

# News

## ILO MOVES ON SHORE LEAVE FOR SEAFARERS

The International Labour Organization (ILO) has made progress in improving arrangements for shore leave for seafarers. At a meeting in Geneva, Switzerland, employers, trade unions and governments agreed a common approach to improving ILO Convention 185, which covers identity documents for seafarers, enabling access to shore leave.

The recommendations, which now go through the ILO for discussion before implementation, would bring seafarers' identity documents in line with e-passports. This acknowledgment of the current electronic technology should help encourage member states to ratify Convention 185, which has received little take up since it was adopted in 2003. The recommendations should improve the welfare of seafarers taking shore leave and in transit, as well as addressing the security concerns of member states.

Welcoming the moves, ITF seafarers' section chair David Heindel said they "should help persuade states that ratification is sensible and in everyone's best interests".



Figure 1.

Seamen's job.

Source: ToMS archive.

The outcome of the meeting was also welcomed by the International Chamber of Shipping (ICS).

## MARITIME TRAINING & EDUCATION IS LIFELONG LEARNING

Learning about job on board ships, new technology and regulation does not end when you graduate from a maritime academy or school. Modern ships require more knowledge and skill to get a promotion, and to keep level of safety aboard. Equipment on ships is regularly upgraded. Most mariners change ships after contract and each ship is specific. IMO assembly adopted Resolution A.680 (17) entitled "IMO Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention". While not mandatory, the Resolution established standards for measures that owners and operators should implement to reduce the risk of marine casualties. The Company was identified as responsible not only for ensuring that its ships were adequately manned for the trade in which they were engaged, but also for ensuring that ship's personnel have the proper knowledge of the technical aspects of the ship and its operation as necessary for performance of their duties, and receive the necessary training for familiarization with the particular ship or equipment. Statistics show that most casualties happen during familiarization with ships. Usual familiarization is 1-2 months on board ship with an average level of technology. Seafarers' contracts are somewhat shorter, but in most cases of the same duration. It is easy to conclude that familiarization and contract usually end at the same time.

This concept that 'familiarization with the particular ship in which the seafarer was engaged' was a Company responsibility had not previously been articulated.

The IMO recognized that, as ships became increasingly differentiated, it was important that seafarers be made aware of the particular characteristics of the vessel to which they had been assigned, even if that concept was not mandatory. In 1993, when the ISM Guidelines became the ISM Code, the 'familiarization' provision was reworded to: *The Company should establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of*

*the environment are given proper familiarization with their duties. Instructions which are essential to be provided prior to sailing should be identified, documented and given.*

The 1994 Conference of Contracting Governments to the International Convention for the Safety of Life at Sea (SOLAS) 1974 adopted a new chapter IX on Management for the Safe Operation of Ships, with the effect that the ISM Code, including the ship familiarization provision, became mandatory on 1 July 1998 for passenger ships, including passenger high-speed craft, oil tankers, chemical tankers, gas carriers, bulk carriers, and cargo high-speed craft of 500 gross tonnage and upwards, regardless of their date of construction. The ISM Code was adopted for the United States by means of section 602 of the Coast Guard Authorization Act of 1996 (codified at 46 U.S. Code, Chapter 32 – Management of Vessels) and became mandatory for covered US-flag vessels on 1 July 1998. The ISM Code was implemented for the United States by means of a new Part 96 to title 33 of the Code of Federal Regulations – Rules for the Safe Operation of Vessels and Safety Management Systems, promulgated as a final rule on 24 December 1997.

The STCW Convention and Code were changed again in 2010 by means of the Manila Amendments. In addition to recognizing various increased complexities, a number of wholly new provisions were added. Measures were added to address the risk of fraudulent certificates of competency and to closely monitor flag administrations' compliance with the Convention. Requirements relating to hours of work and rest and for prevention of drug and alcohol abuse were strengthened. Specific requirements regarding training in and use of such technology as electronic chart displays and information systems (ECDIS) were added.

Use of electro-technical equipment and dynamic positioning systems were recognized, with training and certification standards defined for the first time. Distance learning and web-based learning were recognized as alternative or supplementary approaches.

The STCW Code, in the mandatory Section A-I/14, contains detailed provisions for implementation of this responsibility for familiarization, including the requirement for written instructions to the master, allocation of a reasonable period of time for newly employed seafarers to gain the necessary familiarity, and designation of a knowledgeable crew member who will be responsible for ensuring that an opportunity is provided to each newly employed seafarer to receive the essential information.

In the non-mandatory Section B-I-14, the STCW Code recommends that companies should provide ship-specific introductory programs aimed at assisting newly employed seafarers to familiarize themselves with all procedures and equipment relating to their areas of responsibility.

The ISM Code and STCW Convention and Code provisions regarding the vessel familiarization requirement are basically

the same, although the STCW Convention and Code includes greater detail. Both have been adopted by the United States and have been implemented and are enforced by the U.S. Coast Guard. Both have been adopted by the vast majority of national governments. Thus, it can fairly be said that the vessel familiarization requirement is universal.

Experience has taught us, though, that the practice of vessel familiarization has not been universally applied. Investigations following marine casualties commonly include findings indicating that one or more seafarers on the unfortunate ship were unfamiliar with an important piece of equipment or an important procedure. Matters rarely go any further.

An exception was the 7 November 2007 allision of the COSCO BUSAN with the Delta Tower of the San Francisco-Oakland Bay Bridge and subsequent oil spill. Investigations by both the U.S. Coast Guard and the National Transportation Safety Board (NTSB) noted that the master and deck officers (all of whom were newly assigned to the ship only 24 hours prior to departure on this voyage) were unfamiliar with pertinent provisions of the ship's Safety Management System (SMS).

It is to conclude that each newly-assigned mariner is fully familiar with the ship or with the equipment that he or she will have to use to perform required tasks. The day of the departing mariner passing his or her replacement on the gangway is past. New technologies require time for training.

## **NEW STUDY ABOUT PASSENGER SHIP COMFORT**

Comfort determines passenger satisfaction, onboard expenditure and passenger return levels. However, comfort is subjective as people are very different. Luxurious ships typically have a gross tonnage (GT) of less than 50,000 and the number of passengers is often fewer than 500. These cruises are often to exclusive destinations worldwide, and they call at smaller ports. Due to the relatively limited size of these vessels, the ship motions play an important role in the comfort levels. This is in sharp contrast with the ultra large cruise ships, which have a gross tonnage of more than 100,000 and a passenger capacity of over 4,000 passengers. These cruise ships typically offer one to two-week cruises to popular destinations in the Caribbean and the Mediterranean. Due to the size of these ships, the ship motions are negligible in most weather conditions. Accelerations are caused by the combined ship motions (surge, sway, heave, roll, pitch and yaw). The discomfort experienced, as a result of these accelerations, relates to seasickness and disruptions during all kinds of onboard activities. Seasickness is mainly caused by vertical accelerations but the horizontal accelerations and the combination of both are also important. As criterion the Illness Rating (IR) is applied. Typical phenomena that might induce vibrations and noise are bow flare and stern slamming. Bow flare slamming occurs mainly when sailing in steep seas from the bow

quarter, while stern slamming typically takes place at low or zero speed in relatively low seas (or in high head seas conditions). It is important to further increase the industry's knowledge about

actual passenger ship operations and how they are influenced by ship hydrodynamics.



**Figure 2.**  
MSC Musica in port.  
Source: Flickr.com.

## DENMARK MARITIME SECTOR WITH GOOD WIND

Shipping is the leader of all Danish industries. By value, Denmark transports roughly 10% of the world's trade and is among the largest operators in terms of total tonnage, earning Danish shipping companies approximately \$21.6 billion per year. According to figures from the Danish Shipowners' Association, the size of the Danish flagged merchant fleet in May 2014 was 629 vessels, a cumulative 14.7 million DWT. At the same point in time, the Danish newbuilding program counted 105 vessels on order, 4.7 million DWT.

A.P. Moller–Maersk Group - The A.P. Moller –Maersk Group performs in a wide range of business sectors, primarily relating to transportation and energy.

NORDEN has a newbuilding program with 30 vessels on order (26 dry cargo ships and four tankers). TORM, presently in its 126th year, operates a fleet of tankers which carry refined oil products such as gasoline, jet fuel, naphtha and diesel oil,

additionally operating dry bulk vessels mainly focused in the Panamax segment, primarily transporting grain, coal and iron ore.

J. Lauritzen A/S transports dry cargo and gas products around the world through a fleet of more than 150 vessels including short-term charters. The company's business portfolio includes Lauritzen Bulkers (dry bulk cargoes) and Lauritzen Kosan (petrochemical and liquefied petroleum gases), as well as part-ownership of flotel service provider Axis Offshore Ltd. through a joint venture with HitecVision.

Nordic Tankers is a ship owning company operating one of the largest global specialized chemical tanker fleets in the segment below 25,000 dwt. The company operates by owning, chartering in, pooling and having chemical tankers on commercial management.

Denmark is a trailblazer for energy-efficient shipbuilding, design, repair and retrofitting, and produces a variety of high-quality, innovative products, from engines, scrubbers and ballast

water treatment systems to ship paint and coatings, navigation systems and safety equipment. Denmark is a hub for green shipping technology. Many leading companies devoted to ballast water treatment technology are located in Denmark. As a global leader in environmental innovation, Denmark recently launched a research project called Blue NNOship, which aims to develop or enhance technologies which reduce emissions and particles from sulphur (Sox) nitrogen (NOx) and carbon dioxide (CO2) through a focus on ship design and propeller solutions, performance and monitoring, alternative fuel solutions, emission reducing technologies and service/retrofitting.

Denmark relies on offshore wind for roughly 10 per cent of its electricity production. At more than 130 vessels servicing offshore wind activities, the Danish-operated fleet is one of the world largest.

### 36M-CREWBOAT FOR BRAZIL

Fast, capable crewboat design and construction continues to be a leading edge niche in the global marine market, with the latest manifestation being the BS Camburi, a 36m-monohull crewboat built in Brazil by Arpoadorngenharia to the Petrobras type P2 specification, for Brazil Supply. Incat Crowther designed the boat.

The vessel's aft main deck features a large open deck, separated for two main purposes. The aft portion, measuring 60.5 sq. m., is dedicated to a man-riding basket. The forward portion, measuring 28 sq. m., is dedicated to cargo, with large cargo rails offering heavy duty protection. The main deck passenger cabin houses 60 seats in a mixture of forward-facing and booth styles. A bow loading platform is integrated into the design to facilitate passenger embarking and disembarking from offshore facilities. Served by a stair-tower aft with direct access to all decks, BS Camburi's wheelhouse features forward and aft control stations. The vessel accommodates 10 crew in five cabins, alongside a galley, crew mess and bathrooms. BS Camburi is powered via a trio of Caterpillar C32 main engines coupled to Doen DJ290 waterjets. The center engine drives a 600 cu. m./hour fire pump. On sea trials, BS Camburi achieved a top speed of 25 knots, and it has a fully loaded service speed of 17 knots.

#### BS Camburi Main Particulars

Length, o.a. ....	118.2 ft. (36 m)
Length Waterline .....	108.4 ft. (33 m)
Beam, o.a. ....	24.6 ft. (7.5 m)
Draft (hull) .....	4 ft. / 1.2 m
Depth.....	11/5 ft. (3.5 m)
Construction .....	Marine Grade Aluminium
Ship's Fuel Oil .....	3,963 gal.
Cargo Fuel Oil.....	7,925 gal.
Ship's Fresh Water.....	1,532 gal.

Cargo Fresh Water .....	7,925 gal.
Black Water .....	330 gal.
Grey Water.....	660 gal.
Passengers .....	60
Crew .....	10
Deck Area .....	28 sq. m.
Deck Load.....	50 t
Deck Strength.....	2.5 t/sq. m.
Speed (Service).....	17 knots
Speed (Max).....	25 knots
Main Engines.....	3 x Caterpillar C32 Diesels
Propulsion.....	3 x Doen DJ290 Waterjets
Flag .....	Brazil
Class / Survey.....	RINA

### VIRTUAL AIDS TO NAVIGATION MARK RESEARCH EQUIPMENT

Vesper Marine will provide its Virtual Aid to Navigation technology to the French company CGG, a geoscience company that provides geological and geophysical survey and analysis primarily to the oil and gas industry. In its on-going quest to map the ocean's floors, CGG survey vessels tow an array of cables in the water at a up to a 50 ft. depth, an array of cables that contain seismic energy sources, usually a series of airguns that are fired at regular intervals as the vessel moves along predetermined survey lines. Energy reflected from beneath the seafloor is detected by numerous 'hydrophones' contained inside long, neutrally buoyant 'streamers' also towed behind the vessel. A typical towed configuration is between 12 and 20 cables and streamers, measuring up to 5mi long with a separation of 328 ft., a massive spread which equates to 3 square miles of equipment had no way of knowing that this equipment was in the water, and there historically have been numerous collisions with the streamers resulted in a high loss of both equipment and productivity. It is hoped that by using Vesper Marine's Virtual AIS Beacons to broadcast positioning data to other ships in the area, CGG will eliminate this loss.

The VAB1250 Virtual AIS Beacon is designed to continually broadcast the positions of the towed equipment via an interface to CGG's proprietary navigation software. The software provides the updated position of the equipment regularly to the VAB1250 identifying points at the front, middle and tail of the spread of streamers and on the outer cables. These points are then displayed on any AIS-equipped ECDIS, chart plotter and radar within a range of approximately 20nm. "We began discussing this project with Vesper Marine in July 2013," said Matthieu Champenois, Field Support Engineer – Navigation & Positioning Department, CGG. "Jeff Robbins and his teams quickly grasped our needs and developed a solution that was suited for this project."

CGG currently has two ships outfitted with Virtual AIS Beacons and has made the decision to outfit all 13 vessels in their fleet. The first installation was completed in December, 2013 on the CGG Symphony. In step with Vesper, CGG developed its own software interfaces between the existing navigation and positioning systems and the beacon. The fully automated system shares an existing VHF antenna on the ship with the radio via a Vesper Marine AIS/VHF splitter. "The second system was installed on the CGG Oceanic Challenger in May 2014 before a job in a location where the vessel traffic reached 120 vessel crossings per day," said Champenois. "As the broadcasted marks appearing on the displays presented an unusual situation for vessels in the area, their bridge officers contacted the Challenger's master in order have a clearer view of the situation and to avoid any collision. This was exactly the intended result."

A Virtual Aid to Navigation is created when a signal sent from a transmitter in an accessible location is used to mark a remote point. This mark is displayed as a special feature or hazard on a vessel's when within range. The ship's onboard equipment is then able to alert crews to the presence of and if they are on a collision course with the marked navigational hazard.

### FIRST SHIPARRESTOR DELIVERED

Following a full product trial in New Zealand, the Norwegian Coastal Administration (NCA) signed its acceptance of the first of two ShipArrestor systems from Miko Marine, making Norway the first country with a system that gives it the ability to protect its shores from the danger of drifting oil tankers and from the disastrous pollution that can result when they run aground. ShipArrestor was put through a complete customer acceptance trial in Tasman Bay, New Zealand using chartered helicopters and vessels. The system consists of a large fabric parachute-style sea anchor that is looped by a helicopter onto a ship drifting without engine power. This is achieved without any involvement of the ship's crew after which a line terminating with the sea anchor in a container is paid-out upwind by the helicopter. When the container is dropped into the sea it releases the fabric anchor, a recovery line and a buoy that shows its location. The sea anchor cuts the speed of the ship's drift and consequently increases the time available for a rescue tug to reach the ship and take it in tow before it runs aground and ruptures its tanks. As designed, when the rescue tug arrives it can lift the buoy on board and

use its line to tow the ship to safety. The advanced materials used by the ShipArrestor give it the strength and ability to quickly turn any size of ship, from a trawler to a supertanker, into the wind and halve the speed at which it is drifting. The ShipArrestor was developed by salvage technology specialists Miko Marine, which led a consortium of eight European organizations partly funded by the European Union. Coppins Sea Anchors Ltd of Motueka, New Zealand joined the team as co-developers of the ShipArrestor in early 2014.



Figure 3.  
ShipArrestor.

Source: miko.no & kystverket.no.

### TRAWLERS SPECIFIED WITH MAN'S SCR SYSTEM

In connection with the recent announcement of the construction of three wetfish trawlers for HB Grandi, the Icelandic fishing concern, MAN Diesel & Turbo has announced that the newbuildings' MAN main engines will also feature its SCR (Selective Catalytic Reduction) system. The company states that the system will enable the trawlers' IMO Tier II-compliant engines to fulfil the strict IMO Tier III NOx emission requirements.

Vilhjalmur Vilhjalmsson, CEO of HB Grandi said: "When we decided to renew our fresh-fish fleet, we immediately focused on the task of curtailing the ships' power requirements, both in terms of the propulsion plant as well as electricity production, so as to make the exhaust gas as clean as possible."

Vilhjalmsson added that HB Grandi deliberately pursues a green company profile and that its focus on clean and responsible fishing ultimately led to MAN technology being chosen for the trawlers. As such, HB Grandi's profile suited the minimal environmental footprint from operations, including the cleaner exhaust gasses and NOx reduction that the MAN package offers. A further advantage of choosing MAN was the relatively straightforward integration of engine, propeller, propulsion controls and SCR system that equipment from the same manufacturer entails.

MAN Diesel & Turbo reports that special attention was given to selecting the optimal position for the SCR system aboard the trawler. This challenge was met and solved in great part through good cooperation with Nautic, the Icelandic specialist designer and ship consultant, at an early stage of the project.

Nautic – based in Reykjavík – is designing the new vessels, which will replace three wetfish trawlers currently in service. The vessels, with their distinctive bows, will be built in Turkey by Celiktrans Deniz Ltd. Sti. with delivery scheduled for May 2016, late-2016 and spring 2017, respectively.

The new HB Grandi wetfish trawlers will enjoy the benefit of several features to optimise operation. These include employing a floating-frequency concept that increases their flexibility and economical part-load pattern with an up to 17% lower engine/propeller speed and a commensurately lower fuel consumption.

MAN Diesel & Turbo's new, advanced Alphatronic 3000 generation propulsion-control system will also be installed aboard the trawlers and, among other characteristics, features tailored 'dual-propeller load curves' for optimising towing/trawling and free-sailing conditions.

SCR is the most tested and approved system for achieving NOx reduction rates up of to 90%. SCR involves the injection of ammonia or urea, into the diesel engine's exhaust stream. The urea decomposes into ammonia and carbon dioxide, with the ammonia subsequently reacting with NOx and oxygen in the presence of a catalyst, transforming into the ecologically-benign constituents of water and nitrogen.

In order to optimise the SCR process at part load, the engine is specified with a turbocharger bypass as part of the exhaust gas temperature system that ensures sufficiently high temperatures.

MAN Diesel & Turbo's SCR system is available in fourteen different sizes, in this way fully covering its entire portfolio of medium-speed engines. The system has been devised as

a modular kit of components for reasons of simplicity and to minimise costs.

A special feature of the system is its communication with the engine control system that optimises the temperature for the SCR system at individual load-points.

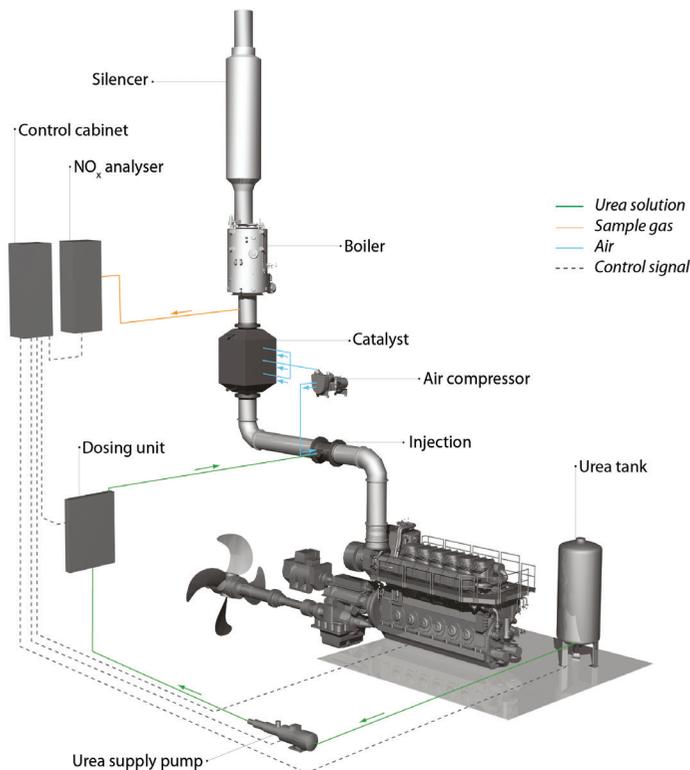
A further special feature of the system is its continuous NOx-emission control that saves urea and avoids ammonia slip.

MAN Diesel & Turbo also offers customised SCR systems on demand.

The main components of the MAN Diesel & Turbo SCR system are:

- an SCR reactor
- catalyst elements
- a soot-blowing system
- a dosing unit
- a mixing device
- a urea-injection lance
- a control unit
- a compressed-air reservoir module.

Nautic wetfish trawler design for HB Grandi will be powered by an MAN six-cylinder L27/38 unit, accompanied by a four-bladed, 3.8-metre, ducted MAN Alpha VBS 860 propeller (Both images courtesy of HB Grandi/Nautic).



**Figure 4.**

Annotated diagram showing the key components of the MAN Diesel & Turbo SCR system.

Source: [www.corporate.man.eu](http://www.corporate.man.eu).



**Figure 5.**

Graphic representations of the Nautic wetfish trawler design for HB Grandi.

Source: [www.corporate.man.eu](http://www.corporate.man.eu).

## TWO MAJOR ME-GI MILESTONES CONFIRMED

MAN Diesel & Turbo reports that its ME-GI engine has now passed another milestone with orders for more than 100 engines received. In its press release, issued 2 February 2015, FLEX LNG announced fuel-efficient, two-stroke slow-speed ME-GI main engines as the propulsion system for two LNG carriers to be built at Samsung Heavy Industries. The expected delivery dates of the vessels have been postponed from Q1 2017 to Q1 and Q2 2018.

Ole Grøne, Senior Vice President Low-Speed Sales and Promotions, MAN Diesel & Turbo, said: “With our ME-GI order book now having passed the 100-unit milestone, we view it as a sign that our confidence in this low-speed, dual-fuel engine concept has been both well-founded and well-timed, and that we are providing what the market desires. Indeed, it seems as if the ME-GI is set to become the new industry standard.”

The first two ME-GI units (MAN B&W 8L70ME-GI types), recently successfully passed their Factory Acceptance Tests (FATs) in Korea, and have now been installed aboard two 3,100-TEU container vessels currently under construction in the United States.

MAN Diesel & Turbo reports that the test-bed performance of the ME-GI engines exceeded expectations, providing tangible evidence of the soundness of the concept. The company is pleased that this confirms the ME-GI’s high-pressure technology as a state-of-the-art solution, which the market has embraced, judging by the significant volume of orders seen in the short period of time since the ME-GI was launched.

Grøne added: “The development process, particularly in relation to the seals associated with the gas-supply pressure, has been demanding but the successful FATs have shown that this challenge has been fully resolved. Overall, the ME-GI’s fuel-gas system has performed extremely well, confirming our expectations and the experience gained from various demonstrations and tests. As such, MAN Diesel & Turbo is confident that the ME-GI engine will continue as the unquestioned market leader and the only demonstrated two-stroke, dual-fuel engine that has passed exhaustive testing.”

The ME-GI engine represents the culmination of many years’ work, and gives shipowners and operators the option of utilising fuel or gas depending on relative price and availability, as well as environmental considerations. The ME-GI uses high-pressure gas injection that allows it to maintain the numerous positive attributes of MAN B&W low-speed engines that have made them the default choice of the maritime community. The ME-GI is not affected by the multiple de-ratings, fuel-quality adjustments or large methane-slip issues as have been seen with other, dual-fuel solutions.

MAN Diesel & Turbo sees significant opportunities arising for gas-fuelled tonnage as fuel prices rise and modern exhaust-emission limits tighten. Indeed, research indicates that the ME-GI engine delivers significant reductions in CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub> emissions. Furthermore, the ME-GI engine’s negligible methane slip makes it the most environmentally friendly technology available. As such, the ME-GI engine represents a highly efficient, flexible, propulsion-plant solution.

An ME-LGI counterpart that uses LPG, methanol and other liquid gasses is also available, and has already been ordered.



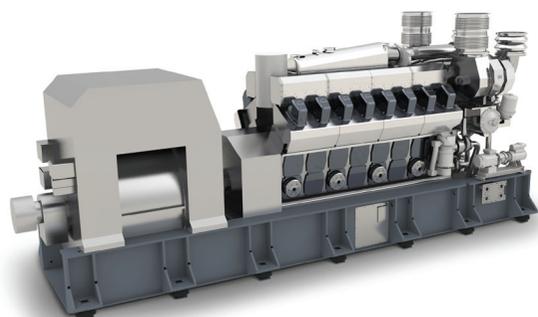
**Figure 6.**

ME-GI engine.

Source: [www.corporate.man.eu](http://www.corporate.man.eu).

## NEW OFFSHORE GENSET TARGETS DRILLING SEGMENT

MAN Diesel & Turbo has announced the launch of its PA6 B Offshore GenSet (OG). Aimed at the offshore-drilling segment, the new engine is specifically targeted at semi-submersible drilling rigs.



**Figure 7.**

View of the PA6-B (OG) Offshore GenSet.

Source: [www.corporate.man.eu](http://www.corporate.man.eu)

The PA6 B is a four-stroke, medium-speed engine built at MAN Diesel & Turbo's St. Nazaire, France facility from where the company has successfully sold the engine for many years. St. Nazaire will assemble individual PA6 B OG units together with an alternator in constructing the new, offshore GenSets. Typically, 8 × 16PA6 B OG units are installed aboard a semi-submersible both for main and emergency power supply.

Originally developed in the 1960s, the PA6 B is a highly reliable engine whose basic design has proven itself over innumerable running hours, as well as in starting and loading

sequences. Continuously developed and improved since its inception, the PA6 B has set the benchmark in many of its segments, being especially recognised within such applications as diesel-electric propulsion for commercial and military vessels, and emergency gensets in nuclear power plants, as well as other, offshore segments. Currently, more than 1,000 engines of the PA class are in service globally.

In developing the new OG-variant, the original PA6 B engine has been much adapted to meet current market demands. One major innovation has been on the emissions front with the result that the PA6 B OG is now Tier II-compliant and can also meet Tier III regulations with the SCR (Selective Catalytic Reduction) technique. Another key development is that the PA6 B OG now employs SaCoSone, MAN Diesel & Turbo's proven engine-safety-and-control system, while the range of turbochargers suitable for operation with the new engine has accordingly been updated.

The PA6 B OG is a compact, lightweight, and robust powerhouse with remarkably low noise-emissions and vibrations. Its power range from 4,440 to 7,400 kW makes it eminently suitable for diesel-electric propulsion and power generation in the offshore segment.

The PA6 B engine is highly resistant to shock and the offshore GenSet can deal with tilts of up to 25° in any direction. Its ability to handle transient load increases and long-term, low-load operation are also noteworthy, while its proven design and the use of high-class OEM components facilitate long maintenance intervals.

Furthermore, the PA6 B OG features:

- quick start-up timing
- rapid response to load increases
- an integrated cooling, lube- and fuel-oil system
- maximum reliability
- low-load SFOC optimization.

## US ORDERS TRAWLER WITH COMMON-RAIL TECHNOLOGY

Tier II-compliant 32/44CR technology to deliver fuel efficiency, low emissions and improved productivity

MAN Diesel & Turbo has received an order for an MAN 8L32/44CR engine to power a newbuilding trawler for Fishermen's Finest, the US fishing concern. The 32/44CR engine order is significant on two counts in that it represents the first CR engine sold to the American fishing segment that is fully US EPA Tier II-compliant and is, simultaneously, a first reference for MAN Diesel & Turbo in the important, domestic fishing industry.

Helena Park, CEO Fishermen's Finest, said: "I am impressed with the technological advantages the MAN 8L32/44CR common-rail diesel engine will give our eco-trawler, 'M/S America's Finest'.

Robert Burger, Managing Director – MAN Diesel & Turbo, USA, said: "Fishermen's Finest aims to be a leader in the



**Figure 8.**  
Graphical rendering of the ST-116 XL design for 'America's Finest'.  
Source: Skipsteknisk.

competitive US fishing industry and habitually employs the latest technology to improve the productivity of its fleet. In ordering our four-stroke engine, it recognises the commercial advantage it can gain from our common-rail technology that is fully integrated with the engine and has best-in-class fuel efficiency accompanied by low emissions.”

The engine will have an output of 4,800 kW (600 kW/cylinder) and will be built at MAN Diesel & Turbo's Augsburg, Germany works. The prime mover is part of a propulsion package that includes:

- a MAN Alpha 4-blade CP propeller type VBS 940 Mk 5 Ø 3,800 mm including an AHT high-thrust nozzle
- MAN's proprietary Sacosone common-rail engine-control system
- MAN's Alphasonic 3000 Propulsion Control System
- a gearbox – power 4,800 kW, horizontal offset 950 mm, PTO 2,900 kW.

The vessel will be built at Dakota Creek Industries in Anacortes, Washington State, USA using an ST-116 XL design from Skipsteknisk, the independent, Norwegian naval architect and marine engineering company. Delivery of the propulsion package is scheduled for December 2015 with vessel delivery expected in November 2017.

Fishermen's Finest reports that its new order comes at a time when the political climate in the State of Washington is very positive and openly promoting efforts for distant-water fishing fleets to replace outmoded vessels.

Recent public statements by the State Government to this effect have given broad support to introducing modern

ship designs that can dramatically reduce fuel costs, increase efficiency, and better meet new requirements for environmental protection. As such, the order for America's Finest with its modern MAN technology comes at an opportune moment.

MAN Diesel & Turbo's common-rail engines are among the most technologically advanced in its portfolio with a segment-leading SFOC that significantly lowers emissions of soot and NOx at all possible engine operating points. The company's CR engines have already established a solid foothold in other, major fishing markets.

Fishermen's Finest Inc. is an independent American fishing company that manages a fleet of two catcher/processor vessels operating in the bottom-fish fisheries of the North Pacific and Bering Sea where the large continental shelf supports a rich ecosystem and huge populations of, among other fish species, pollock and cod.

Fishermen's Finest has its headquarters in Kirkland, Washington State, and its fleet hails primarily from Dutch Harbor, the fishing capital of the Aleutian Islands.



**Figure 9.**  
An example of the MAN 8L32/44CR engine that will power 'America's Finest'.  
Source: www.corporate.man.eu

### WÄRTSILÄ AND VTT - MAIN CONTRIBUTORS TO NEW PROPULSION TECHNOLOGY RESEARCH PROGRAMME

A new technology research programme aimed at developing propulsion products specifically for operating in arctic conditions has been implemented with Wärtsilä and VTT, the Technical Research Centre of Finland, as the main contributors. The ArTEco (Arctic Thruster Ecosystem) project will altogether be supported by ten industrial and academic partners from Finland and other countries.



**Figure 10.**  
Wärtsilä and VTT.  
Source: Wartsila.com

ArTEco is a three year programme, commencing in 2015 and ending in 2017. Its primary aim is to foster new technology for propulsion solutions in an arctic operating environment. The platform will consist of developing state-of-the-art simulation and load determining methods for dynamic loading conditions; researching possibilities for dampening dynamic loads; researching the use of Environmentally Acceptable Lubricants in propulsion products; and researching new sensor technology for components used in propulsion products.

The new technology that is expected to emerge from this project will have the potential to significantly improve the competitiveness of solutions, in terms of cost, size and reliability, compared to products currently available. This will be aided through the creation of a technology demonstrator, i.e. a large-scale prototype, to be used for validating the technology within the project. This validation will take place at the Wärtsilä Propulsion Test Centre in Tuusula, Finland.

The specific focus will be on creating an Extreme Value Thruster as a platform for demonstrating quantum leaps in thruster technologies. Wärtsilä is confident that this research will form the foundation of an extended and highly advanced product portfolio. The programme has a budget of EUR 7.5 million.

*“The challenge to create increasingly reliable and competitive solutions is on-going. Wärtsilä has a duty to its customers to ensure that its R&D activities are supported by the best tools, technologies and partners so as to develop the best solutions. The creation of this project consortium will help us maintain our position as an innovator and technology leader within the marine sector. In particular, the state-of-the-art simulation methods and the possibility to carry out full scale validation of our new products will keep us at the forefront of new technology development,”* says Arto Lehtinen, Vice President, Propulsion, Wärtsilä Ship Power.

## NYK TO IMPLEMENT NEW EMPLOYMENT SCHEME FOR JAPANESE SEAFARERS

NYK has decided to implement a new employment scheme in which Japanese seafarers will be engaged to work only on vessels and not within NYK's offices.



**Figure 11.**  
NYK LNG Carrier.  
Source: <https://www2.nykline.com/>

Japanese seafarers have traditionally been well regarded the world over for their teamwork and skills, generally developed through state-of-the-art education and training programs provided at renowned maritime education institutions. And seafarers having specialized knowledge and skills are becoming more needed as NYK becomes more active in its LNG (liquefied natural gas) and offshore businesses.

NYK is thus making this move to fill positions that will require seafarers with particular technical expertise. This new work-style will also allow Japanese seafarers to settle in areas of their choosing and contribute to local communities. The employment of several officers and engineers is currently scheduled to take place from April or October 2016.

NYK will continue to secure and train technically advanced non-Japanese seafarers, who professionally man the bulk of NYK's fleet and NYK will continue its efforts to enhance its employment methods to ensure stable transport services.

## NYK BEGINS PROJECT TO ENCOURAGE GREATER MARITIME AWARENESS AMONG STUDENTS

NYK has started the "NYK Mirai Project" to encourage greater awareness of maritime affairs and the seafaring life among students at elementary, junior, high, and maritime schools in Japan.

The demand for seafarers around the world has been increasing, and skilled Japanese seafarers are well-regarded. However, a seafaring career is often not an option considered as a future job among younger generation in Japan. Therefore, NYK has implemented this project to help familiarize students with vessel operations and life aboard so that informed career choices can eventually be made.

Sample Activities of the NYK Mirai Project

- Visits by maritime school students to shipyards to witness the building of NYK vessels
- Lectures at elementary and junior high schools by NYK maritime staff
- Offering vessel boarding opportunities to elementary and junior high school students, in addition to general citizens
- Introduction of the maritime industry at junior high school orientations
- Taking maritime school teachers aboard vessels operated by NYK

On December 13, as the first activity of this project, NYK maritime staff took students from the Hiroshima National College of Maritime Technology on a visit to the Ohnishi Shipyard (Imabari City, Ehime Prefecture) of Shin Kurushima Dockyard Co. Ltd. (Head office: Chiyoda-ku, Tokyo; President: Hisashi Kadota), where the students took a tour of the construction of a vessel that had been ordered by NYK. Students seeing an immense vessel for the first time were surprised by the difference in the size of the vessel compared with the school's training ship.

NYK will continue its efforts to enhance this project through such activities so that elementary, junior high, and maritime school students who will lead the next generation can develop an interest in the maritime industry and thus consider careers at shipping companies.



**Figure 12.**  
On the bridge of a vessel under construction.  
Source: <https://www2.nykline.com/>

## NYK TO TEAM WITH CLASSNK AND OTHERS TO DEVELOP TECHNOLOGICALLY ADVANCED EXHAUST GAS CLEANING SYSTEM

This joint research project between Singapore and Japan will be funded by a grant from the Singapore Maritime Institute and carried out with the support of the ClassNK Joint R&D for Industry Program.

Unlike the development of EGCSs intended for use inside ECAs, this research will focus on the future need to comply with SOx emissions regulations outside ECAs after 2020 or 2025. Working with a leading EGCS manufacturer, the project will utilize the most advanced technology available to simplify EGCS operations, as well as reduce costs and CO2 emissions compared with existing conventional EGCSs for ECAs. The project will also aim to promote the development of new technologies for system installation such as simplification and miniaturization, in order to ensure that the system can be installed on a variety of ship types, as well as newbuildings and existing vessels.

NYK, MTI, and ClassNK will continue their efforts, ahead of international regulations, in the research and development of beneficial environmental measures.

A system that removes harmful substances, such as SOx and particulate matter, by spraying the exhaust gas in the scrubber with wash water and then treating the used wash water.

The requirements applicable to ships for controlling air pollutant emissions are becoming stricter every year. In particular, regulations aimed at reducing SOx emissions from vessels are becoming ever more stringent.

- Within Emission Control Areas (ECAs)

Emission limits of sulfur in fuel oils used in ECAs, which are mostly located off Europe and North America, will fall from the current 1.0 % to 0.1 % from January 1, 2015.

- Outside ECAs

Emission limits will fall from the current limit of 3.5 % to 0.5 % in 2020 or 2025. (The exact year will be determined by 2018.)

## VIKING SHIPTECH INTRODUCES 80 KNOT SHIPS

The concept combines the delivery time speed of air transport and price range applicable for shipping. The air transport has an 80 times higher CO2-emission than shipping, and is also 80 times more expensive. If we can move cargo from airplanes to ships, the eco winnings would be bigger than those introduced by any other measures. By moving only 3% of the cargo from airplanes, the reduction in CO2-emission is estimated to more than 80% with current fuel.

The new technological solution being introduced by Viking Shiptech are ships that can reach up to 80 knots of speed. Under the concept, a ship is powered by turbines that make a hundred



Figure 13.

New patent pending shipping technology

Source: <http://www.viking-life.com/viking.nsf>

times gyro stabilization, and then, the ship, gaining on the torque force, is being propelled forward “as cast in the sea”.

Combined with a submersible Swath solution, it provides a 100 % stability in all speeds and up 10 meters high waves, the designer claims. On the other hand, an increased platform width is aimed at preventing the inclining of the vessel, distributing the cargo to lowered stacks and gravity.

Two jet engines in front of the platform reduce the air resistance, and then supply the subsea surface with an air layer that destroys the shear forces. High speed combined with a torque controlled pressure distribution make a permanent efficiency of air lubrication in all seas and weathers.

In terms of design capacity, the ships in question would feature up to 16,500 in TEU, 17 meters in maximum depth and up to 300 meters in length overall.

The design is said to be able to provide up to 37 % in fuel savings when compared to slow moving ships, based on results of CFD-analysis.

According to Viking Shiptech, the 80 knots ship requires lower crewing requirement (-72 %) when compared to what is currently required on regular ships.

By compensating the building prices of four 16 knots ships with one 80 knots ship, the money from the residual three can be invested in technology instead of several ships.

### CARLA MAERSK'S SALVAGE OPERATION

Two of the tanker's port cargo tanks were ruptured in the clash resulting in a spill of an unknown quantity of Methyl Tertiary Butyl Ether (MTBE).

As informed by CTCAC, the salvage plans include utilizing high-density foam to suppress any flammable vapor seeping from the punctured tanks.



**Figure 14.**  
Carla Maersk alongside view.  
Source: USCG

Houston Ship Channel is likely to open within next 12 hours within the safety zone introduced after the collision, as predicted by the West Gulf Maritime Association (WGMA).

A section of the channel, from light 86 to the Fred Hartman Bridge has been closed since the collision.

The closure of the channel's section has impacted operations of Exxon Mobil Corp's refinery in Baytown, Texas amid tanker delays, Bloomberg reports.

Since Wednesday afternoon, 83 vessels were queuing at the ship channel, 48 inbound and 35 outbound, the US Coast Guard said.

According to responders conducting air and water tests, there are no public health or environmental concerns at the time.

To date, more than 500 air and water tests have been conducted, equalling approximately 50-70 tests per hour.

MTBE evaporates very quickly from surface water, the US Environmental Protection Agency said citing results of various studies. However, Texas Department of State Health Services advised that fisherman exercise common sense by avoiding fish and shellfish containing chemical odour.

### SWITCH TO LOW SULPHUR FUEL PRIOR TO ENTERING ECA

The US Coast Guard (USCG) has voiced concerns about the increasing number of vessels at risk of experiencing loss of propulsion when performing change-over operations to low sulphur fuel, the marine insurer Gard reports.

As part of the increasingly stricter air emission limits enforced through MARPOL Annex VI, vessels operating in the established Emission Control Areas (ECAs) can, as of January 1, 2015, no longer use fuel with a sulphur content exceeding 0.1 % by weight unless an approved exhaust gas cleaning system is installed.

As the machinery systems of many vessels were not designed to operate on low sulphur fuels, difficulties can arise when switching from one fuel to another, both during the actual fuel change-over and during continuous operation on low sulphur fuel.

According to the USCG, vessels have reported several incidents involving substantial fuel leakages while switching fuel to ensure compliance with the North American ECA requirements. Although these leakages were contained, the USCG emphasises that fuel releases of any kind can lead to more serious incidents involving pollution, engine room fires, and personal injuries.

The USCG also reports that many losses of propulsion have occurred in various ports and have been associated with fuel change-over processes and procedures.

Gard has warned its members that ships operating within ECA areas, currently the North American area, the US Caribbean Sea area, the Baltic Sea area and the North Sea area, must use low

sulphur fuel the entire time the vessel is operating within an ECA, on inbound and outbound transits as well as at the dock.

Each vessel must develop and implement suitable shipboard procedures for fuel change-over in accordance with MARPOL Annex VI, Regulation 14.6, allowing sufficient time to complete the fuel oil change-over prior to crossing the ECA border.

### **THREE SHIPS AGROUND IN FRONT OF SPLIT DUE TO STRONG BORA**

Three cargo ships ran aground off Dalmatian coast, Croatia this afternoon as violent storm rages throughout the region.

The ships have been identified as Krka, Orebić and Vranjic and are owned by Split-based shipping company. Unconfirmed information says that the third ship got beached in a nearby area called Slatine. There were no injuries reported as the ships had no crew on board.

The ships had been berthed at the harbour; however, strong winds snapped the ropes holding the ships in place, setting them adrift.

Two tugs have been rushed to the scene and one coast guard vessel. Nevertheless, there is nothing that can be done at the moment due to the weather. The salvage operation is scheduled for 1 month.



**Figure 15.**  
View to ships aground.  
Source: [www.crometeo.hr](http://www.crometeo.hr)

## BLUE QUEEN READY TO RULE THE SEAS

The Norwegian shipbuilder Ulstein Verft, part of Ulstein Group, today delivered the platform supply vessel Blue Queen to Blue Ship Invest.

The PX121 design PSV is the first of two for which Norway-based Golden Energy offshore is awarded the ship management contract.

Blue Queen is the ninth PSV of this design being constructed at Ulstein Verft.



Figure 16.  
Blue Queen.

Source: <http://worldmaritimeneews.com/>

## HHI REALIGNING ITS BUSINESS

South Korean shipbuilding giant Hyundai Heavy Industries (HHI) has revealed plans to integrate overlapping roles and responsibilities across HHI and its shipbuilding affiliates, Hyundai Mipo Dockyard and Hyundai Samho Heavy Industries. The move comes within the conglomerate's drive to realign the business.

HHI recently identified four areas of overlap for phase one of functional integration, namely, finance, accounting, IT and public relations. The shipbuilder said that, going forward, the scope of business coordination would eventually expand into other functions as well as to other affiliates under the HHI group.

*"The business realignment is geared toward achieving increased synergy among affiliates by minimizing redundant investment, enhancing coordination and ensuring efficiency in HR management,"* HHI said.

HHI posted nearly 50 % less in new orders in the first two months of 2015 compared to the same period last year.

The group's shipbuilding sector marked a 77 % decrease in newbuild orders for the period, from 2.68bn in 2014, to USD 609 million in 2015.

The dismal results were chalked off to a growing competition from Chinese shipbuilders and a slumping demand from European owners, in addition to falling of oil prices.

The shipbuilding conglomerate has resorted to restructuring measures that saw lay-offs and closing of unprofitable business branches, such as those engaged in renewables, so as to steer

## WORLD'S LARGEST CABLE LAYER TAKES TO WATER

On 7th March, Jan De Nul launched the world's largest multipurpose cable laying vessel named Isaac Newton.

The launching ceremony took place at Uljanik shipyard located in Pula, Croatia.

The vessel will be able to perform different jobs as a trenching and offshore support vessel, a subsea rock installation vessel, and a cable laying vessel.

The Isaac Newton is planned to start her maiden voyage in August 2015.



Figure 17.  
Launching of Isaac Newton.

Source: Jan de Nul

## SCIENTISTS WARN NICARAGUA CANAL COULD TURN INTO ECO DISASTER

A consortium of 21 environmental scientists from North and South America has expressed strong concern about the impact of the controversial Nicaragua Canal through a co-authored paper titled *"Scientists Raise Alarms About Fast Tracking of Transoceanic Canal Through Nicaragua."*

The Hong Kong Nicaragua Canal Development Group, is building the 172-mile, USD 50 billion canal in collaboration with the Nicaraguan government, which granted the concession last June. Preparation for the project has begun with the construction of roads to move heavy equipment and supplies into place, with

the first ships scheduled to pass through the canal in late 2019. It will be longer, wider and deeper than the 51-mile Panama Canal to the south.



Figure 18.  
Map of Nicaragua with marked Canal.  
Source: Rice University

The Canal will cut through Lake Cocibolca (aka Lake Nicaragua), Central America's main freshwater reservoir and the largest tropical freshwater lake of the Americas; this plan will force the relocation of indigenous populations and impact a fragile ecosystem, including species at risk of extinction, according to Rice University environmental engineer Pedro Alvarez and other members of the consortium.

*"The biggest environmental challenge is to build and operate the canal without catastrophic impacts to this sensitive ecosystem," Alvarez said. "Significant impacts to the lake could result from incidental or accidental spills from 5,100 ships passing through every year; invasive species brought by transoceanic ships, which could threaten the extinction of aquatic plants and fish, such as the cichlids that have been evolving since the lake's formation; and frequent dredging, impacting aquatic life through alterations in turbidity and hypoxia, triggered by re-suspension of nutrients and organic matter that exert a relatively high biochemical oxygen demand."*

Alvarez and his colleagues wrote that dredging required to open a channel in the lake deep and wide enough for ships will disperse enough sediment to lower its oxygen content and kill marine life. They anticipate the project will impact Nicaragua's ecotourism and the supply of fresh water for drinking, irrigation and power generation.

The researchers listed their concerns in three broad categories: water and sediments, biodiversity and ecosystem integrity, and socio-economic impact.

They acknowledged Nicaragua's hope that the Canal, one of the largest engineering projects ever attempted, would

create jobs and lift the nation out of extreme poverty; but they are concerned the benefits would not match expectations, particularly since the Nicaraguan government *"has not published a detailed business plan for the canal"*

*"Nicaragua should prepare and publicly vet a detailed economic assessment that includes not only a cost-benefit analysis but also considers externalities associated with national economic development, environmental impacts, social equity, human rights and legal and national security issues,"* the authors of the paper wrote.

## DNV GL LOOKS INTO HULL AND PROPELLER PERFORMANCE

International certification society DNV GL is launching an advanced hull and propeller performance analytics module as part of the new fleet performance management service ECO Insight.

According to DNV GL, the module is based on computational fluid dynamics (CFD) methods to correct for changing operational conditions and produces much more accurate results than existing approximate or experimental methods.

As explained, tracking hull and propeller degradation is a challenge that has not yet found an adequate solution. Experts suggest that, as a result of hull fouling, the world fleet could be sailing with approximately 30 per cent added resistance and consequently significantly higher levels of fuel consumption. Undertaking hull and propeller cleaning on a more regular basis is already recognized as improvement lever by many shipping companies. However, the question of when and how the procedure should be carried out has not yet been addressed systematically.

Hull and propeller performance computations show how much resistance is added over time due to fouling, by analysing the gap between the theoretical and measured power demand of a vessel, after correcting for influences like speed, draft, trim, weather and other operating conditions.

CFD capabilities, which we are used in lines optimisation, retrofit and trim assistant services, allow us to very accurately normalize vessel specific power demand under each reported condition.

## NEW YACHT DESIGN-PROJECT STAR

Lobanov Design and BMT Nigel Gee have presented an avant-garde yacht design named Project STAR. Measuring 132m in length and over 60m in height, STAR's technical development features a symmetrically fore and aft double ended hull form, with all-electric architecture and fully azimuthing propulsion.



**Figure 19.**  
Computer simulation of Project STAR.  
Source: <http://worldmaritimeneews.com>

Coupled with a dynamic positioning system, STAR would rotate within her own length to track the arc of the sun free from the constraints of traditional anchors.

Collaborating with BMT Nigel Gee for naval architecture and to assess technical feasibility, STAR has been developed as a private yacht, or more radically, as the world's most exclusive private hotel, redeploying to the world's iconic marine cities and events worldwide. STAR rethinks both artistic form and content.

The vessel has been designed with a maximum speed of 18 + kts and with a range at 14 kts of 5000+NM. Over 3,500 m<sup>2</sup> of luxury interior space is provided within the 9000 Gross Tons, whilst a central cluster of 4 lifts provide access across 8 decks.

BMT NG STAR1 Notably lifts 1 and 3 extend from a submarine viewing area within the lifting keel, up to a viewing platform on the eighth deck, offering unprecedented views down onto the unique form of the vessel itself, as well as providing a range of visibility of over 20 km.