	●	●	●	●	●	●	●	●	●	●
South Africa	●	●	●	●	●	●	●	★	●	●	●	●
Spain*	●	●	●	●	●	●	●	●	●	●	●	●
Sri Lanka	●	●	●	●	●	●	●	●	●	●	●	●
St. Kitts and Nevis	●	●	●	●	●	●	●	●	●	●	●	●
St. Vincent and the Grenadines	●	●	●	●	●	●	★	★	●	●	●	●
Switzerland	●	●	●	●	●	●	●	●	●	●	●	●
Syria	●	●	●	●	●	●	●	●	●	●	●	●
Tanzania	●	●	●	●	●	●	●	●	●	●	●	●
Thailand	★	★	★	★	★	★	●	★	●	●	●	★
Tonga	●	●	●	●	●	●	●	●	●	●	●	●
Tunisia	●	●	★	●	●	●	●	●	●	●	●	★
Turkey	★	●	★	★	★	●	●	●	●	●	●	●
Tuvalu	●	●	●	●	●	●	●	●	●	●	●	●
UAE	●	●	●	●	●	●	●	●	●	●	●	●
Uganda	●	●	●	●	●	●	●	●	●	●	●	●
UK	●	●	★	●	●	★	★	●	●	●	●	●
Uruguay	●	★	★	★	★	●	●	●	●	●	●	★
USA	●	●	●	●	●	●	●	●	●	●	●	●
Vanuatu	●	●	●	●	●	●	●	●	●	●	●	●
Venezuela	●	★	●	●	●	●	●	●	●	●	●	●
Viet Nam	★	★	★	★	★	★	●	★	★	★	●	★
Yemen	●	●	●	●	●	●	●	●	●	●	●	●

## Abbreviations:

● -- Authority has been delegated.

★ -- Authority has been delegated subject to some conditions.

\* -- Authority has been delegated in accordance with international conventions or national regulations other than those listed in this table.

TM: International Tonnage Certificate (1969)

LL: International Load Line Certificate

SC: Cargo Ship Safety Construction Certificate

SE: Cargo Ship Safety Equipment Certificate

SR: Cargo Ship Safety Radio Certificate

ISM: International Safety Management Code

ISPS: International Ship and Port Facility Security Code

I, II, IV, VI: MARPOL Annex I, II, IV, VI

AFS: International Convention on the Control of Harmful Anti-fouling Systems on Ships

# Organization

## ClassNK in Committee

### ■ ADVISORY COUNCIL

Members	Chang Yung-fa Frank W. K. Tsao Sumate Tanthuwantit	Group Chairman Group Chairman President	Evergreen Group IMC Group of Companies Regional Container Lines Group
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### ■ BRITISH COMMITTEE

Chairman	J. G. Davis CBE	Chairman	IMIF (International Maritime Industries Forum)
Members	F. M. Marchant MBE Douglas W. Lang Peter McIntosh Chris Bailey Sunil Malhotra Michael G. Parker Jeremy G. Hodgson Epaminondas G. E. Embiricos Philip D. Atkinson Tim E. Long Alastair Fischbacher Jan van Dijk Michael K. Drayton John Kerr	Managing Director Chairman, Joint Hull Committee Technical & Upstream Assurance Manager Chief Operating Officer Chairman London Representative Chairman Technical Director Managing Director General Manager General Manager Ex-Chairman Operations Director	Anglo-Eastern (UK) Ltd. Ark Syndicate Management Limited BP Shipping Limited British Marine Plc CMA CGM (UK) Holdings Limited Deutsche Schiffsbank AG Embiricos Shipbrokers Ltd. Graig Ship Management Limited International Marine Transportation Ltd. Rio Tinto Shipping Limited Shell Shipping Technology The Baltic Exchange V. Ships UK Limited

### ■ CHINA COMMITTEE

Chairman	Sun Jiakang	Executive Vice President	China Ocean Shipping (Group) Company (COSCO)
Member	Li Tian Bao Gao Yongjun  Zhao Zhanjun Xu Ziqiu Tao Jian Lu Yi Bin  Yan Zhi Chong Li Zhong  Hou Liping Li Cheng Han Qing Ge En Hua Wang Yong Zhang Haisen Yang Jian Ming Han Cheng Min Huang Zi Qiang  Wang Yongliang Tian Zhong Shan	Board Chairman Manager, Fleet Planning Department, Strategic Planning Division President Assistant President Vice President Deputy Manager, Technical Dept. of Enterprises Management Div. Managing Director Vice Division-Chief, Business & Marketing Dept. Deputy Managing Director Vice President Vice President Director Vice President President Vice President President President President  Vice President Executive Director, General Manager	Bohai Shipbuilding Heavy Industry Co., Ltd China Ocean Shipping (Group) Company (COSCO)  China Ship Design & Research Center Co., Ltd. China Shipbuilding Industry Corporation China Shipbuilding Trading Co., Ltd. China Shipping (Group) Company  China Shipping Development Company Limited China State Shipbuilding Corporation  COSCO Container Lines Dalian Shipbuilding Industry Co., Ltd Grand China Logistics Holding (Group) Co., Ltd Hebei Ocean Shipping Co., Ltd. Hudong-Zhonghua Shipbuilding (Group) Co., Ltd. Jiangnan Shipyard (Group) Co., Ltd. JiangSu Ocean Shipping Company Ltd. Nantong COSCO Khi Ship Engineering Co., Ltd. Pacific King International Shipping Management Co., Ltd., Shanghai Shanghai Waigaoqiao Shipbuilding Co., Ltd. Sinotrans Shipping Limited

### ■ GREEK COMMITTEE

Chairman	Charalambos N. Mylonas	Chairman	Transmed Shipping Ltd.
Members	Markos A. Nomikos Nicolas Hadjioannou Tatiana V. Petalas Michael D. Chandris Andreas N. Hadjiyiannis Dimitrios S. Tsolakis Anna G. Dracopoulos Ghikas J. Goumas Kriton Lendoudis Nicolas A. Frangistas	Director  Chairman  President Director Director Managing Director Chief Executive Officer	A. M. Nomikos Transworld Maritime Agencies S.A. Alassia NewShips Management Inc. Carras (Hellas) S.A. Chandris (Hellas) Inc. Cyprus Maritime Co., Ltd. DST Shipping Inc. Empros Lines Shipping Co. SP. S.A. Equinox Maritime Ltd. Evalend Shipping Co. S.A. Franco Compania Naviera S.A.

George Fidakis  
 Michael E. Veniamis  
 Panagiotis Christodoulatos  
 Constantinos D. Krontiras  
 Dimitris Z. Kritsas  
 Panagiotis C. Laskaridis  
 George J. Souravlas  
 Diamantis P. Diamantides  
 Dionysios Delaportas  
 Theodore P. Angelopoulos  
 Babis Ziogas  
 Angeliki Frangou  
 Ori Angel  
 Ted Petropoulos  
 Dimitris E. Patrikios  
 George S. Livanos  
 Constantinos J. Martinos  
 Panagiotis N. Tsakos  
 Michael M. Scufalos  
 I. Kehagias  
 Diamandis J. Caloghiros

Chairman  
 Director  
 Managing Director  
 Director  
 President  
 Managing Director  
 CEO  
 Managing Director  
 General Manager  
 Managing Director  
 Chairman of the Board and  
 Chief Executive Officer  
 Managing Director  
 Chairman  
 General Manager  
 Chairman  
 Managing Director  
 President  
 Managing Director  
 F.I.C.S.  
 Managing Director

Globus Maritime Ltd.  
 Golden Union Shipping Co. S.A.  
 Ikaros Shipping & Brokerage Co., Ltd.  
 Kristen Marine S.A.  
 Kritsas Shipping S.A.  
 Laskaridis Shipping Co. Ltd.  
 Load Line Marine S.A.  
 Marmaras Navigation Ltd.  
 Meadway Shipping & Trading Inc.  
 Metrostar Management Corp.  
 MFS Shipmanagement  
 Navios Maritime Holdings Inc.  
 Ofer Shipping Group  
 Petrofin Ship Management Inc.  
 Springfield Shipping Co. Panama S.A.  
 Sun Enterprises Ltd.  
 Thenamaris Ships Management Inc.  
 Tsakos Shipping & Trading S.A.  
 Union Commercial Inc.  
 White Sea Navigation S.A.  
 Z & G Halcoussis Co., Ltd.

## ■ HONG KONG COMMITTEE

Chairman Sabrina S. M. Chao  
 Honorary Chairman M. H. Liang  
 Members Ning Pao Kun  
 Robert Alexander Ho  
 Andrew Y. Chen  
 Huang Shao Jie  
 Arthur Bowring  
 Frank W. K. Tsao  
 Jack Hsu  
 Kwai Sze Hoi  
 Jan Rindbo  
 C. C. Liu  
 M. T. Yung  
 Peter Cheng  
 Raymond Pao  
 Li Hua  
 Kenneth K.W. Lo  
 Edward S. C. Cheng  
 Richard Hext  
 David C. C. Sook  
 Jim Nelson

Vice Chairman  
 Chairman  
 Deputy Managing Director  
 President  
 Chairman & Managing Director  
 Director & President  
 Managing Director  
 Group Chairman  
 Managing Director  
 Chairman & President  
 Chief Operating Officer  
 Chairman & President  
 Director,  
 General Manager Shipping Division  
 Managing Director  
 President  
 Executive Director,  
 Deputy General Manager  
 Chairman & Managing Director  
 Chairman  
 Deputy Chairman & CEO  
 Managing Director  
 Managing Director

Wah Kwong Maritime Transport Holdings Limited  
 Island Navigation Corporation International Ltd.  
 COSCO (H.K.) SHIPPING CO., LIMITED  
 Fairmont Shipping (HK) Ltd & Affiliates  
 Grand Seatrade Shipping Company Ltd.  
 Hong Kong Ming Wah Shipping Co., Ltd.  
 Hong Kong Shipowners Association  
 IMC Group of Companies  
 Oak Maritime (H.K.) Inc., Ltd.  
 Ocean Longevity Shipping and Management Co., Ltd.  
 Pacific Basin Shipping (HK) Ltd.  
 Parakou Shipping Ltd.  
 Patt Manfield & Co., Ltd.  
 Peter Cheng Naval Architect & Marine Consultant Ltd.  
 Regent Shipping Ltd.  
 Sinotrans Shipping Limited  
 Teh-Hu Cargocean Management Co., Ltd.  
 Unique Shipping (H.K.) Ltd.  
 Univan Ship Management Limited  
 Valles Steamship Co., Ltd.  
 Wallem Shipmanagement Ltd.

## ■ INDIAN COMMITTEE

Chairman K. M. Sheth  
 Vice Chairman R. L. Pai  
 Members V. K. Sood  
 H. Ansari  
 R. S. Nakra  
 Ashok K. Srivastava  
 A. K. Bahl  
 Ashok V. Chowgule  
 Shri D. Mehrotra  
 A. R. Ramakrishnan  
 M. P. Dhanuka

Executive Chairman  
 Advisor  
 Advisor (Shipping)  
 Visiting Professor (Insurance)  
 Managing Director  
 Chief Executive Officer  
 Vice President (Shipping)  
 Executive Director  
 Deputy Chief Surveyor with the  
 Government of India-cum-Sr.DDG (Tech)  
 Wholetime Director  
 Executive Director, Marketing

The Great Eastern Shipping Co., Ltd.  
 Reliance Industries Limited  
 ABG Shipyard Ltd.  
 Arcadia Shipping Limited  
 British Marine Plc  
 Chowgule and Company Private Limited  
 Directorate General of Shipping  
 Essar Shipping Limited  
 GEE Limited

Anil Devli  
Atul J. Agarwal  
M. Jitendran  
S. Govindrajan  
J. V. S. Rao  
  
Sujata Naik Tolani

Chief Executive Officer  
Managing Director  
Chief Executive Officer  
Managing Director  
Executive Director,  
Shipbuilding & Services Department  
Chairperson

Indian National Shipowners' Association  
Mercator Limited  
Pipavav Shipyard Limited  
Progressive Shipping Consultancy Services (PVT) Ltd.  
The Shipping Corporation of India Ltd.  
  
Tolani Shipping Company Limited

## ■ INDONESIA COMMITTEE

Chairman Widihardja Tanudjaja  
Honorary Members Oentoro Surya  
Members Antonius W. Sumarlin  
Chan kok Leong  
Ir. Tjahjono Roesdianto  
Carmelita Hartoto  
Arifin Soenardjo, MH  
  
Suhartoko  
Bagoes Krisnamoerti  
Asmari Herry  
Praditya Nirtara  
Stephen Layarda  
Andy A. Mallian  
Kasim Arifin  
Amir Gunawan  
Riry Syeried Jetta  
Yance Gunawan  
Hendrato  
H. Soenarto  
Joeswanto Karijodimedjo  
Henry Djuhari  
Frank Menaro  
Ir. Harsusanto, MM  
Ibnu Wibowo  
Benny Winarto  
Johnson W. Sutjipto

President Director  
President Director  
Ex-President Director  
Director  
Chairman  
Chairman  
Director of Marine Safety,  
Directorate General of Sea Transportation,  
Ministry of Transportation  
Senior Vice President of Shipping  
President Director  
Director  
President Director  
Managing Director  
Fleet Director  
President Director  
President Director  
President Director  
President Director  
General Manager, Liner Division  
President Director  
President Director  
President Director  
Fleet Director  
President Director  
President Director  
President Director & CEO  
President Director

PT. Berlian Laju Tanker Tbk  
PT. ARPENI PRATAMA OCEAN LINE Tbk.  
PT Humpuss Intermoda Transportasi Tbk  
GBLT Shipmanagement Pte. Ltd.  
Indonesia Shipbuilding and Offshore Industry Association  
Indonesian National Shipowners' Association  
Republic of Indonesia  
  
PERTAMINA SHIPPING  
PT Humpuss Intermoda Transportasi Tbk  
PT Samudera Indonesia, Tbk  
PT. Adnyana  
PT. Alpha Pacific Lines  
PT. Arpeni Pratama Ocean Line Tbk.  
PT. Bumi Perkasa Bahtera  
PT. Daya Radar Utama  
PT. Dok & Perkapalan Kodja Bahari (PERSERO)  
PT. Dumas Tanjung Perak Shipyard  
PT. Gesuri Lloyd  
PT. Gurita Lintas Samudera  
PT. Janata Marina Indah  
PT. Meranti Maritime  
PT. Meratus Line  
PT. PAL Indonesia  
PT. PANN (Persero)  
PT. Pelayaran Caraka Tirta Perkasa  
PT. Wintermar Offshore Marine Tbk

## ■ KOREA COMMITTEE

Chairman S. R. Pae  
Members Sang-Tae Nam  
Hyon-Soo Bong  
Oi-Hyun Kim  
  
Weon-Gil Choe  
Byung Wook Oh  
Doo-Chan Chang  
Jin Bang Lee  
Suh, Myung-Chun  
Sangbok Lee  
Insik Roh  
Kyuho Whang

President & CEO  
President & C.E.O.  
Senior Executive Vice President/CTO  
Senior Executive Vice President, Chief  
Operating Officer/Shipbuilding Division,  
Chief Executive Officer  
President & CEO  
President & C.E.O.  
Ex-Chairman  
Chairman & CEO  
President & CEO  
Representative director, President  
President & CEO  
President & CEO

STX Pan Ocean Co., Ltd.  
Daewoo Shipbuilding & Marine Engineering Co., Ltd.  
Hanjin Heavy Industries & Construction Co., Ltd.  
Hyundai Heavy Industries Co., Ltd.  
  
Hyundai Mipo Dockyard Co., Ltd.  
Hyundai Samho Heavy Industries Co., Ltd.  
Korea Committee  
Korea Line Corporation  
Namsung Shipping Co., Ltd.  
Pan Continental Shipping Co., Ltd.  
Samsung Heavy Industries Co., Ltd.  
SK Shipping Co., Ltd.

## ■ LATIN AMERICAN COMMITTEE

Chairman Agenor Cesar Junqueira Leite  
Members Raúl E. Podetti  
  
José Luiz Nunes Ruiz  
Ricardo Lutz da Cunha e  
Menezes

Shipping Director  
Vicepresidente,  
Ministerio de Asuntos Agrarios y Producción  
Deputy Technical Director  
Director Commercial

Transpetro  
Astillero Rio Santiago  
  
Elcano, S.A.  
Estaleiro Atlântico Sul S/A

Patricio Mondaca	Joint General Manager	Humboldt Shipmanagement
Hiroshi Nishiyama	General Manager	Kawasaki del Peru S.A.
Ricardo Vahia Alves de Souza	Director	KROMAV Engenharia Ltda.
Ricardo dos Santos	Director	P&O Maritime Services Paraguay S.A.
Vladimir Contreras	Naval Architect/Project Engineer	Petróleos de Venezuela S.A.
Tomazo Garzia Neto	President	Projemar
Roberto Hetz Vorpahl	Chief Executive Officer	Sociedad Nacional Maritima S.A.
Orlando Faundez Rojas	Head of Engineering & New Building Projects	Southern Shipmanagement (Chile) Ltda
Paul Casanova Claros	General Manager	Transgas Empresa Naviera
Ruben Galindo Villanueva	Technical and Fleet Managing Director	Transportacion Maritima Mexicana S.A. de C.V.
Victor Montes	Manager & Marine Engineer	TMM Group
		Ultrapetrol S.A.

### ■ MALAYSIAN COMMITTEE

Chairman	Datuk Nasarudin bin Md Idris	President/Chief Executive Officer	MISC BERHAD
Vice Chairman	Ir. Nordin Mat Yusoff	Vice President, Group Technical Services	MISC BERHAD
Members	Azmi Bin Ahmad	Group Managing Director/CEO	Alam Maritim Resources Berhad
	Thomas Ng Chin Kuan	Executive Director	Coastal Contracts Bhd.
	Dato' Ir. Abdul Hak B. Md. Amin	Managing Director	E.A. Technique(M) Sdn. Bhd.
	Billy Tan Gim Hoe	Chairman	Ecoship Sendirian Berhad
	Dato' David Tan	Managing Director	Everise Maritime Sdn. Bhd.
	Datuk Dr. Elias Kadir	Senior Executive Director	Felda Transport Services Sdn Bhd
	Johari Mohd Noh	Managing Director	Gagasan Carriers Sdn Bhd
	Tan Sri Dato' Seri Halim Bin Mohammad	Executive Chairman and Managing Director	Halim Mazmin Bhd.
	Dennis Liong	General Manager	Hub Shipping Sdn. Bhd.
	Samsudin Mohd Yassin	Chief Executive Officer	Petronas Maritime Services Sdn. Bhd.
	Lawrence Wong	General Manager	Sarawak Land Shipyard Sdn. Bhd.
	Lim Piak Wah	Executive Director	Serudong Shipping Sdn. Bhd.
	Vincent Ling Lu Yew	Director	Shin Yang Shipyard Sdn. Bhd.
	Datuk Lau Nai Hoh	Group C.E.O./Group M.D.	Tuong Aik Shipyard Sdn. Bhd.
	Torbjorn J. Aaker	General Manager WSM Malaysia, Regional Manager WSM Asia	Wilhelmsen Ship Management Sdn. Bhd.

### ■ NORTH AMERICAN COMMITTEE

Chairman	Alexis P. Zoullas	President	Eagle Shipping International (USA) LLC
Members	John Calicchio	Chairman	Apex Bulk Carriers LLC
	Royce C. Wilken	President	ARTCO
	John D. Noonan	President	Chembulk Tankers
	Hiroimi Akasaka	President/C.O.O.	Dowa Line America Co., Ltd.
	Ramesh Bhat	Technical Director	Eagle Shipping International (USA) LLC
	Calvin W. S. Cheng	Chairman	Eastmark Associates, Inc.
	Byron M. Sugahara	President	Fairfield-Maxwell Services, Ltd.
	Charles Leung	Senior Vice President	Fairmont Shipping (Canada) Limited
	Thomas H. Paterson	Vice President	Fednav Limited
	Michael M. Lee	Owned Fleet & Business Development	Foremost Maritime Company LLC
	Shunji Sasada	President	Navios Corporation
	Ronald W. Tursi	Chief Operating Officer	Roymar Ship Management Inc.
		President	

### ■ PHILIPPINE COMMITTEE

Chairman	Arben E. Santos	President & CEO	Southwest Maritime Group of Companies
Members	Roy R. Alampay	Vice President for Operations & General Manager	Baliwag Navigation, Inc.
	Emerson M. Lorenzo	Administrator Maritime Industry Authority Department of Transportation & Communications	
	Rogelio A. Torres	Vice President Traffic & Operations	Eastern Shipping Lines, Inc.

Mok Kim Whang  
Michael G. Bernardino  
Doris Magsaysay Ho  
Edgardo G. Lacson  
Thomas A. Tan  
Fausto C. Tiu  
Hitoshi Kono

President  
Vice President  
President & Chief Executive Officer  
President  
President  
Executive Vice President  
President

Keppel Philippines Marine, Inc.  
Loadstar International Shipping, Inc.  
Magsaysay Maritime Corporation  
MIS Maritime Corporation  
SMC Shipping and Lighterage Corporation  
Solid Shipping Lines Corporation  
Tsuneishi Heavy Industries (Cebu), Inc.

## ■ SINGAPORE COMMITTEE

Chairman Aloysius Seow  
Members Eng Aik Meng  
Tong Chong Heong  
Lam Yi Young  
Kuok Khoon Kuan  
Teo Cho Keng  
Wong Weng Sun

Chief Operating Officer  
President  
Chief Executive Officer  
Chief Executive  
Managing Director  
Senior Executive Director,  
Technical Division  
President & C.E.O.

Ocean Tankers (Pte) Ltd.  
APL Co Pte Ltd  
Keppel Offshore & Marine Ltd  
Maritime and Port Authority of Singapore  
Pacific Carriers Limited  
Pacific International Lines (Pte) Ltd.  
Sembcorp Marine Ltd

## ■ THAI COMMITTEE

Chairman Sutep Tranantasin  
Members Warawan Nganthavee  
Bhumindr Harinsuit  
Wirat Chanasit  
Chanet Phenjati  
Nat Chubchai  
Suraphon Meesathien  
Jaipal Mansukhani  
Wittawat Svasti-Xuto  
Voravit Visitkitjakarn  
Nitas Krongvanitchayakul  
Yodchai Ratanachiwakorn  
Teruo Kondo

Executive Vice President  
Managing Director  
Managing Director  
Managing Director  
President  
Director of Ship Standard Bureau  
Vice President  
Director  
Vice President,  
International Trading Business Unit  
Managing Director  
Managing Director  
Operation Director  
Chief Production Manager

Regional Container Lines Public Co., Ltd.  
Asian Marine Services Public Co., Ltd.  
Bhureemas Navee Co., Ltd.  
Italhai Marine Ltd.  
Jutha Maritime Public Co., Ltd.  
Marine Department  
Nathalin Group  
Precious Shipping Public Co., Ltd.  
PTT Public Co., Ltd.  
Sang Thai Shipping Co., Ltd.  
Thaioil Marine Co., Ltd.  
Thoresen & Co., (Bangkok) Ltd.  
Unithai Shipyard & Engineering Ltd.

## ■ TURKISH COMMITTEE

Chairman Yalcin Sabanci  
Members Necdet Aksoy  
Ali Umur  
Kenan S. Sumra  
Erhan Bayraktar  
Engin Ozelik  
Esref Cerrahoglu  
Mehmet Falay  
H. Bülent Şener  
Serdar Akcali  
Ö. Faruk Miras  
Bilge Bayburtlugil  
Cihan Ergenc  
Orhan Karademir  
Sadan Kaptanoglu  
Bedri Ince  
Murat Edip Karahasan  
Tamer Kiran  
Bayram Yusuf Aslan  
Mecit Çetinkaya  
Huseyin Yardimci  
Serif Ozdaglar  
Murat Dortbudak  
G. Osman Küçükertan

Chairman  
Chairman  
President  
Company Manager  
Board Member/CEO  
General Manager  
Chairman  
Managing Director  
Chairman  
Managing Director  
Member of Board  
General Manager  
Chairman  
Chief Operating Officer  
Owner  
Chairman  
Chairman  
Chairman  
President  
Owner  
General Manager, Member of Board  
Deputy General Manager  
Executive Vice President  
General Manager

YA-SA Holding S.A.  
Akmar Shipping & Trading S.A.  
Aktif Shipping  
Anadoluhisari Tankercilik A.S.  
Bayraktar Shipping Group  
CEBI Maritime & Trading SA  
Cerrahgil A. S.  
Cornships Management and Agency Inc.  
Delta Marine Engineering and Computer Trading Co.  
Denak Ship Management & Agency  
Diler Shipping and Trading Inc.  
DITAS Tanker and Marine Operations Corp.  
ER Denizcilik Sanayi Nak. Ve Tic. A. S.  
Genel Denizcilik Nakliyatı A.S.  
H.I. Kaptanoglu Shipping Group  
Ince Shipping and Trading Co. Inc.  
Karahasan Group of Shipping Companies  
KIRAN Group of Shipping Companies  
Mardeniz & Kardeniz & Mardas Group of Companies  
MECİT ÇETİNKAYA Shipping, Transport, Marketing Ind. & Trade Co. Ltd.  
MOLIVA SHIPPING INC.  
NEMTAS NEMRUT LIMAN İSLETMELERİ A.S.  
Odin Ship Management  
OMSAN DENİZCİLİK A.Ş.

Emir Sohtorik  
Suha Izmirgil  
Orkun Kalkavan  
Ilhan Sabanci  
Emirhan Sabanci

Chairman  
President  
Executive Board Member  
Member of the Board  
Member of the Board

SEMIH SOHTORIK MANAGEMENT & AGENCY INC.  
SINOMAR S. A.  
Turkon Holding  
YA-SA Shipmanagement and Trading S. A.  
YA-SA Tanker and Transportation S. A.

## ■ TAIWAN COMMITTEE

Chairman  
Members

Loh Yao-fon  
Huang Chin-san  
Danny Wang  
Donald K. L. Chao  
Jei-Yuan Chen  
Paul T. P. Tang  
Der-Hsiung Chen  
Shang-Wen Liao  
David Hsu  
Bill M. H. Huang  
Harvey Chiu  
Jimmy C. Hsiao  
J. D. Lan  
Mathias K. Y. Chen  
Fred C. P. Tsai  
Hrong-Nain Lin  
Joseph Wu  
I. Y. Chang  
Nobu Su  
C. K. Ong  
Lin Ching Chih  
Glenn K. L. Chan  
Chen, Po Ting  
James Lan  
Robert Ho

Assistant to Group Chairman  
Chief Executive Director  
Managing Director  
President  
Executive Manager  
President  
President  
President  
Chairman  
Chairman  
Chairman  
Director & President  
Chairman, C. E. O.  
Chairman  
Chairman  
President  
President  
Chairman  
C.E.O.  
President  
Chairman  
President  
Chairman  
Chairman  
Chairman  
President

Evergreen Group  
Chang Yung-Fa Foundation  
Cheng Lie Navigation Co., Ltd.  
China Steel Express Corporation  
CPC Corporation, Taiwan  
CSBC Corporation, Taiwan  
Deryoung Maritime Co., S.A.  
Eastern Media International Corporation  
First Steamship Co., Ltd.  
Glory Navigation Co., Ltd.  
Hsin Chien Marine Co., Ltd.  
Mingtai Navigation Co., Ltd.  
Shih Wei Navigation Co., Ltd.  
Sincere Industrial Corporation  
Sincere Navigation Corporation  
Ta Tong Marine Co., Ltd.  
Ta-Ho Maritime Corporation  
Taiwan Navigation Co., Ltd.  
TMT Co., Ltd.  
U-Ming Marine Transport Corp.  
Unison Marine Corporation  
United Ocean Shipping S. A.  
Wan Hai Lines Ltd.  
Wisdom Marine Lines S.A.  
Yang Ming Marine Transport Corp.

## ■ CHINA TECHNICAL COMMITTEE

Chairman  
Members

Zhao Zhanjun  
Zhan Shuming  
Li Guang Min  
Feng Guo Ying  
Zhang Yelong  
  
Chen Zhengjie  
  
Chen Jian  
  
Chen Yan  
Wang Guorong  
  
Cai Deqing  
  
Hong Ying  
Gao Cheng Gang  
Zhao Jin Wen  
  
Yang Wei Zan  
  
Chen Yu  
Minghua Zhang  
  
Zhou Zhi Hao  
Lou Dan Ping  
Hu Keyi

President  
Chief Engineer  
Chief Engineer, Vice President  
Vice General Manager  
Manager, Fleet Planning Department,  
Strategic Planning Division  
Director,  
Safety & Technology Superintendent Div  
Deputy Managing Director,  
Tanker Company  
General Manager  
Managing Director,  
Senior Chief Engineer  
General Manager, Safety & Technology  
Management Division  
General Manager, Ship Management Dept.  
General Manager  
Manager, Senior Chief Engineer,  
Safety & Technical Division  
Deputy Technical Director,  
Senior Engineer  
Managing Director  
Vice President, Senior Engineer,  
CMAC Arbitrator  
Senior Engineer  
Deputy Chief Technical Officer  
Technical Director,  
Technology & Market Development

China Ship Design & Research Center Co., Ltd.  
COSCO Shipyard Group Co., Ltd.  
Bohai Shipbuilding Heavy Industry Co., Ltd.  
China Business Marine Co., Ltd. (SINOMARINE)  
China Ocean Shipping (Group) Company  
  
China Ocean Shipping (Group) Company  
  
China Shipping Development Co., Ltd.  
  
China Shipping International Trading Co., Ltd.  
COSCO Bulk Carrier Co., Ltd.  
  
COSCO Container Lines Co., Ltd.  
  
COSCO Shipping Co., Ltd.  
Dalian Master Well Ship Management Co., Ltd  
Dalian Ocean Shipping Company  
  
Dalian Shipbuilding Industry Co., Ltd.  
  
Dalian Tiger Shipping Ltd.  
Evergreen Industries Holding Group  
  
Guangzhou Shipyard International Co., Ltd.  
Hudong-Zhonghua Shipbuilding (Group) Co., Ltd.  
Jiangnan Shipyard (Group) Co., Ltd. TDCC Office

Chen Xing	Vice General Manager	Jiangsu Hantong Ship Heavy Industry Co., Ltd.
Luo Jian	Deputy Managing Director	Jiangsu Ocean Shipping Co., Ltd.
Jin Qiang	Deputy Director, Merchant Ship Department	Marine Design & Research Institute of China
Hideaki Naoi	Vice President, Senior General Manager of Central Technical Div.	Nantong COSCO KHI Ship Engineering Co., Ltd.
Qian Huaqing	Deputy General Manager, Senior Engineer	New Century Shipbuilding Co., Ltd.
Li Yanjie	General Engineer	Qingdao Beihai Shipbuilding Heavy Industry Co., Ltd
Wang Rongliang	General Manager	Qingdao Fushun Ship Management Co., Ltd.
Guan Qinghui	Deputy Managing Director	Qingdao Ocean Shipping Co., Ltd.
Ren Jian	Technology Director, Senior Engineer	Qingshan Shipyard of SINOTRANS & CSC SBICO
Mu Shi Jia	V. G. Manager	Sea Carrier Shipping Co., Ltd
Wang Lin	Vice President, Professor	Shanghai Merchant Ship Design & Research Institute
Qiu Xin Yao	General Manager	Shanghai Ocean Shipping Company LTD.
Jin Yun Long	Technical Chief, Dept. of System Transportation Technology	Shanghai Ship & Shipping Research Institute, Ministry of Communications
Ye Jinwen	Technical Director	Shanghai Shipyard Co., Ltd.
Tao Ying	Chief Engineer, Senior Engineer	Shanghai Waigaoqiao Shipbuilding Co., Ltd.
Gao Fu Quan	Managing Director, Senior Engineer	Shanghaiguan New Shipbuilding Industry Co., Ltd
Yang Shiming	Technical Director	Sinopacific Shipbuilding Group Co., Ltd
Xiao Sen Yuan	President	SITC Ship Management Co., Ltd.
Yan Jun	Vice Chief Engineer	Wuchang Shipbuilding Industry Co., Ltd.
Cao Zhi Teng	President	Zhongchang Marine Company Ltd.
Sun Zhenglin	General Manager, Technical Center	Zhoushan Jinhaiwan Shipyard Co., Ltd.

## ■ DANISH TECHNICAL COMMITTEE

Chairman	Jørgen Juncher Jensen	Professor, Head of Section	Coastal, Maritime and Structural Engineering DTU Mechanical Engineering Department of Mechanical Engineering Technical University of Denmark
Members	Niels Bjørn L Mortensen	Director, Regulatory Affairs	A.P. Moller-Maersk A/S
	Claus Usen Jensen	Executive Vice President, Technical Division	A/S Dampskibsselskabet TORM
	Lars Robert Pedersen	Deputy Secretary General	BIMCO
	Per Sønderstrup	Head of Division, Ministry of Economic and Business Affairs	Danish Maritime Authority
	Hans Henrik Petersen	Head of Department	Danish Shipowners' Association
	Lars Christiansen	Technical Director	ID Shipping A/S
	Peter Justesen	Vice President, Head of Fleet Management	Lauritzen Kosan A/S
	Erik Møller	Technical Manager, Projects	Lauritzen Offshore Services A/S
	Thomas S. Knudsen	Senior Vice President, Head of Marine Low Speed	MAN Diesel & Turbo
	Kurt Rye Damkjær	Senior Vice President	Nordic Tankers Marine A/S
	Svend Anthonson	Chief Technical Officer	Othello Shipping Company A/S

## ■ GREEK TECHNICAL COMMITTEE

Chairman	Marios Stafilopatis	Owner	Byzantine Maritime Corporation
Members	P. E. Antonelos	General Manager	A. M. Nomikos Transworld Maritime Agencies S.A.
	Claude G. Savaricas	Technical Manager	Alexandria Shipping S.A.
	Christos C. Hadjigeorgiou	Technical Manager	Almi Marine Management S. A.
	Haris G. Giantzikis	Technical Manager	Arcadia Shipmanagement Co., Ltd.
	George Kourelis	General Manager, Technical Management Services Tanker Division	Cardiff Marine Inc.
	Demetrios Koukoulas	General Manager, Technical Management Services Dry Division	Cardiff Marine Inc.
	Eleftherios A. Belessis	Technical Manager	Carras (Hellas) S.A.
	Michael D. Kapsorrachis	Technical Manager	Centrofin Management Inc.
	Dionisios Kourouklis	Director Marine Operations	Chandris (Hellas) Inc.
	George Alexandridis	Technical Coordinator	Dynacom Tankers Management Ltd.
	Dimitrios A. Alifragis	General Manager	E. Nomikos Corp.
	Costas Petsas	Technical Manager	Empros Lines
	Nikolaos Petromylonakis	Technical Manager	Entrust Maritime Co. Ltd.



Leontios Pitaoulis	Technical Manager, New Building Projects	Equinox Maritime Ltd.
Stefanos Georgiou	Technical Manager, Tankers Division	European Navigation Inc.
George H. Paschalis	Technical Director	Evalend Shipping Co. S.A.
Pavlos G. Perakis	Naval Architect and Marine Engineer (N.T.U.A.), Technical Manager, Technical Department	Fairsky Shipping and Trading S.A.
Dimitrios Theodoropoulos	Chief Operating Officer	Franco Compania Naviera S.A.
Christoforos E. Andreadis	Technical Manager	Golden Union Shipping Co. S.A.
Anastasios Kalogiannis	Technical Manager, Technical Department	Iolcos Hellenic Maritime Enterprises Co. Ltd.
Dion Theodorou	Technical Manager	Konkar Shipping Agencies S.A.
Takis Koutris	Managing Director	Kristen Marine S.A.
John A. Yiannakenas	Technical Department	Kritsas Shipping S.A.
Nick Argyros	Technical Director	Laskaridis Shipping Co. Ltd.
Ioannis Voulgaris	Technical Manager	Load Line Marine S.A.
Kostas Symeonidis	Technical Manager	Lydia Mar Shipping Co. S.A.
John N. Ioannidis	Technical Manager	Maryville Maritime Inc.
Theodoros Pavlidis	Technical Director	Metrostar Management Corp.
Stavros Daniolos	Technical Manager	Minerva Marine Inc.
Nikolaos Balalis	Technical Director	Navios Shipmanagement Inc.
Costas Mitropoulos	Technical Director	NEDA MARITIME AGENCY Co Ltd
Amir Geva	Manager, Technical Department	Ofer (Ships Holding) LTD.
Paraskevas Koutsoukos	Managing Director & Technical Manager	Paradise Navigation S.A.
Elias A. Galanopoulos	Managing Director	Regal Mare Inc.
Michael Anagnostou	Managing Director and Technical Manager	Roswell Navigation Corp.
Achilleas Avlonitis	Technical Manager	S. Frangoulis (Ship Management) Ltd.
George Hatzivassiliou	Technical Manager	Samios Shipping Company S.A.
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Frantzeskcs D. Kontos	Technical Director	Sun Enterprises Ltd.
Vasileios Lampropoulos	Technical Department Manager	Thenamaris Ships Management Inc.
Dimitris Andreadakis	Technical Manager	Transman Shipmanagers S.A.
Manolis G. Koutlakis	Technical Manager, Newbuilding Projects	Transmed Shipping Ltd.
C. Dean Tseretopoulos	Naval Architect-Marine Engineer	Triple Tee International Ltd.
Savvas D. Papadatos	Mechanical Engineer, Special Projects & Claims Manager	Tsakos Shipping and Trading S.A.
Constantinos M. Metaxas	Technical Manager	Union Commercial Incorporated
Takis Koutouras	Technical Manager	Z & G Halcoussis Co. Ltd.

## ■ HONG KONG TECHNICAL COMMITTEE

Chairman	Peter Cheng	Managing Director	Peter Cheng Naval Architect & Marine Consultant Ltd.
Members	Marcel Liedts	Group Managing Director	Anglo-Eastern Group
	Y. Q. Huang	Deputy General Manager	Associated Maritime Company (Hong Kong) Limited
	Alok Roy	Technical Manager	Bernhard Schulte Shipmanagement (Hong Kong) Limited Partnership
	Vishal Khurana	Director & Chief Executive	Chellaram Shipping (Hong Kong) Ltd.
	Liu Yi Fan	Deputy General Manager, Senior Engineer	China Shipping (H. K.) Marine Co., Ltd.
	Ning Pao Kun	Deputy Managing Director	COSCO (H.K.) Shipping Co., Ltd.
	Kishore S. Rajvanshy	Managing Director	Fleet Management Limited
	Lau Pong Sze	Managing Director	Gold Bridge Shipping Ltd.
	Y. H. Shum	Director	Goldbeam International Limited
	Li Kwok Hung	Managing Director	IMC Shipping Services Co., Pte. Ltd.
	Vipin Sachdeva	Vice President, Fleet	KC Maritime Ltd.
	Pan Zhong Shan	Director & General Manager	Lihai International Shipping Limited
	Bibhash Chaudhuri	General Manager, Ship Management Division	New Asian Shipping Company, Limited
	Haruki Aono	Executive Director	Northstar Ship Management Ltd.
	James S. C. Tai	General Manager, Fleet Management Department	Orient Overseas Container Line Ltd.
	Vijayesh Dutta	Fleet Manager	Pacific Basin Shipping (HK) Limited
	Bagoes Krisnamoerti	President Director	PT Humpuss Intermoda Transportasi Tbk
	Kenneth Koo	Group Chairman & Chief Executive Officer	Tai Chong Cheang Steamship Co. (H.K.) Ltd.

Anil Arora  
W. L. Hung

Head of Ship Management & Projects  
General Manager

Unique Shipping (H.K.) Limited  
Wah Kwong Ship Management (Hong Kong) Limited

## INDIAN TECHNICAL COMMITTEE

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K. Mantry

Advisor  
Associate Vice President —  
Projects, Naval Architect

Reliance Group  
ABG Shipyard Ltd.

Ashok Kumar Sharma  
B. N. Prasad  
P. Vinayakumar  
Dileep Krishnan

Superintendent — Training  
Managing Director  
Director (Technical)  
Associate Professor & Consultant,  
Department of Ship Technology

Anglo-Eastern Maritime Training Centre  
Bernhard Schulte Shipmanagement (India) Private Limited  
Cochin Shipyard Limited  
Cochin University of Science and Technology (CUSAT)

D. V. Abeyasinghe

General Manager  
(Projects & Engineering)

Colombo Dockyard PLC

Rajeev Nayyer

Head S & P New Building,  
Sea Transportation Business

Essar Shipping Limited

S. C. Misra  
S. M. Rai

Director  
Vice President (Technical),  
Head Ship Management

Indian Maritime University (IMU)  
Mercator Limited

Maneesh Jha  
M. Adinarayana  
David Birwadkar  
Indra Nath Bose

Chief Engineer, Vice Principal & Head  
Sr. General Manager  
Vice President — Fleet Management  
General Manager — Quality,  
Safety & Training

Samundra Institute of Maritime Studies  
Smart Engineering and Design Solutions Ltd.  
The Great Eastern Shipping Co. Ltd. (GESCO)  
The Great Eastern Shipping Co. Ltd. (GESCO)

Virendra Gharat

Director (Technical)

Tolani Shipping Company Limited

## KOREA TECHNICAL COMMITTEE

Chairman

Sung-Won Kang

Professor, College of Engineering  
Department of Naval Architecture &  
Ocean Engineering

Pusan National University

Members

Jang Min-Seok  
ManSoo Kim  
Sung-Ryool Kim

Director, Design Department  
Vice President, Head of Hull Design  
Deputy Managing Director,  
Ship Sales Engineering Department

Dae Sun Shipbuilding & Engineering Co., Ltd.  
Daewoo Shipbuilding & Marine Engineering Co., Ltd.  
Hanjin Heavy Industries & Construction Co., Ltd.

In Soon Kim

Vice President,  
Fleet Management Director

Hanjin Ship Management Co., Ltd.

Lee Jong-seung

Senior Vice President,  
Basic Design Office, Shipbuilding Division

Hyundai Heavy Industries Co., Ltd.

Taeg-Gyu Lee

Senior Vice President,  
Head of Maritime Unit

Hyundai Merchant Marine Co., Ltd.

Hyun-Sang Shim  
Yeong-Se, Jeong

Senior Vice President, Design Division  
Managing Director,  
Marine Engineering Team

Hyundai Samho Heavy Industries Co., Ltd.  
KLC SM Co., Ltd.

Jae-Sung Choi

Professor,  
Dept. of Marine System Engineering

Korea Maritime University

Dae Sung Lee  
Hohyun Jeong  
Munkeun Ha

Managing Director  
Vice President, Project Planning Team 2  
Executive Vice President,  
Project Planning Team 1

KSS Line Ltd. Busan office  
Samsung Heavy Industries Co., Ltd.  
Samsung Heavy Industries Co., Ltd.

Seog Hwan Kang

Vice President,  
Director of Fleet Management

SK ship management Co., Ltd.

Chul-Ho, Song

Technical Director, Basic & Hull Design,  
Busan R&D Center

SPP Plant & Shipbuilding Co., Ltd.

Nam-Young Kim

Chief of Engineering Division,  
Senior Vice President

STX Marine Service Co., Ltd

Sang-Heon Oh

Director, Hull Technology Department,  
Shipbuilding Technology Division

STX Offshore & Shipbuilding Co., Ltd.

Jae-Woo Son

Vice President, Team Manager,  
Basic Design Team

Sungdong Shipbuilding & Marine Engineering Co.,Ltd.

Nojoon Park

CEO

TMS Co., Ltd

## MIDDLE EAST TECHNICAL COMMITTEE

Chairman  
Members

Jitendra Misra  
Haakon Johnsen

Managing Director  
Senior Vice President (Operations)

Emarat Maritime  
ADNATCO-NGSCO

Benny K. Alex	General Manager (New Building & Tech. Projects)	Emarat Maritime
Abdul Hayee	Fleet Manager	Gulf Stolt Ship Management
Anil Cariappa	Technical Director	International Tanker Management Limited
Jamil Al-Ali	Manager Fleet Engineering Group	Kuwait Oil Tanker Co. S.A.K.
Masanori Hayashi	General Manager (LNG), Marine and Technical Department	Oman Ship Management Company
Zaheer Babar Qureshi	Executive Director, Ship Management	Pakistan National Shipping Corporation
A. Ramamurty	General Manager, Ship Management Dept	Pioneer Ship Management Services LLC
A. Mansourzadeh	G.M. Technical	Simatech Shipping L. L. C.
Mohammed El-Sayed Ahmed	Vice President—Fleet (acting), Fleet Management	United Arab Shipping Company (S. A. G.)
Abdulaziz A. Sabri	Fleet Operations Manager	Vela International Marine Ltd.
N. V. K. Nambiar	Technical Manager	Warm Seas

## ■ SINGAPORE TECHNICAL COMMITTEE

Chairman	Tey Yoh Huat	Vice President, Technical Services	APL
Members	Iwane Ogawara	Chief Engineer, Technical Director, General Manager	"K" LINE SHIP MANAGEMENT (SINGAPORE) PTE LTD.
	Robert Sumantri	Group Chief Executive Officer	Altus Shipping and Logistics Pte. Ltd.
	Kapil Berry	Project Manager, Projects & Support	BW Shipping Managers Pte Ltd
	Liu De Tian	Managing Director	COSCO (SINGAPORE) PTE LTD
	Chandrasehgaran	Director (Operations)	Drydocks World—Singapore Pte. Ltd.
	B. S. Teeka	Managing Director	EXECUTIVE SHIP MANAGEMENT PTE LTD
	Lim Teck Cheng	Chief Executive	HONG LAM MARINE PTE LTD
	Ir Wong Sin Futt	Assistant Director, Newbuildings	IMC Shipping Services Co., Pte. Ltd.
	Seow Tan Hong	Senior General Manager, Engineering Department	Jurong Shipyard Pte Ltd
	Nelson Yeo	Managing Director	Keppel Shipyard Limited
	Avinash Kadam	Director, Technical Operations	Maersk Tankers
	Mark Lim Yew Guan	Deputy Director (Shipping), Deputy Director of Marine	Maritime & Port Authority of Singapore
	Hiroaki Kubo	Managing Director	MOL Tankship Management (Asia) Pte Ltd
	Arun K. Ahluwalia	Fleet Director	MSI Ship Management Pte Ltd
	Hemant Pathania	Managing Director, Chief Operating Officer	NYK SHIPMANAGEMENT PTE LTD
	Teh Eng Hua	Vice President, Technical Department	Ocean Tankers (Pte) Ltd.
	Lim Tau Kok	Director, Fleet Management Division	PACC SHIP MANAGERS PTE LTD
	Panneer Selvam	General Manager, Technical Division	Pacific International Lines (Pte) Ltd
	Govinder Singh Chopra	Director	SeaTech Solutions International (S) Pte Ltd
	Francis Chin	Chief Operating Officer	Stellar Shipmanagement Services Pte Ltd
	Rajdeep Singh	Technical Director	Tanker Pacific Management (Singapore) Pte Ltd
	Naresh Chand	General Manager—Planning	UNITED OCEAN SHIP MANAGEMENT PTE LTD
	Calum S Hume	Deputy Managing Director and Technical Director	V. Ships Asia Group Pte. Ltd.
	Mok Kim Terng	Senior Advisor, Sales, Marketing & Project Development, Ship Power, Ship Design	Wärtsilä Ship Design Singapore Pte Ltd

## ■ TURKISH TECHNICAL COMMITTEE

Chairman	M. Erbil Özkaya	General Coordinator	YA-SA Shipping Industry and Trading S.A.
Members	Ş. Şenol Üngör	Technical Manager	Active Shipping & Management Pte Ltd
	Özgür Aksoy	General Manager & Board Member	Akmar Holding S.A.
	Saim Gökçen	Technical Manager	Aksay Denizcilik ve Ticaret A.S.
	Selçuk Karakimseli	Board of Member	Atlas Ship Management Ltd.
	Kenan S. Sumra	Marine Department Manager	Aygaz A.Ş.
	Metin Solak	Technical Manager	Besiktas Group
	Mustafa Bahar	Technical Manager	Cebi Denizcilik AS
	Ergun Köker	Technical Manager & DPA	Cornships Management & Agency Inc.
	S. Dirim Şener	Department Manager, Planning Department	Delta Marine Engineering and Computer Trading Co.
	Şemsettin Özyapar	Technical Manager	Denak Ship Management & Agency

Baha Erbil	General Manager	Densan Deniz Nakliyat ve Sanayi A.Ş.
Taşkin Çilli	CEO, Member of Board	Desan Deniz İnşaat San. A.Ş.
Coşkun Ağca	Fleet Manager	Ditaş Deniz İşletmeciliği ve Tankerciliği A.Ş.
Bülent Subaşı	Operation Manager	IDÇ Denizcilik San. Tic. A.Ş.
A. Yaşar Canca	Technical Manager	Ince Shipping Group
Raif Söylerkaya	Ocean Going Master	Kaptanoğlu Holding
Cengiz Eren	Head of Technical Department	Karahasan Group of Shipping Companies
Mehmet Gülakdeniz	Safety Coordinator/DPA, Master Mariner	Kiran Group of Shipping Companies
Melek Yavan	Member of Board	Körfez Shipping and Trading Inc.
Galip Kendigelen	General Manager	Mardas & Mardeniz & Kardeniz Group of Companies
Göksenin Eroğul	Deputy General Manager (Technical & Logistics)	Nemtaş Shipping
Hüseyin Şener	Fleet Manager	Odin Ship Management
Kemal Ayten	Technical Manager	Pina Shipping & Transportation Inc.
M. Cumhuri Kuter	General Manager	Sedef Shipbuilding Inc.
Mehmet Başoğlu	General Manager, Marine Division	Semih Sohtorik Management & Agency Inc.
Müjdat Uludağ	Purchasing & Logistics Director	Turkish Airlines Technic Inc.
Hayati Cingöz	BSC Engineer & Technical Manager	Ulusoy Sea Lines Management S.A.
Mehmet Kayhan	General Manager, Bulk Carriers	YA-SA Shipmanagement and Trading S.A.
Hakan Gürel	General Manager	YA-SA Tanker and Transportation S.A.

## ■ TAIWAN TECHNICAL COMMITTEE

Chairman	Chiang Shou-hsing	Senior Vice President, Shipbuilding Dept.	Evergreen Marine Corp. (Taiwan) Ltd.
Members	Guo I-Lung	Director/President	Biggin Shipping Corporation
	K. C. Lin	Senior Manager, Marine Dept.	Cheng Lie Navigation Co., Ltd.
	Steve S. J. Ren	Vice President	China Steel Express Corporation
	J. Z. Fang	Chief Engineer, Chief Engineer Office	CPC Corporation, Taiwan
	Chih-Peng Tsai	Assistance to President	Deryoung Maritime Co., S.A.
	Michael L. Y. Pan	Executive Vice President	Eastern Media International Corporation
	Luo Chin-ek	Senior Vice President, Maintenance Dept., Project Division	Evergreen Marine Corp. (Taiwan) Ltd.
	S. H. Wang	Vice President, Engineering & Supply Dept.	First Steamship Co., Ltd.
	Anthony Lin	Adviser	Formosa Plastics Marine Corporation
	C. T. Hsueh Tony	Manager of Marine Department	Glory Navigation Co., Ltd.
	Thomas S. H. Yeh	DS Vice President SMS Dept.	Harmony Transportation Co., Ltd.
	W. K. Wu	Manager, Technical Dept.	Hsin Chien Marine Co., Ltd.
	C. K. Lin	Vice President, Engineering Department	Mingtai Navigation Co., Ltd.
	You-Yen Ho	Vice President, Marine Department	Shih Wei Navigation Co., Ltd.
	Kenny J. H. Yang	General Manager, Technical Department	Sincere Industrial Corporation
	Young Perng-Terng	Chief Engineer	Ta Tong Marine Co., Ltd.
	Andy D. Ouyang	Chief of Marine Technical Section, Marine Department	Ta-Ho Maritime Corporation
	Chen Teng	Senior Vice President, Marine Dept.	Taiwan Navigation Co., Ltd.
	Robert Y. P. Kao	Assistant Vice President	U-Ming Marine Transport Corporation
	Peter W. D. Ho	Vice President, Technical Department	Unison Marine Corp.
	Sanders Jong	Vice President, Engineering Division	Wan Hai Lines Ltd.
	Charles Chu	Vice President, Technical Department	Wisdom Marine Lines S. A.

## ClassNK in Control

### OFFICERS

Directors	N. Ueda	Chairman and President	Nippon Kaiji Kyokai	
	Dr. H. Kitada	Executive Vice President	Nippon Kaiji Kyokai	
	T. Matsui	Executive Vice President	Nippon Kaiji Kyokai	
	S. Kakubari	Executive Vice President	Nippon Kaiji Kyokai	
	K. Fujiwara	Executive Vice President	Nippon Kaiji Kyokai	
	Dr. T. Yoneya	Executive Vice President	Nippon Kaiji Kyokai	
	Y. Nakamura	Executive Vice President	Nippon Kaiji Kyokai	
	K. Ishikawa	Director and Senior Managing Officer, Ship and Offshore Structure Division	Universal Shipbuilding Corporation	
	Y. Otagaki	Managing Director	IHI Marine United Inc.	
	Dr. H. Otsubo	Professor Emeritus	The University of Tokyo	
	K. Takenaga	Member of the Board, Executive Officer	Kawasaki Kisen Kaisha, Ltd.	
	K. Yokota	Managing Executive Officer	Mitsui O.S.K. Lines, Ltd.	
	Auditors	T. Aihara	President	Japan Railway Technical Service
		Dr. Y. Fujita	Professor Emeritus	The University of Tokyo
		Y. Sakinaga	Board Counsellor	Kawasaki Kisen Kaisha, Ltd.
		Y. Uesu	Former Adviser	Nippon Yusen Kabushiki Kaisha
Councilors	Z. Akasaka	President	Akasaka Diesels Limited	
	A. Ashida	Chairman	Mitsui O.S.K. Lines, Ltd.	
	Dr. S. Hayama	Professor Emeritus	The University of Tokyo	
	Y. Katoh	President	Mitsui Engineering & Shipbuilding Co., Ltd.	
	S. Minami	Company CEO	Oshima Shipbuilding Co., Ltd.	
	K. Miyahara	Chairman	Nippon Yusen Kabushiki Kaisha	
	M. Nakanishi	Former Executive Director	Tokio Marine & Nichido Fire Insurance Co., Ltd.	
	M. Satani	Executive Consultant	JX Nippon Oil & Energy Corporation	
	H. Shima	Representative Director and President	Taihei Kogyo Co., Ltd.	
	K. Sugimoto	Counselor	Iino Kaiun Kaisha, Ltd.	
	Dr. H. Tanikawa	Professor Emeritus	Seikei University	
	K. Tsukuda	Chairman	Mitsubishi Heavy Industries, Ltd.	
	T. Uyeno	Chairman & President	Uyeno Transtech Ltd.	
	M. Yasutomi	Vice President	Tokyo Metro Co., Ltd.	
Dr. K. Yoshida	Professor Emeritus	The University of Tokyo		

### Classification Committee

Chairman	N. Ueda	Chairman and President	Nippon Kaiji Kyokai
Vice Chairman	Dr. H. Kitada	Executive Vice President	Nippon Kaiji Kyokai
Members	K. Fujiwara	Executive Vice President	Nippon Kaiji Kyokai
	O. Handa	Managing Director	The Japanese Shipowners' Association
	Dr. S. Hayama	Professor Emeritus	The University of Tokyo
	Dr. H. Itagaki	Professor Emeritus	Yokohama National University
	S. Kakubari	Executive Vice President	Nippon Kaiji Kyokai
K. Kiriake	Managing Director	The Shipbuilders' Association of Japan	

K. Kobayashi	Associate Officer, General Manager, Engineering Division, Ship & Offshore Structure Company	Kawasaki Heavy Industries, Ltd.
T. Matsui	Executive Vice President	Nippon Kaiji Kyokai
Y. Nakajima	General Manager of Basic Design Department	IHI Marine United Inc.
Y. Nakamura	Executive Vice President	Nippon Kaiji Kyokai
Dr. T. Nomoto	Professor Emeritus	The University of Tokyo
H. Oshima	Director, General Manager of Technical Dept.	Iino Marine Service Co., Ltd.
Dr. H. Otsubo	Professor Emeritus	The University of Tokyo
M. Sunouchi	General Manager Technical Group	Nippon Yusen Kabushiki Kaisha
K. Takenaga	Executive Officer, Member of the Board	Kawasaki Kisen Kaisha, Ltd.
T. Tsubokawa	General Manager of Basic Design Department, Ship & Ocean Headquarters	Mitsui Engineering & Shipbuilding Co., Ltd.
N. Tsukamoto	General Manager, Marine Underwriting Dept.	Tokio Marine & Nichido Fire Insurance Co., Ltd.
N. Ueda	Deputy General Manager, Ship & Ocean Engineering Division, Shipbuilding & Ocean Development	Mitsubishi Heavy Industries, Ltd.
H. Yamada	General Manager, Green Ship Planning Dept.	Universal Shipbuilding Corporation
K. Yokota	Managing Executive Officer	Mitsui O.S.K. Lines, Ltd.
Dr. T. Yoneya	Executive Vice President	Nippon Kaiji Kyokai
Dr. K. Yoshida	Professor Emeritus	The University of Tokyo

## ■ Technical Committee

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	Dr. S. Hayama	Professor Emeritus	The University of Tokyo
	K. Ishikawa	Director and Senior Managing Officer, Ship and Offshore Structure Division	Universal Shipbuilding Corporation
	Dr. H. Itagaki	Professor Emeritus	Yokohama National University
	T. Iwamoto	General Manager, Casting and Forged Products Dept.	The Japan Steel Works, Ltd.
	H. Kawasaki	Councilor	Nippon Steel Corporation
	M. Kishimoto	Director, Chief General Manager, Business & Technical Development Division	Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
	Dr. H. Kitada	Executive Vice President	Nippon Kaiji Kyokai
	T. Matsui	Executive Vice President	Nippon Kaiji Kyokai
	A. Murakami	Executive Officer, General Manager, Planning & Control Division, Ship & Offshore Structure Company	Kawasaki Heavy Industries, Ltd.
	Y. Nakajima	General Manager of Basic Design Department	IHI Marine United Inc.
	T. Nishino	Senior Managing Executive Officer	Sumitomo Metal Industries, Ltd.
	H. Nishizaki	Vice President	JFE Steel Corporation
	Dr. T. Nomoto	Professor Emeritus	The University of Tokyo

M. Okada	Managing Director, General Manager of Ship & Ocean Project Hq.	Mitsui Engineering & Shipbuilding Co., Ltd.
Y. Onuki	Director & Managing Executive Officer	Daiichi Chuo Kisen Kaisha
H. Takahashi	Managing Director & Division Manager, Corporate Management Division	JX Tanker Company Limited
K. Takenaga	Member of the Board, Executive Officer	Kawasaki Kisen Kaisha, Ltd.
Y. Tanaka	Corporate Officer and General Manager Technical Group	Nippon Yusen Kabushiki Kaisha
A. Tsukamoto	General Manager of the Steel Casting & Forging Division in the Iron & Steel Business	Kobe Steel, Ltd.
N. Ueda	Chairman and President	Nippon Kaiji Kyokai
K. Yasuda	Executive Officer	Sasebo Heavy Industries Co., Ltd.
K. Yokota	Managing Executive Officer	Mitsui O.S.K. Lines, Ltd.
Dr. T. Yoneya	Executive Vice President	Nippon Kaiji Kyokai

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	S. Kuboki	General Manager, Classification Service Department	Nippon Kaiji Kyokai
	Dr. N. Ooka	Senior Technical Advisor	The Japanese Society for Non-Destructive Inspection
	H. Tanabe	Technical Supervisor	Japan Ship-Machinery Quality Control Association
	T. Yagi	Senior Technical Manager	The Japan Iron & Steel Federation
	Y. Yamaguchi	Deputy General Manager	The Shipbuilders' Association of Japan
	T. Yamazaki	Senior Researcher	Japan Marine Equipment Association
	K. Yoshida	Manager, Engineering Department	The Japan Electrical Manufacturers' Association

As of December 2011

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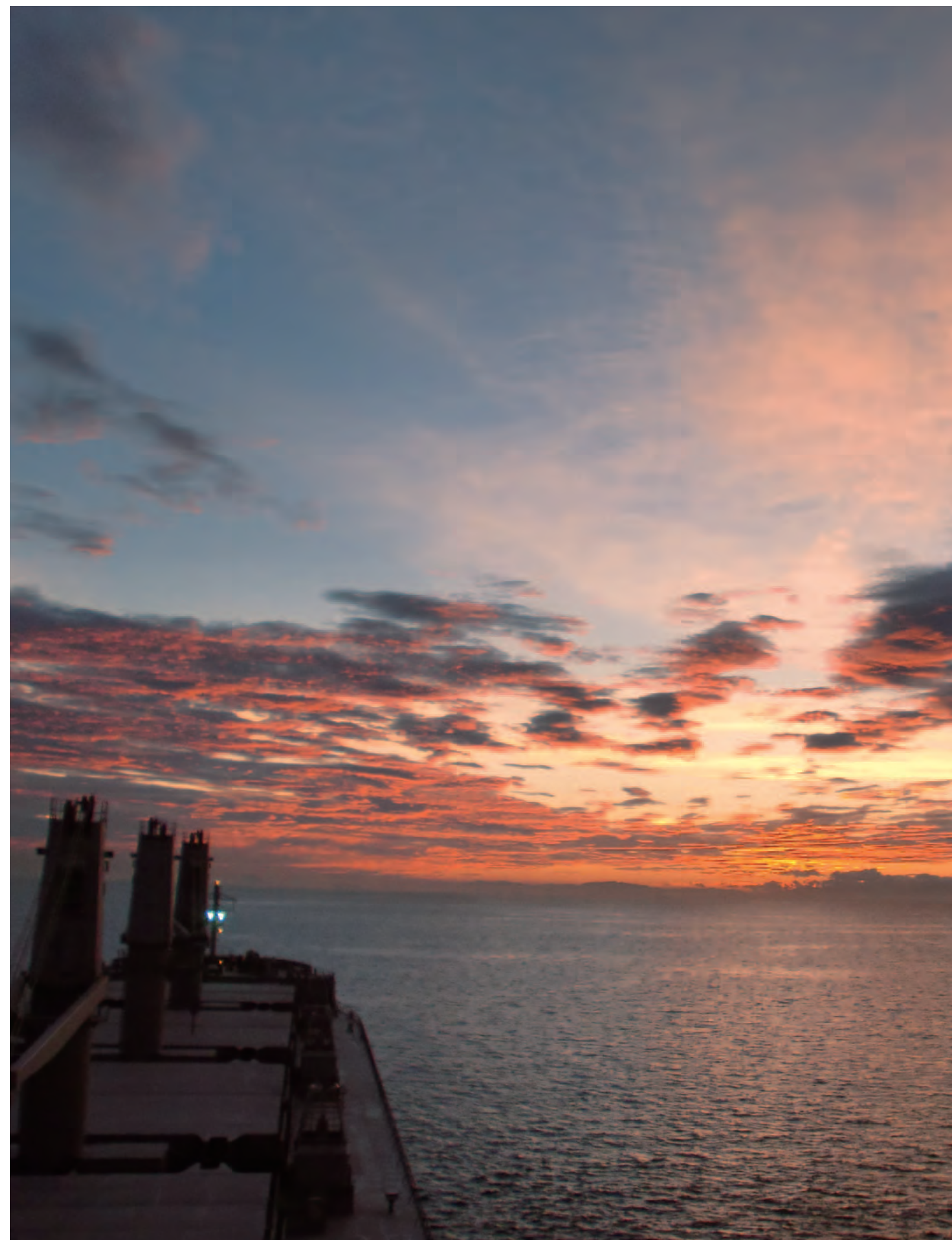
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