

January 2012 · Issue 33

# Horizons

News and information for the marine industry  
A Lloyd's Register magazine

## Man with a mission

Exclusive interview with  
the new head of the IMO

In this issue:

### **The Big Plan**

We reveal all about some  
remarkable research and findings  
Pages 12–27

### **World beater**

First-ever new LNG-fuelled tanker  
Pages 10–11

Lloyd's  
Register

LIFE MATTERS

Issue 33

**Cover picture:**

Koji Sekimizu, new head of the IMO, at the organisation's London headquarters  
Credit: Monty Rakusen

*Horizons* is the journal for Lloyd's Register Marine clients and employees, delivering news and analysis on our global activities.

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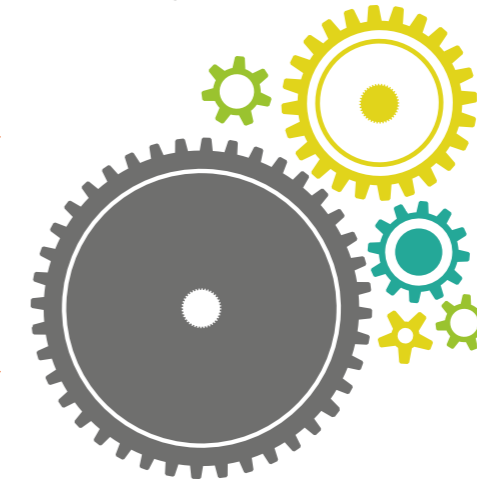
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## Biography

**Born:** Yokohama, Japan, 1952.

**Status:** Married with a son and daughter – who both studied in London – and a grandchild.

**Interests:** Golf, playing the guitar, singing and composing (he has played at an IMO Christmas party).

**Clubs and societies:** Japan Society of Naval Architects and Ocean Engineers; Councillor of Kousi Zosen Kai, Alumni Society of Naval Architects of Osaka University.

# A man for all shipping



Koji Sekimizu was chosen from six possibles as the new Secretary General of the IMO and it was all done with the utmost discretion and restraint, writes *Horizons* Editor **Christopher Browne**

**CEOs, MDs and chairmen of large companies often end up in unruly power battles when a change-of-leader is about to happen. Shareholder hubris, controversy, even the unsavoury whiff of scandal can turn these bouts into all-too public humiliations.**

Which makes events like Koji Sekimizu's recent appointment as the Secretary General of the IMO seem charmingly effortless. Admittedly we are talking about a UN agency and not a public corporation here. But there was something refreshing about the apparent seamlessness and dignity of the recent changeover.

Perhaps the only hint of ambition or even personal rivalry was at the selection stage in April, 2011 when after a shortlist of six candidates emerged, the IMO started the

process of choosing the winner out of the various possibles from South Korea, Cyprus, The Philippines, the USA, Spain and of course Japan (Mr Sekimizu).

Two months hence, Mr Sekimizu was announced as the successor to Efthimios E. Mitropoulis who had served two four-year terms at the IMO's helm. The post was finally ratified at the IMO assembly at the end of November.

### Problem-solver

Mr Sekimizu's appointment was a popular one. He has been a respected Director of the London-based IMO's Maritime Safety Division for the past seven years and is known as a highly creative problem-solver particularly over issues of safety and global piracy.

When you meet him for the first time you are immediately struck by his directness and

uncomplicated manner. He talks animatedly about his new role and then makes a somewhat surprising admission for an engineer born and raised in Japan's largest port. "Despite Japan's great shipbuilding tradition, none of my near-family have been involved in the maritime industry – apart from a grandfather who designed one of Japan's largest battleships in 1940."

Ask him about any recent event in Japan's maritime history and he'll probably have a real answer. "From 1971 to 1975 our fleet reached its peak. Then in 1978, trading suffered, slow steaming was introduced and many of our ships had to be laid off. Eventually, from the world's largest shipowner – a position we held for 30 years with 55,000 seafarers and 20% of the world's fleet at one stage – Japan is now number two with 15% of the world total," says Mr Sekimizu.



Koji Sekimizu at the International Maritime Organization's London headquarters

When he left school, Mr Sekimizu chose to study naval architecture and ocean engineering at Japan's Osaka University. "My decision to take a degree in the maritime industries was probably influenced by the locations of my parents' home and my high school which both overlooked the shipbuilding and shipping activities of the port of Yokohama," says the 58-year-old.

After studying for a Masters in vibration theories, Mr Sekimizu worked as a ships inspector at the Japanese Ministry of Transport. He worked his way up the Ministry helping to draft new legislation and attending committee meetings of the IMO as part of the Japanese delegation.

Three years later, in 1989, he joined the IMO Secretariat in London as Technical Officer in the Maritime Safety Division. He was appointed Head of the Technology Section in 1992 and Senior Deputy Director of the Marine Environment Division in 1997. Three years later he became Director of the Environment Division, overseeing the phasing out of single-hulled tankers after the *Erika* and *Prestige* sinkings in 1999 and 2002 respectively. He was also involved in some of the early studies into GHG emissions from ships.

During his recent stewardship of the IMO Maritime Safety Division, Mr Sekimizu helped develop the rules for long-range identification and tracking of ships, goal-based standards and the International Standards on Training, Certification and Watchkeeping for Seafarers (STCW).

#### Man with a plan

Koji Sekimizu is a man with a plan – several plans in fact. Here are four of his key aims as the new head of the IMO:

##### Plan A

He wants the IMO to be more policy driven. "The role of the IMO is very important. There needs to be more co-operation between individual governments so world economies can enjoy a continuous and low-cost supply of goods."

##### Plan B

He wants to carry out a major review and key reforms on all the activities of the Secretariat and its committees and so "develop a new mechanism which enables better planning and management of work programmes".

##### Plan C

Sustainability: He would like to see a more international approach to global standards, EEDI and energy efficiency measures, new technology, marine education and training, maritime security and traffic management and infrastructure.

##### Plan D

Piracy: "The IMO should be the international organization to drive all the governments and agencies involved in the global fight against piracy," says Mr Sekimizu who recently signed an agreement for the IMO to fund anti-piracy training centres in Djibouti on the border of Somalia in the Horn of Africa.

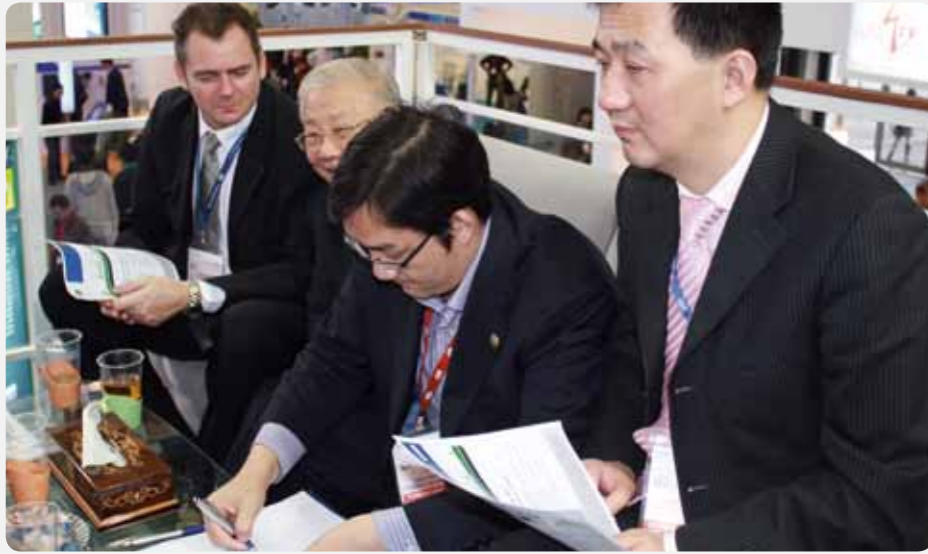
These are lofty ambitions indeed. But then if anyone can do it, Koji Sekimizu can. ■

// There needs to be more co-operation between individual governments so world economies can enjoy a continuous and low-cost supply of goods //

## Two's company

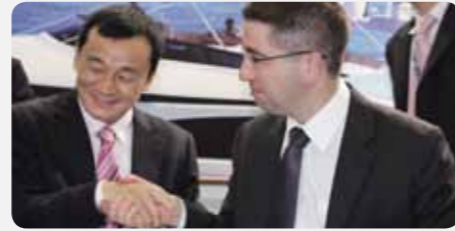
The recently delivered VLOC, *Dan Mai*, lies berthed next to a newly built capesize at China's CSSC-owned Shanghai Waigaoqiao Shipyard (SWS) in Shanghai.





(left to right) Thomas Klenum, Lloyd's Register's Greater China Marine Business Development Team General Manager, with Bestway Consultant, Professor Ma Guang-zong, Bestway Vice Chief Engineer, Mr Zhan Jin Feng, and Dr Maoqun Xue, Lloyd's Register's Shanghai Design Support Office General Manager

//  
The low EEDI indicates to the industry how energy-efficient this ship design is  
//



Robert Chao of JNS (left) and Nick Brown, Lloyd's Register's Area General Manager for Greater China

# China leads from the front

Lloyd's Register signs a flurry of contracts in the People's Republic

**Lloyd's Register celebrated its Chinese success story with a series of end-of-2011 joint industry projects (JIPs) with Chinese companies. The first was the planning and design of *Emerald*, an ultra eco-friendly handysize bulk carrier, with the Shanghai-based Bestway Marine Engineering Design Company.**

When built, the 35,000 dwt mid-size handysize bulk carrier will improve the current EEDI performance of a standard bulk carrier by 18%. "After producing a market report, we talked to the shipyards. We also realised there was considerable interest in green technology in the bulk carrier segment," said Professor Liu Nan, Bestway's General Manager.

"We have forged a very close working relationship with Lloyd's Register on this project and our joint teams are now working on honing the design to bring in further improvements. The low EEDI indicates to the

industry how energy-efficient this ship design is," he said.

After extensive model-testing, the new design has exceeded targets in a number of key areas. These include a 19.5% reduction in fuel consumption, fuel oil savings of 6.5% and a new propeller design that gives energy savings of 2%. Six of the new designs are currently being built at the Guangdong Jiangmen Nanyang Shipyard in southern China – with more orders in the pipeline.

Shortly afterwards, our China office signed a six-month JIP with Jiangmen Nanyang Ship Engineering (JNS) and Bestway to help support the design and optimisation of a slightly larger 39,000 dwt bulk carrier with multiple green features. Thomas Klenum, General Manager of Lloyd's Register's Greater China Marine Business Development Team, said: "Although we at Lloyd's Register are not designers, class is vital in helping

optimisation. We help shipyards and designers to optimise their designs to the most fuel-efficient parameters. Optimised ship designs with low fuel oil consumption and reduced CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub> emissions are one of the key drivers to success for shipowners. So it is imperative for shipyards, designers and class societies to work together to optimise the full range of criteria to achieve a truly efficient design."

Lloyd's Register signed another contract with JNS to build two energy-efficient 32,500 dwt bulk carriers to Bestway's design. Commented Thomas: "In a highly competitive shipping market, we are jointly pursuing the development of fuel efficient, environmentally friendly and high quality ships that are enticing to shipowners. This order of the latest generation of Bestway's handysize design at JNS is yet another milestone in the excellent co-operation between Bestway, JNS and Lloyd's Register". ■

# HRDD moves into the fast lane

An impressive array of sophisticated and challenging conversion projects, featuring the changing of single-hull tankers into double-hulled versions or very large ore carriers (VLOCs), has been achieved by China's Huaran Dadong Dockyard (HRDD)

**Based on Chongming Island in the Yangtze River delta, the shipyard's conversion projects will vastly extend the operating lives of ships that had been facing early obsolescence.**

Lloyd's Register has been actively involved in nearly all of these projects from conception to delivery. "Teamwork and partnership with HRDD has been vital," says Henk van Staalduinen, Lloyd's Register's Marine Operations Manager for Greater China.

And now HRDD is moving into newbuilding with the construction of 8,800 teu containerships due to start next year. The yard recently added a large graving dock which is now fully operational and a series of steel and coatings workshops – with an 800-ton gantry crane due to arrive soon. Alexander Lee, HRDD's Commercial Department Deputy General Manager, says: "We have developed fast here and we had so much help from Lloyd's Register. Now as we move into new construction we face new challenges."

As high energy prices, new emissions requirements and the prospect of the new Ballast Water Convention force change on the industry, such work may well be a template for the future as owners may soon seek retro-fit opportunities for relatively young ships. ■

# Watch out, watch out

## there's a *Gobbler* about.

No it's not a creature from a scary monster film, but a unique type of oil-spill remover



Lloyd's Register's Marine Communications Manager **Nick Brown** meets Paul Jauncey, a British boat designer who is working on a device that could prove a major boon in a crisis

**A chance meeting in San Diego, California, between Paul Jauncey and his old friend and fellow mariner, Jose Suarez, turned into what may well be a revolutionary solution to one of today's major scourges – oil spills.**

Boatbuilder Jauncey was mid-voyage on one of his own custom-designed and built vessels when the encounter occurred. The two mariners started to reminisce about their latest experiences before moving onto more serious, globally relevant, topics.

During the discussion, the two men, who are both experts in the unpredictability of ocean weather, noted there was currently no safe, cost-efficient small vessel that could handle accidental ocean spills – a fact that became glaringly apparent during the Gulf of Mexico disaster in 2010. The answer, the pair decided, would be to design a new-style oil recovery boat known as *Gobbler*.

The 8.85 metres fibreglass vessel would be powered by a 250 bhp diesel engine and able to recover all types of oil – whether

light or crude like the Gulf of Mexico oil slick – from water surfaces and coastal areas in any global location.

Paul worked with naval architect Laurent Giles to refine the concept and comply with Lloyd's Register certification for vessels operating up to 60 nautical miles offshore.

### Safety precaution

However *Gobbler's* unique safety feature is that it does not carry the oil; it collects it. The *Gobbler* pumps it via a centrally-



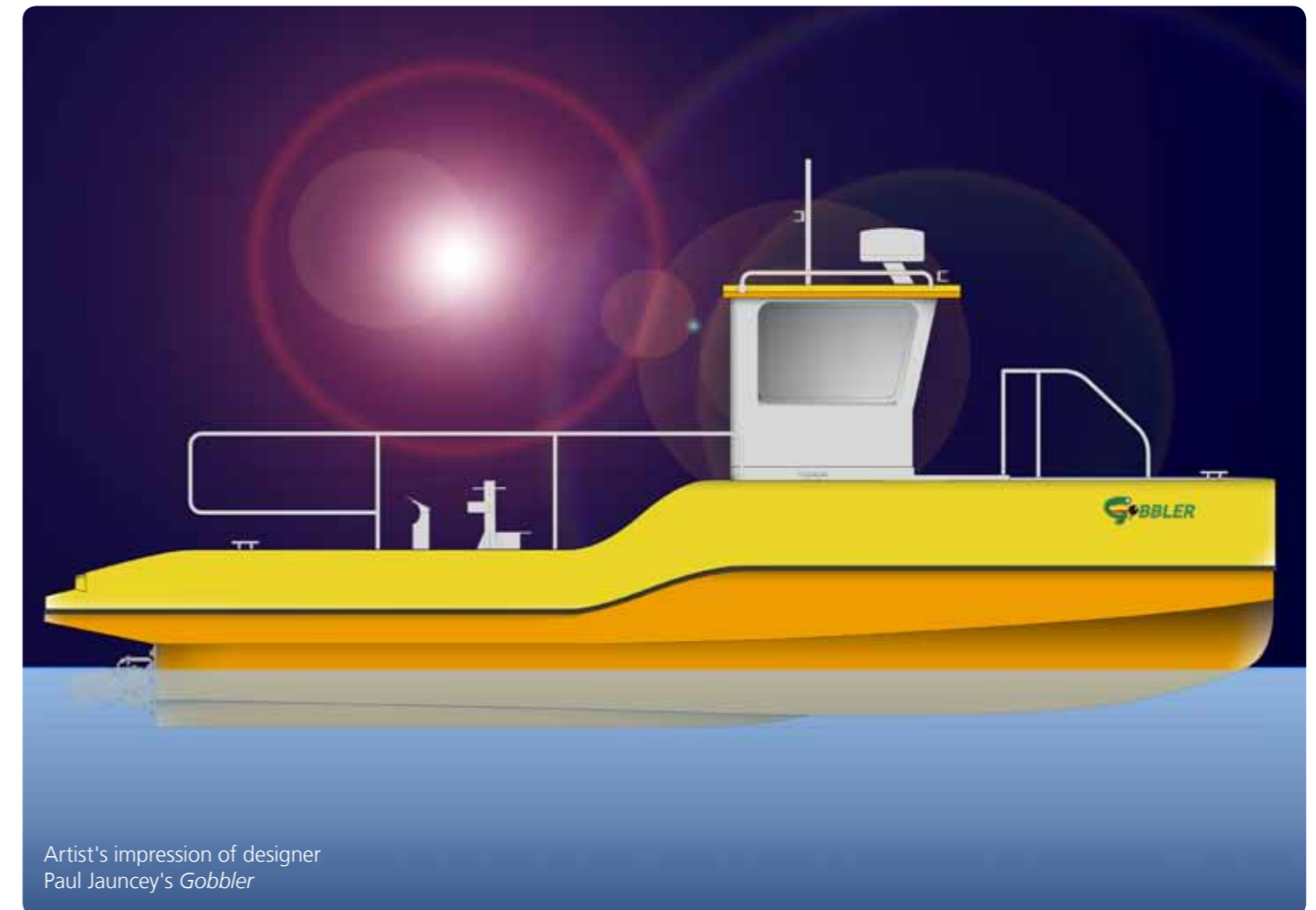
The bladder is trialled by a vessel from clean-up specialists Elastec/American Marine

mounted bollard into several detachable bladders which trail behind the vessel and are then collected and towed ashore or onto a nearby mother-ship.

"It's a safety precaution which, unlike other craft, allows quick release of the towed load in the event of an oil spill flame out, and a high speed exit from the danger zone," said Paul. Another feature that is ideal for hazardous areas such as crocodile-, leech- or shark-infested waters is what is known as selectable auto-clean for the vessel's jet intake screens. This eliminates the need for the vessel to dive underwater to avoid obstruction.

Two scale models of *Gobbler* were extensively tank-tested at the UK's Wolfson Institute in Southampton. This involved hundreds of hours of tests over a six-month period handling extremes of speed and covering a range of sea states from calm to 2.5 metres.

However *Gobbler's* development is something of a family business. Paul's son, Simon, a boat-builder and marine engineer,



Artist's impression of designer Paul Jauncey's *Gobbler*

has not only been apprenticed to his father but has also spent many enjoyable trips with him on ocean voyages in their own self-designed boats. Simon has been involved in designing and producing many of *Gobbler's* component parts, notably unique, anti-cloning software.

With US Coastguard endorsement and nine patents, both granted and pending in various countries, work on building the *Gobbler* is imminent and Paul is currently seeking the finance needed for the prototype.

### Critical role

Keith Vernon, Lloyd's Register's Southampton-based Principal Marine Surveyor, who has been very much involved in the project on technical and statutory issues, said: "Recent oil spills have demonstrated the devastating effect on environmental and commercial interests of the affected areas and I believe that the *Gobbler* Project will fulfil a critical role by providing rapid deployment of this highly effective craft to protect the environment and people's livelihoods. Globally, many

highly polluted areas such as Ecuador, the Amazon Basin, the Niger Delta and coastal Timor, to name a few, could benefit by deploying *Gobbler*.

"It's been a real pleasure to work on the *Gobbler* Project. When you come across real innovation that has a very practical use it is very rewarding. Paul is determined to see this through and his energy is incredible. He's passionate about this venture and *Gobbler* has made genuine breakthroughs by applying new ideas in combination with tried and true technology. Lloyds Register identifies with the aims and aspirations of the project and is pleased to be part of the team".

But the project does not just stop there. The ever-restless Paul Jauncey is about to challenge orthodox fibre-reinforced plastics production with plans to use more advanced and approved materials and methods for column mouldings to ensure the ground-breaking vessel has a secure future. ■

// *Gobbler* has made genuine breakthroughs by applying new ideas in combination with tried and true technology //



Paul Jauncey (right) with his son Simon

# World greets first new LNG-fuelled tanker

Chemical tanker *Argonon* will emit less SO<sub>x</sub>, NO<sub>x</sub> and particulates across Europe's inland waterways



## The world's first new LNG-fuelled tanker has been delivered in Rotterdam and classed by Lloyd's Register.

The arrival of *Argonon*, a 6,100 dwt dual-fuelled chemical tanker, is a significant milestone for the Deen Shipping subsidiary, Argonon Shipping, in its pursuit of cleaner transport solutions for Europe. Lloyd's Register helped the owners and regulators identify their risks, meet regulatory requirements and overcome the technical challenges for the precedent-setting tanker.

"This has been a great project and is a significant first," said Piet Mast, Lloyd's Register's Marine Business Manager for Western Europe. "The nature of inland waterways traffic, which passes through or close to major population centres, makes LNG an attractive way to reduce harmful local emissions. We had to look carefully at the risks and worked closely with the owner and the regulators to ensure that they understood, and were comfortable with, the technical solutions that were developed."

The dual-fuel system is designed to burn an 80/20 mixture of natural gas and diesel, reducing SO<sub>x</sub>, NO<sub>x</sub> and particulate-matter emissions, as well as reducing the greenhouse gas emissions from tank to flue. The LNG is stored in a transport tank located on deck, supplied by Cryonorm Projects, based near Amsterdam.

"The inland shipping industry, as far as we know, is the safest and cleanest mode of transport. But, to keep this lead, we have to take a big step forward in environmental performance," said shipowner Gerard Deen. "I think that the dual-fuel principle is a way to reduce the

// The nature of inland waterways traffic, which passes through or close to major population centres, makes LNG an attractive way to reduce harmful local emissions //

emissions in our sector. Lloyd's Register was very pragmatic in their approach to finding solutions to convert seagoing regulations into inland shipping rules regarding dual fuel."

Along with Lloyd's Register, the Netherlands Shipping Inspectorate approved the vessel's LNG system for operation in the Netherlands and the ship has taken on its first load of LNG bunker fuel. The next step is to secure the regulatory approvals from the Central Commission for Navigating on the Rhine and the UN-ECE ADN Safety Committee, to open the way for navigation beyond the Netherlands.


"The owners are to be congratulated for being pioneers," said Piet. "At Lloyd's Register, we have been involved with LNG for a long time, so were able to provide support through the plan-approval and construction processes. We now look forward to supporting the ship through many years of 'clean' trading."

*Argonon* has already entered service. Built by Rotterdam's Shipyard Trico B.V., the tanker is 110 metres long and propelled by two, dual-fuel Caterpillar DF3512 engines, each providing 1,115 KW. The ship has the capacity to transit from Rotterdam to Basel and back without bunkering.

"We are currently providing technical and regulatory guidance for 20 confirmed or proposed inland waterway applications that intend to use LNG as fuel," said Bas Joormann, Lloyd's Register's West European Area Inland Waterway Product Manager. "There is a lot of interest, and for good reason. Inland waterways, like ferries in emission-control areas, are very suitable for LNG. But the regulatory regime is different. We're helping owners and governmental bodies to identify the risks and manage them to at least the level of safety provided by the existing fuel-management and combustion requirements." ■

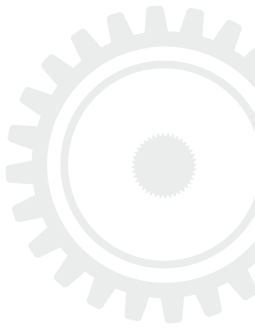


The LNG storage tank is lowered on to the *Argonon* chemical tanker (see LNG storage tank story by Lloyd's Register's risk expert Vince Jenkins)



# Driving marine technology – today and tomorrow

Lloyd's Register's Marine Development Plan is at the forefront of design and innovation as newer, bigger and more sophisticated products penetrate the global marine industry ▶



**Available technology never stands still. In fact, technology development relevant to the marine industry has been increasing in pace for many years, sometimes as bespoke marine applications and sometimes through the application of technology from other industries in the marine sector writes Tim Kent, Lloyd's Register's Marine Technology Director.**

In general, things become more complex, rather than simpler. This of course presents additional challenges when seeking to integrate new technology into an existing ship.

Available technology is not just created, it is developed over time.

There is a typical cycle – research, integration into an exploitable form and packaging for application – that follows a timeline. There are requirements to invest capital and additional resources during any development programme, and cash constraints will probably apply during the technology's application.

There may also be regulatory imperatives surrounding its application and further challenges related to the availability of suitably qualified and experienced people to safely implement and operate it.

Applying available technology to help affordably meet regulatory requirements and increase performance, while also increasing safety, is a challenge.

Meeting such societal obligations through enabling the safe, sustainable and affordable application of technology in a structured manner is at the core of the classification society's role.

#### **Lloyd's Register's technology teams**

Technical leadership, based on strategic research and development, is at the heart of Lloyd's Register's Marine ambitions. The ability to understand technology and its applications enhances our technical

capability to maintain and support the industry as a leading Classification Society.

#### **Technology and investigation leadership**

Our global technology leaders provide the guidance and professional understanding in the key areas of hull structures, engineering systems, materials and welding, risk and electro-technical systems. As the heads of Lloyd's Register's global technical community within their specific disciplines, each oversees our internal governance framework to ensure technology is applied consistently by colleagues worldwide.

Their work is vital in allowing and guiding the constant development and evolution of our technical capability.

#### **Taking a strategic view**

The importance of strategic research is vital. Lloyd's Register's Strategic Research Group provides the ability to respond to the medium and long term requirements of maritime industry stakeholders.

#### **A strategic vision**

In order to maximise the value of disparate research and technology development planning efforts that take place concurrently in many parts of the organisation, we have developed a forward looking strategic technology vision.

This project has been driven to:

- Define the basis of a strategic innovation platform by linking technology trends within house research and technical capabilities;
- Assess streams of innovation across business with the aim to steer research and technology across the organisation;
- Unify the intellectual infrastructure capital of Lloyd's Register Marine;
- Develop a co-ordinated model that will encourage cross- and multi-enterprise innovation in a format that clearly links with forthcoming technical governance and policy;

- Encourage the synergy between people so that well-intentioned, yet disparate R&D activities are co-ordinated to maximise value for the industry;
- Test the internal boundaries within which Lloyd's Register Marine functions.

In 2011-2012 colleagues from different departments across the organisation have been developing the foundations of our latest Marine Technology Plan by working closely in Research and Technology (R&T) committees that developed Technology Strategy reports and Research Roadmaps.

#### **Marine Technology Plan**

Six key areas were presented to Lloyd's Register's Technical Committee in the form of technology capability roadmaps for different technology disciplines in November, 2011. They are:

- Hull loading and Structures
- Materials and NDE
- Statutory Fire and Safety
- Human Behaviour and Ergonomics
- Mechanical and Electro-technical Engineering
- Resistance and Propulsion

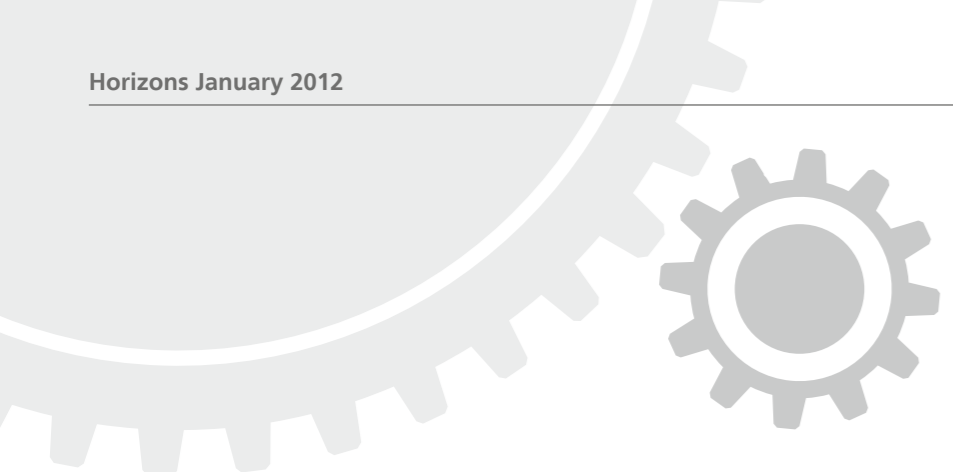
The remit of each R&T committee has been to capture all relevant research issues for the foreseeable future irrespective of cost and resource constraints or implications from which R&T development activities can be prioritised.

The first phase of the Technology Plan currently underway will direct research into areas where products will be needed in the future or for directly supporting the developments of new rules, procedures, computational products and services. This process sets up the foundations for



Lloyd's Register's Technical Leaders (left to right): Ed Fort, Head of Marine Engineering Systems; Peter Thompson, Head of Hull Structures; Bernard Twomey, Head of Electrotechnical Systems; Vince Jenkins, Global Marine Risk Adviser; David Howarth, Chief Metallurgist and Global Head of Materials, Welding and NDE

// Available technology never stands still //



a Technology Strategy that will help Lloyd's Register to be proactive and timely in the development of new products and services for the future.

Having an informed plan is one thing, but the capacity and expertise to implement it is quite another.

Our Technical Investigations Department (TID) assesses, evaluates and solves marine engineering problems from concept to operation. Well known for their ability to solve technical problems, TID is a large group of highly experienced specialists. The annual Lloyd's Register publication *Technical Matters* is a highly respected showcase for TID's investigative work.

Martec, our Canadian subsidiary, specialises in advanced engineering simulation technology for the design and analysis of complex structures and systems. A pioneer in this field, Martec has delivered practical solutions to difficult engineering problems for over 30 years and, like TID, is a major contributor to internal research and technology development activities.



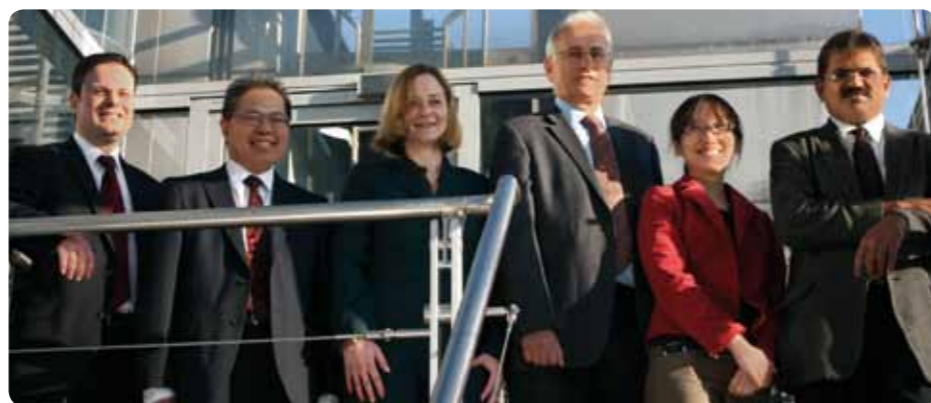
*Technical Matters* is one of Lloyd's Register's most popular publications, providing case studies of technical issues and their solutions



Technical troubleshooters: members of Lloyd's Register's Technical Investigation Department

The overall programme is managed through our Marine Product Development group, with its dedicated teams in hull structures and loading, engineering and electrotechnical systems, engineering software, and environmental issues. It is responsible for overseeing the development of technical capability – and packaging it in the form of rules, procedures, software and training material required to support the Classification process.

And as we see the timescale from technology inception to packaged product continue to shrink – often driven by emerging regulation – we can expect any boundaries between our research, technology development and technology application activities to become increasingly blurred – drawing our professional surveyor and design support engineers ever closer to our marine technology teams.



Lloyd's Register's Strategic Research Group (left to right): Lead Specialist Spyros Hirdaris; SRG Manager Fai Chen; Senior Specialist Kim Tanneberger; Senior Specialist Dalibor Vlastic; Specialist Ivy Ho-Chun Fang and Lead Specialist Reddy Devalapalli

*Horizons* looks at **five key technology projects** Lloyd's Register is tackling and how these affect owners, designers, shipyards and manufacturers ▶



1

# Yes, we have ways of making LNG storage tanks work

Vince Jenkins



Lloyd's Register's Global Marine Risk Adviser, **Vince Jenkins**, takes an optimistic view of a technical issue

**The location of storage tanks is a key issue for shipowners, designers, builders and classification societies as the industry explores the potential of using LNG to power the global fleet.**

It is particularly important on vessels such as cruise ships, containerhips and ferries where there is little or no alternative to LNG bunker space within or below a vessel's accommodation area.

Views vary from the opponents who say it should not even be considered to those who believe it should be possible to engineer such a system safely.

Obviously there are always trade-offs to be made. In this case, the environmental benefit of using LNG as fuel needs to be weighed against a factual or perceived view that safety will suffer.

I have in fact thought about the challenge of tank location from three different perspectives:

**1** More than 10 years ago, Europe's skies were full, using the gold-plated standard that had been set in terms of 3D separation between planes. This standard would have had to change if more planes were to get into the skies. The standard, like so many, had evolved from people making both a best-case and cautious estimate of what would be safe at the time. European Air Traffic Control evolved the aircraft separation distance by understanding where the pinch points were, and so had a high degree of confidence in reducing the separation distances where acceptable.

**2** The 2010 Canadian Formula One Grand Prix involved a car crash at close to 200 mph when the Australian driver Mark Webber's Red Bull car flipped over. Most people expected him to have at least major injuries. He walked away from the car, not even visibly shaken, let alone injured. Operating at the cutting-edges of engineering, Formula One has made huge advances in the last decade or so.

**3** Submarines are quite extraordinary pieces of engineering. They withstand immense pressures, operate in three dimensions, and are designed to withstand significant external shock requirements. Most have nuclear power plants within them, with operators standing within metres of a critical reactor.

Such submarine technology has been around for almost 60 years.

So can we safely incorporate LNG tanks into or below shipboard accommodation? We undoubtedly can. The cost of achieving it may be significant, but the technology and design capability is certainly about to achieve it.

Class societies are a keystone of safety in the marine industry. They also need to be visionary from time to time. In Lloyd's Register's case we are a charity and everyone in society is our stakeholder. Hence we need to provide a framework that will allow innovation – while ensuring the balance between environmental gain and safety is duly considered.

In the past, Lloyd's Register and other class societies have achieved this by developing prescriptive rules. There is a move to a more goal-based approach to drive rule development. And as this article goes to print, this is exactly what we are doing on the subject of LNG tank placement within or under accommodation.

We cannot yet judge what the outcome of such development work will be, but we are certainly looking at it to enable such technology to be embraced within the industry. ■

# To err isn't always human

Many human factors – some hidden some more obvious – are involved in the running of a smooth ship, says **Jonathan Earthy**, Principal Human Factors Specialist, Marine Product Development



**The marine industry has to tackle many human factors issues linked to the training, recruitment, management, working environment and professional development of its many employees.**

These include addressing human needs throughout the lifecycle of ships and their supply chains, ship systems and support mechanisms and so optimising the effectiveness, efficiency, safety and satisfaction of seagoing and land-based staff.

The human sciences and ergonomics provide the approach and tools to address these problems. In the way we operate as a classification society, we have to define and develop relevant competences in our staff. And in our contribution to the industry we also need to broaden and deepen the uptake of good science and practice in this area.

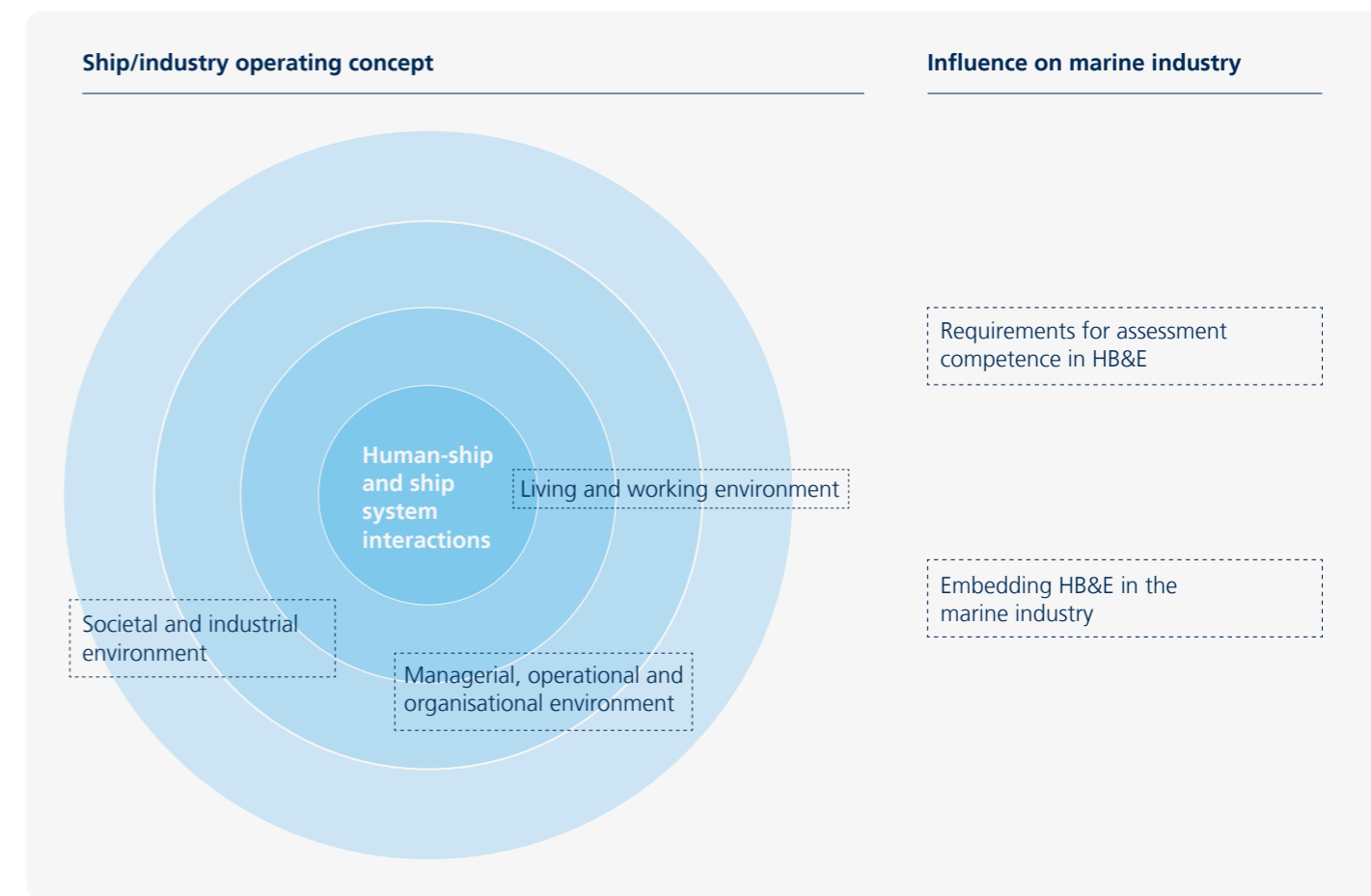
There are two sets of themes within Lloyd's Register's Marine Technology Plan that specifically address human behaviour and ergonomics. The first is technical, addressing the operating concept of ships

and the industry. The second relates to the implementation of solutions. The themes are summarised in the figure below.

The focus of the themes related to the ship/industry operating concept is the interaction between the crew and the ship, its systems and operating procedures, and the context of that interaction. This context is addressed in three layers of environment: the physical, the operational (including managerial and organisational), and the social and industrial. Understanding the effect of context and how to address the different layers are central to the proposed research.

The themes in the area of influence on the marine industry also address the research required to facilitate the uptake of ergonomic thinking and technology. The theme on requirements for assessment competence in human behaviour and ergonomics relates to the changes required for Lloyd's Register surveyors to apply ergonomics and human science requirements in the rules and in statutory instruments.

## Human behaviour and ergonomics





#### Lloyd's Register and the human factor

Lloyd's Register's credentials are self-evident. We are the largest non-defence commercial human factors consultancy in the world, recently adding two new companies to our network, Human Engineering in 2008 and Scandpower in 2010.

We deliver a range of human factors services across all sectors of industry – from organisational integrity and security screening to competence schemes and medical device usability. This capability is part of a long history and interest in human factors, with HF consultants and research at Lloyd's Register since 1885.

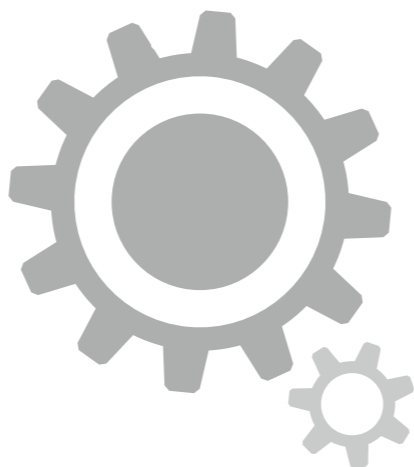
Our human factors research programme began in the 1980s with new opportunities in knowledge based systems, safety and user interfaces. In the mid-1990s the focus shifted from closer alignment with core business to how to assure the quality of human factors work and the safety of systems of work. This research was carried out in collaborative projects with EU and UK government funding and the results became international standards for ergonomics.

In 2000, Lloyd's Register's research team moved to the Marine division and were tasked with "addressing the causes of human error in the marine industry wherever these are".

This tasking encouraged investigation of strategic, organisational and management contributions to safety in addition to the class (systems and design) and statutory/operational (staffing, training, equipment and procedures) perspectives.

One of the results of this work was the publication, "The human element – best practice guide for ship operators", and a systems perspective to our contribution to work at the International Maritime Organization (IMO). The rules were also examined, and in 2007 Lloyd's Register's technical committee advised that these should address ergonomics issues. This inclusion began with notations such as Ergonomic Container Lashing. Then in 2011, the first major ergonomics inputs to the rules themselves were made – addressing ergonomics in ship control centres and the presentation of ship alarms.

At group level, Lloyd's Register has demonstrated its commitment to human factors with the acquisition of Human Engineering (now part of Scandpower). From a marine perspective the availability of a large group consulting resource allows us to separate the provision of specific services to individual clients and the strategic needs of the marine industry to address the human element. ■



3

## How to pass the survivability test



Stricter rules and standards in design and materials will help companies and shipyards fit sturdier fire and lifesaving equipment says Lloyd's Register's Principal Statutory Specialist **Sam James**

**The worrying toll of problems and accidents caused by poorly-designed fire and life-saving equipment (LSA) makes it doubly important for the marine industry to forge better rule-sets to reduce the number of future incidents.**

By pinpointing specific design faults, or gaps in the applicable requirements, testing, certification and survey material, poor equipment designs can be compared against existing test standards to identify why they are not fit for purpose.

It is also crucial that designers and manufacturers improve the design of products to ensure their suitability and lasting performance and reduce the potential for failures and accidents.

These improved regulations and test standards will ensure that the marine equipment supplied – either of existing or novel designs – to owners and shipyards meets its performance requirements and is therefore fit for purpose.

#### Alternative materials

As the marine industry strives to improve energy efficiency we can expect ship operators to seek increasingly fuel-efficient

designs. One way to achieve this will be to reduce the lightweight of vessels through the use of exotic construction materials such as fibre reinforced plastic (FRP). Obviously, by using these materials shipbuilders are straying from materials that have well-understood performance characteristics such as steel. Increased focus on ship recycling, and the costs of ship demolition, will also encourage owners to request construction materials that will minimise both environmental and cost implications.

To ensure ships constructed from these materials are safe Lloyd's Register will be studying:

- the alternative materials to be used and their characteristics;
- structural integrity (through life);
- performance of the materials in a fire;
- medium-term development of materials that have inbuilt fire-retardant properties.

The comprehensive assessment of these materials at an early stage will ensure the implications and limitations of their use are fully understood, and enable evaluation of proposed applications to be conducted quickly and robustly. Acceptability criteria and applicable regulations will then be developed.

These systems are designed to help ship operators and ships' staff decide what they need to do in a range of emergency situations including fire, flooding and grounding. They include the ability to evaluate the survivability of the vessel in these situations and on this basis to make suggestions for actions that will improve the vessel's survivability and, in some cases, to initiate the actions themselves. These systems, although the most practical way to assist a master in a casualty situation, are currently unregulated but their significant impact on ship safety is bringing them under the regulators' spotlight.

Lloyd's Register and our industry clients are investigating the establishment of rules and regulations to help address safety issues and make sure they remain practical. This will involve:

- the identification of available systems including their interaction with control engineering, safety management systems, casualty management and communication systems;
- the development of acceptance criteria for usability and performance criteria;
- involvement in the development of regulations covering new and emerging technology.

These actions will ensure that equipment supplied by manufacturers worldwide continues to satisfy the functional requirements while remaining simple, robust and fit for purpose for the duration of a ship's life. ■

# EEDI: what the owner needs to know



Owners and designers need to learn the basics of the Energy Efficiency Design Index before deciding how to meet their environmental targets, says **Dimitris Argyros**, Lloyd's Register's Environmental Specialist for Marine Product Development

**The Energy Efficiency Design Index (EEDI) is the IMO's technical instrument of choice for regulating GHG emissions from shipping through improvements in ship design. It will only be applicable for certain types of new ships built on or after 2013. However the key questions are: how, to what extent and whether EEDI will promote the development and application of energy-efficient technologies.**

EEDI is a goal-based, non-prescriptive mechanism, which leaves different ship design options to ship designers and builders and

technologies with sufficient energy efficiency levels to owners. This is very good in theory. The toolbox for improving the Index appears to be full of solutions including anything from design optimisation (hull and propulsion), optimised engines and machinery (optimised specific fuel consumption [SFC], low carbon fuels, waste heat recovery), energy efficiency devices and appendages (hull coatings and hydrodynamic optimisation) to more innovative technologies such as wind assisted propulsion, air lubrication and many more.

However, despite the variety of options, evidence suggests that speed reduction (and installation of lower rated engines)

is an attractive option, especially for meeting the more stringent 2020-2025 reduction levels. We already see this trend in the container sector, where speed rationalisation may well be the main tool (or in many cases the only one) required for meeting EEDI targets.

While there is nothing wrong with this approach in principle, as long as it delivers true GHG emission reduction in the longer term, not all sectors have the flexibility of reducing the design speed to meet the EEDI targets.

The following table helps demonstrate this:

Ship type		Service speeds		
		Average	Min	Max
Bulk carrier	Handysize (30-40k dwt)	14.10	12.00	16.40
	Capesize (120-200k dwt)	14.60	13.00	16.60
Gas tanker	LNG (125-155k m <sup>3</sup> )	19.43	18.50	20.15
	LNG (>175k m <sup>3</sup> )	19.14	19.00	19.50
Tanker (and combination carrier)	Panamax (60-85k dwt)	15.09	14.50	16.00
	VLCC (>200k dwt)	15.74	15.30	17.40
Containership	Panamax (4000-5000 teu)	24.10	21.30	25.20
	NPX (new Panamax)	24.46	24.00	25.30
General cargo/refrigerated cargo	~3.5k DWT	11.44	9.00	14.10
	~10k DWT	14.14	11.00	19.60

Design speeds for some main ship types built between 1999 and 2009 (period of definition of EEDI reference line by IMO) – Data from Seaweb.

**“ EEDI is a goal-based, non-prescriptive mechanism, which leaves different ship design options to ship designers and builders and technologies with sufficient energy efficiency levels to owners ”**

In addition to the table on the left, we must not ignore other sectors, particularly ro-ro and passenger ships, that are not included in the initial EEDI implementation phase, and where meeting the EEDI requirements by drastically reducing their speed is, at best, going to be problematic.

So why is everyone recommending reducing the speed when it is not a solution suitable to all ships and when there are a number of other technologies already available? One reason is that we are still at the very early stages of EEDI implementation and naturally some shipyards will try to adapt existing designs to meet the EEDI requirements in the most cost-effective manner.

Not every technology is applicable (or economically feasible) on every ship, and in many cases owners are faced with uncertainty as to not only which device to fit but whether it will actually work. Some parts of the industry are even questioning the availability of technologies for meeting the EEDI requirements. What is often required is a leap of faith and with the current status of the shipping market some owners, especially ones with limited technical capability and resources, will be very reluctant to trial new technologies. The potential may well be there, but it is rather naive to claim that the industry is stubbornly refusing to embrace these technologies.

A truly energy efficient ship is (or at least should be) on everyone's agenda, but we must not forget that a major part of the

industry is still trying to understand how to make the EEDI work. Every stakeholder has a role to play in ensuring EEDI delivers the level of innovation that is required to control GHG emissions from shipping.

Owners need to aim at future-proofing and differentiating their vessels by avoiding making excess use of the “easy option” of reducing the speed, especially as there is a limit to how far industry can slow trade volume without needing additional tonnage to take up the slack.

Take for example two ships with identical EEDI: one has a reduced design speed (and smaller engine) compared to the segment average, while the other one achieves the same speed as pre-EEDI but, with optimised hull, propulsion devices and technologies.

It is likely that the former will cost less to build, but which one will be a more attractive asset throughout its lifespan and have a higher resale value?

Technology providers and shipyards on the other hand, should continue to be pro-active and engage with owners and trial the technologies to help establish the optimum solutions for each ship. Such initiatives will not only benefit the parties involved but also the wider industry even if the trial outcome is not always the desired one. Challenges in financing of GHG emission reduction technologies, especially now, can be addressed through technology demonstration projects. Ultimately, what

today is considered innovative may be part of standard ship design tomorrow and this is what the Index aims to achieve. Classification societies can play an important role in this process and support the independent verification of energy-saving technologies, as long as they are not at the same time the providers of the technologies themselves.

Lloyd's Register is well placed to provide such independent verification and is working closely with technology providers, owners and shipyards towards this end. ■

5

# CFD helps owners go with the flow

Dejan Radosavljevic



Engineers and shipyards can now use cutting-edge computer technology to solve design and operational problems, says Lloyd's Register TID's Fluid Dynamics Manager, **Dejan Radosavljevic**

**As owners strive for evermore energy efficient ship designs, greener ways of operating and better ways to reduce operational failures, an analysis technique known as computational fluid dynamics (CFD) has emerged as a cutting-edge technology to help them achieve their goals.**

Lloyd's Register has been pioneering this technology for more than 20 years. A recent *Horizons* (March, 2008) highlighted the value of CFD in ship design and analysis, while the May, 2011 *Horizons* reported on how we are using aerodynamic and trim optimisation to improve ships' operational efficiency (see "Trimming the fuel bill" and "Dragging ships into saving fuel").

Another of CFD's many uses is to help ships cope with operational faults. One of the more serious problems is cavitation erosion (CE), which occurs when high energy impacts, due to the implosion of cavitation, remove material from the surfaces of rudders and propellers. This can also occur after cavitation has stripped off a rudder's or propeller's coating.

Whenever such erosion is severe the ship will need emergency repairs. So to help clients deal with CE, Lloyd's Register's Technical Investigation Department (TID) has developed investigative methodology that combines CFD predictions and acoustic emissions (AE) measurement techniques. These can help shipbuilders avoid CE at the design stage.

Lloyd's Register has also performed fundamental research including numerical techniques for erosion prediction to help develop suitable erosion models based on information obtained from the cavitation analysis.

One such CFD model was used to predict the erosion pattern generated

in a simple laboratory experiment on four samples of different materials, showing that it is possible to accurately predict such distinctive erosion patterns (see Figure 1, right).

The same CFD modelling approach was applied to a particularly severe case of cavitation erosion on a rudder. In this case the rapid rate of erosion meant that structural collapse could have occurred in less than the intended three-year docking period of the vessel.

One of the key areas in which erosion occurred is shown in Figure 2 (right) alongside the predictions of the erosive potential of the flow from the CFD analysis.

#### Erosion damage

While CFD-based cavitation erosion predictions are a powerful tool that could help shipbuilders design out subsequent operational problems, it is the ability to match predictions against in-service measurements that underpins our confidence in CFD.

To back this up, Lloyd's Register TID has developed high-speed video observations and AE based condition monitoring techniques for erosion damage from cavitation. Our research and analysis of these measurements clearly show that it is specific details of the flow that cause the damage and that if the propeller inflow could be only marginally improved, the erosive cavitation could be removed.

We can then use this level of insight to pre-empt and reduce the potential for cavitation and erosion at an early design stage.

Our latest venture is a joint industry project (JIP) with an owner and shipyard to find ways to reduce the risks and problems of in-service failures caused by cavitation and erosion on rudders. ■

Figures 1 and 2

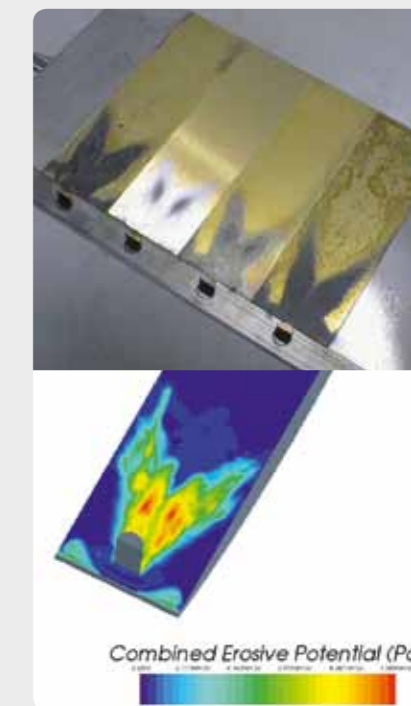


Figure 1: Observed and predicted erosion patterns for a simple test case.

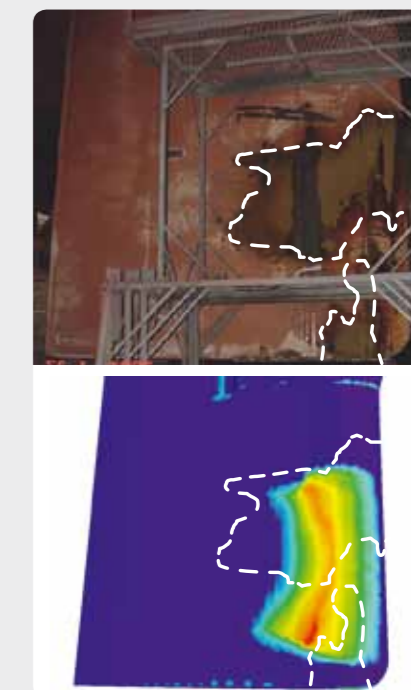


Figure 2: Observed and predicted erosion patterns on a rudder. The erosion was eliminated after a vortex generator was fitted to improve the propeller inflow.



IMarEST award winner Peter Filcek

# That winning feeling



Richard Cooke, Lloyd's Register's Marine Communications Manager, Asia, with Bloomberg's Robyn Meredith



Joe Watson (left), Lloyd's Register's Senior Vice President and Marine Manager, Middle East & Africa, receives the Lloyd's Register Middle East award from Lloyd's List Editor, Richard Meade

**It's been yet another bumper year for Lloyd's Register and awards. After clinching the Classification Society of the Year trophy at the Lloyd's List Awards in Asia in 2011, we were named Best Society at the Lloyd's List Middle East and Indian subcontinent awards for the second year running.**

In both cases we were praised for our commitment to safety and quality. Then, in a final flourish, Peter Filcek, Technical Manager of our Technical Investigations Department (TID), was awarded the IMarEST Best Technical Presentation prize for his paper Medium speed diesel engine failures.

Dave Barrow, Lloyd's Register's Area Manager for UKI and SW Europe, told the RINA/IMarEST ceremony that Peter's award was not only a great accolade for him but demonstrated the high level relationships Lloyd's Register maintains with its attendee clients.

Peter won praise from both judges and attendees from such key clients as Carnival, Serco, Sealion, Graig, BAe, Wightlink, All

Leisure, Carisbrooke and P&O Ferries at the November awards ceremony hosted by RINA and IMarEST in Southampton.

Presenting the Lloyd's List, Asia, award to Iain Wilson, Regional Marine Manager Asia, Bloomberg Television journalist Robyn Meredith said our "dedication to improving ship standards in Asia has greatly contributed to better ships from this region. The judges cited this society's focus on ensuring the highest standards despite the frequent production pressures now endemic in Asian shipyards. It has also specialised in ensuring high standards and aiding innovation for high value ships, including LNG vessels."

Meanwhile at the Middle East and Indian subcontinent awards in Dubai, the judges said we had made the "greatest contribution to creating a safe and environmentally friendly shipping industry as demonstrated through a commitment to quality and innovation through the development lifecycle from design to building and maintenance of the region's shipping fleet". ■

// Dedication to improving ship standards in Asia has greatly contributed to better ships from this region //

# Regulatory round-up

## Don't be fooled by the quieter agenda



Although no IMO committees have met to adopt new technical legislation recently, several sub-committees have been developing ideas, drafts and proposals. Here **Andrew Sillitoe**, Lloyd's Register's Lead Specialist for Regulatory Risk Assessment, gives an overview of the key issues

### Evolving legislation

#### Ships carrying vehicles fuelled by hydrogen and compressed natural gas

The search for reduced emissions and alternative energy sources is as active in the automotive world as in shipping, and there is a small but growing number of cars powered by hydrogen or compressed natural gas (CNG). When these need to be transported by ship, there is a corresponding risk for the vessel from both the fuel source and the high voltage and large capacity batteries. The current regulations, in SOLAS II-2/20, were designed for carriage of vehicles with conventional petrol or diesel road fuel in their tanks.

The IMO's Fire Protection (FP) Sub-Committee has recently been investigating safety concerns for ships carrying vehicles fuelled by hydrogen or CNG. Initially it was understood that the intention was to consider only new pure car carriers, in the expectation that they might be required to carry many similar vehicles at any one time. However, in the discussions there was pressure to widen the scope of the potential changes to include existing ships and all ro-ro vessels. The question of whether or not to do this will be put to the 90th Maritime Safety Committee (MSC 90) in May 2012, before the next FP Sub-Committee develops a final proposal.

Subject to those instructions, the only safety measure currently but provisionally agreed for existing ships is a requirement to carry portable gas detectors.

If the full range of proposed amendments is adopted then there will be an impact on

ship construction, including installation of fire detection systems, changes to the type and location of ventilation, and provision of approved explosion-proof electrical equipment.

#### Making key alarms on passenger ships more visible

There has been concern that cruise ship or ferry passengers who are hard of hearing are at risk of not hearing the general alarm if it goes off. A proposal was made to the IMO to provide a visible element to the general alarm, and non-mandatory guidelines have been drafted. These would provide standards to ensure that hard of hearing passengers are alerted visually when the general alarm sounds so that they can proceed to the appropriate muster station.

The guidelines as drafted require a visual signal in all interior public accommodation spaces, such as dining rooms, lounges, showrooms, restaurants and stairways. The light is to be clear or nominal white, with an intensity of not more than 1,000 candela (cd) and should flash between 1 and 2 times per second. Guidance is also given on the physical location of the signal.

It is expected that a circular will be approved by MSC 90 in May, 2012.

#### Mandatory rules for enclosed space entry and rescue drills

Despite a high profile across the industry, deaths and injuries associated with entering enclosed spaces remain at a high level. In many incidents, fatalities have resulted from unsuccessful rescue attempts as well as the initial casualty.

// Enclosed space entry training, awareness and drills make a vital contribution to safety on board any ship //

Enclosed space entry training, awareness and drills make a vital contribution to safety on board any ship since all ships carry spaces which may be oxygen depleted or build up hazardous gases.

Non-mandatory guidelines have previously been developed by the IMO, but the debate continued with many parties wanting additional regulation. At the 16th Dangerous Goods, Solid Bulk Cargoes and Containers sub-committee (DSC 16) in September, 2011, a proposal was finalised which would mandate drills through an amendment to SOLAS. These amendments would require crew members who have responsibilities for enclosed space entry or rescue to undergo drills every two months, and for a risk assessment to be undertaken to ensure all others on board ships are properly aware of the dangers.

The proposed amendment would apply to all ships. However it will still require further review within the IMO, so it is unlikely to enter into force before 2015. We would therefore recommend that shipowners take this opportunity to reassess their internal procedures and training regarding the dangers of enclosed spaces.

The IMO's 27th Assembly in November 2011 (A27) adopted a resolution to bring the most recent amendments to the non-mandatory guidelines into force, pending further progress on the SOLAS amendment:

#### Res A.1050 (27) - The revised recommendations for entering enclosed spaces aboard ships.

#### Revision of the timber deck cargoes code

Ships which carry timber as a cargo on uncovered parts of the ship face particular threats associated with the timber shifting during the voyage. They can also have timber load lines assigned, which allow a lower freeboard than would otherwise be the case, because of the effect of the buoyancy of the timber on the ship's stability performance.

A Code of Safe Practice for Ships Carrying Timber Deck Cargoes was first issued by the IMO in 1973 and has undergone periodical revision since. During the most recent revision, the final draft still caused serious concern as it contradicted the Load Line Convention and contained some internal inconsistencies.

DSC 16 in September, 2011 addressed a number of outstanding elements to ensure that the new code is compatible with the existing requirements for assignment of timber marks under the Load Line Convention. All substantial amendments were made and the code is now comparable with the Load Line Convention as necessary. For example, the code now clarifies that timber should be carried across the full breadth of the ship to enable the reduction in freeboard for timber load lines.

The primary change is better clarity and the inclusion of examples for lashing and stowage arrangements. The non-mandatory code will provide useful new advice and explanations for vessels carrying or being designed to carry timber cargoes on deck. Designers should still take care to ensure

that mandatory load line requirements for timber cargoes are enacted where necessary. In general this covers the provision and location of lashing and securing arrangements.

The IMO's 27th Assembly adopted a resolution to bring the revisions into force:

#### Res A.1048 (27) - The Code of Safe Practice for Ships Carrying Timber Deck Cargoes, 2011 (2011 TDC Code), revising and updating the original code adopted in 1973. ■

#### Further information

To find out more about these or any other upcoming regulatory changes, please contact your local Lloyd's Register office, or use the links below.

For reports of each IMO meeting: <http://www.lr.org/sectors/marine/Compliance/LRIMO.aspx>

For RuleOutlookLive, our interactive online service for keeping you updated on the regulatory environment: <http://www.lr.org/sectors/marine/Compliance/RuleOutlookLive.aspx>

For information on legislation which has been adopted or is under discussion: <http://www.lr.org/sectors/marine/documents/201196-future-imo-legislation.aspx>

# Lloyd's Register wins a naval first



Credit: Copyright of the Commonwealth of Australia

HMAS *Choules*: a Bay class landing ship dock: formerly known as RFA *Largs Bay*

**After several years helping global navies grasp safety issues and the framework of the Naval Ship Code, Lloyd's Register was recently appointed by the Royal Australian Navy (RAN) as its first Recognised Organisation.**

Our appointment is closely linked to the purchase of the former RFA-owned *Largs Bay*, recently renamed *Choules*, and the very large landing ship docks, *Canberra* and *Adelaide*, which are currently being built in Spain to Lloyd's Register rules.

Rear Admiral Mick Uzzell, RAN's Head of Naval Engineering, signed the formal

delegation as the RAN's new Naval Flag Administrator (NFA).

Responding to the announcement, Bob Simpson, Lloyd's Register's Global Lead for Naval Ships, said: "This was the culmination of several years hard work from a team of dedicated LR staff to help navies understand how safety was regulated for commercial ships and to adapt the principles into the Goal-Based Framework of the Naval Ship Code, and to deliver this assurance through the use of the Naval Ship Rules as the underpinning certification."

The Australian navy will adopt the Code as its framework for Ship Safety Management and use class societies to provide independent third party assurance that vessels have been properly certified. The Code has been developed by Lloyd's Register and a number of navies for several years as a basis for naval ship safety in the same way SOLAS does for commercial ships. ■

# Chinese government ministers visit London office

Li Shenglin, China's Minister for Transport, during his visit to Lloyd's Register



Zhang Guobao (front, 2nd left), China's Minister for Energy, and Lloyd's Register's CEO, Richard Sadler (front, 2nd right) with Lloyd's Register and Chinese delegation members

**Lloyd's Register's outstanding safety and security record in the transport sector and our role in China's plans to invest in UK infrastructure were two key topics discussed when Mr Li Shenglin, China's Minister for Transport, visited our London office in November, 2011.**

Mr Shenglin and an eight-strong delegation met Richard Sadler, Lloyd's Register's CEO, and representatives of such major UK agencies as UKTI, the MCA, RNLI, RSSB, NATS and Clarksons.

Mr Li Kejun, Chairman of China Classification Society (CCS), spoke about further co-operation between Lloyd's Register and CCS which will expand from the maritime sector to the transport and energy sectors.

A few days later, Mr Zhang Guobao, China's Minister for Energy and Chairman of China's National Energy Consulting Committee, went to a Lloyd's Register Marine and Energy workshop where he discussed key LNG technologies such as containment systems, polar projects, nuclear applications

in the marine sector, fossil fuels and renewable energy sources from wind to solar and hydro power.

Several research project ideas including using freshwater as ballast for VLCCs, the application of small-scale nuclear reactors and large nuclear-driven cargo ships were also discussed during the minister's visit.

Mr Zhang said he would fully support Lloyd's Register in China's LNG, VLCC, FLNG and nuclear business activities. ■

# Turkish office wins Ciner TOC contract

**Lloyd's Register's Istanbul team recently secured the transfer into LR class of eight bulk carriers owned by Ciner Ship Management, part of the Ciner Group.**

As a new entrant into the shipping sector, Ciner Ship Management has always been a target client for Lloyd's Register so this is a significant first for our Turkish office.

The transfer of class (TOC) includes four 82,000 dwt and four 63,000 dwt bulk

carriers. The first, *Artvin*, was delivered in October, 2011 at South Korea's Hyundai Mipo Dockyard. The other seven ships which are being built at Korean and Chinese shipyards will be transferred to Lloyd's Register on delivery between 2011 and 2013.

Apostolos Poulouvasilis, Lloyd's Register's EMEA Marine Manager, commented: "This is an excellent example of best practice applied across client relationship management and effective service delivery

which have been two key factors recognised as being critical for the success of our TOC strategy as reinforced in our recent Global Marine Business Development meeting in Shanghai.

We are very happy to be working with Ciner Ship Management and we see this as just the beginning of a strong co-operation which we hope to broaden and deepen even further in the future to the mutual benefit of both organisations." ■

# Hellenic Advisory Committee opens debate on GHG fund



(left to right) Lloyd's Register's Marine Director Tom Boardley and CEO Richard Sadler with Captain Panayiotis Tsakos, retiring chairman, and his successor, Mr Theodore Veniamis, at the December meeting of Lloyd's Register's Hellenic Advisory Committee



Vassilis Papakalodoukas, of Ciner Shipping, Istanbul (left) with Lloyd's Register's Regional Marine Manager (Greece), Apostolos Poulouvassilis, at the recent meeting of Lloyd's Register's Hellenic Advisory Committee

// We need a single dedicated mechanism for the global industry //

**The mechanics of a greenhouse gas convention with market-based measures for shipping was one of the themes of a presentation by a leading Danish maritime specialist at the December meeting of Lloyd's Register's Hellenic Advisory Committee in Piraeus.**

Looking for support from Greek owners, Christian Breinholt, Deputy Director General of the Danish Maritime Authority, presented the mechanics and philosophy of the International Green House Gas Fund – a market-based measure to address IMO's equal treatment requirements with the UNFCCC's common but differentiated responsibilities approach.

Mr Breinholt said the international convention would need years to set up, so work should start now. "From our perspective, we need a single, dedicated mechanism for the global industry," he said adding that the proposal has received wide support from the maritime industry.

Using Lloyd's Register's research, Mr Breinholt

said that with anticipated growth in trade and even massive energy efficiency improvements, shipping would be unable to reduce its total greenhouse gas emissions without some form of market-based measures. Mr Breinholt was persuasive and his comments were listened to with great interest by the committee.

At the meeting, Lloyd's Register provided updates on global shipbuilding activity, insights into efficient ship designs, and news of technical and operational issues. The safety, structural integrity and safe operation of VLOCs (very large ore carriers), a topic that is very important to the Greek market, was discussed and, once again, concern was expressed about iron ore loading rates.

After two four-year terms, or eight years, Captain Panayiotis Tsakos handed over the Chairmanship of the Committee to Theodore Veniamis, of Golden Union, current President of the Union of Greek Shipowners. New members included Nikolaos Tsakos of TEN and Vassilis Papakalodoukas of Ciner Shipping, Istanbul.

Richard Sadler, CEO of Lloyd's Register, welcomed Mr Veniamis and sincerely thanked Captain Tsakos for his support and hard work. "No one has been more devoted to the health of Greek and world shipping than the Captain. He has the sincere gratitude of Lloyd's Register and the Greek community," said Mr Sadler.

Lloyd's Register's Marine Director, Tom Boardley, concluded: "We face many challenges in shipping and this committee is a key forum for us to discuss, debate and benefit from hearing the Greek shipowners' views on today's issues. For us as a classification society safety must always be paramount. Of course we discussed the recent debate on the role of classification societies in the design process.

"I must emphasise – and this was reaffirmed today – that shipowners want us to continue to provide impartial, independent oversight. There is no such thing as high performance, unless it is safe performance, and we must always remember this as we help the industry become more efficient." ■

# Almi Tankers notches an energy efficient first

**Almi Tankers, the expansion-minded Greek wet-market operator, recently took delivery of the first of 10 Suezmax tankers at Daewoo Shipbuilding and Marine Engineering's (DSME) main shipyard in Okpo, Korea.**

The 157,787 dwt *Almi Horizon* is the first of seven tankers being built by DSME to Lloyd's Register class. The remaining three vessels are currently under construction and scheduled to be delivered – to the latest environmental and structural standards – in 2012.

"We share Almi's excitement on their occasion of entering the Suezmax market with a fleet of ships built to high environmental specifications that are beyond the requirements of compliance," said Luis Benito, Lloyd's Register's Country Manager for Korea. "Designed and constructed by DSME, the success of this newbuilding project is a testament to the commitment of all stakeholders in this project, which started at the pre-contract stage and continued throughout the design and construction of the ship."

"We are proud to have made a contribution to this ground-breaking project, providing risk services beyond the scope of our classification, particularly with regard to the

implementation of the vessels' ballast-water management systems," said Luis. "Society is demanding safer, cleaner ships and we are using our experience and technical expertise to support their construction."

*Almi Horizon* has been verified by Lloyd's Register to comply with the voluntary energy-efficiency requirements of the IMO's Energy Efficiency Design Index (EEDI) for new ships. She is equipped with a UV ballast-water treatment system and features an Inventory of Hazardous Materials in accordance with Lloyd's Register's Green Passport service.

"This successful delivery was greatly assisted by Nikolaos Vapouris, New Construction Project Manager at Lloyd's Register, whose excellent level of service greatly helped us. For this we wish to extend him and Lloyd's Register our most heartfelt thanks," said Almi Tankers' CEO Panagiotis Drosos.

*Almi Horizon* and six of her sisterships have been designed to be built to Lloyd's Register's Environmental Protection 'EP' notation, which recognises their enhanced features and demonstrates the owner's commitment to, and investment in, environmentally friendlier ships. The vessel has also been enrolled in Lloyd's Register's Ship Emergency Response programme. ■



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