International Tug & OSV
INCORPORATING SALVAGE NEWS
September/October 2017

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Middle East OSV market: where do we go from here?

Salvage conference to look at industry challenges

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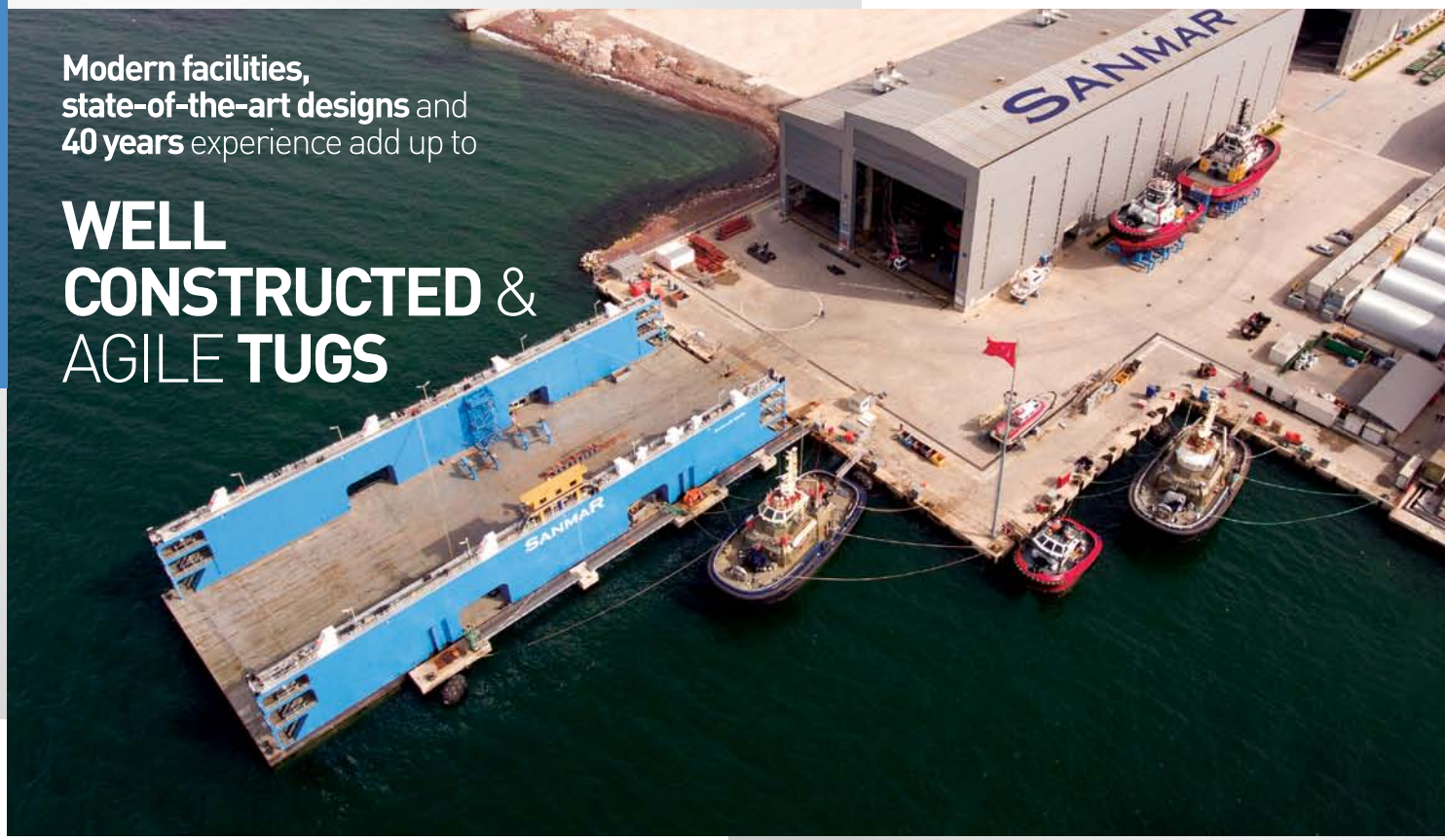

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September/October 2017
Volume 22 Issue 5

International Tug & OSV
INCORPORATING SALVAGE NEWS

FRONT COVER

Alcor: *This multi-purpose RAmparts 2700 tug is the first of three vessels being built by Bulgaria-based MTG-Dolphin Shipyard for Navibulgar for ship handling and coastal towing operations in and around the ports of Varna and Burgas. The Robert Allan Ltd-designed, diesel-powered vessel features twin azimuthing units. Bollard pull is 41 tonnes and free running speed is fractionally in excess of 13 knots.*

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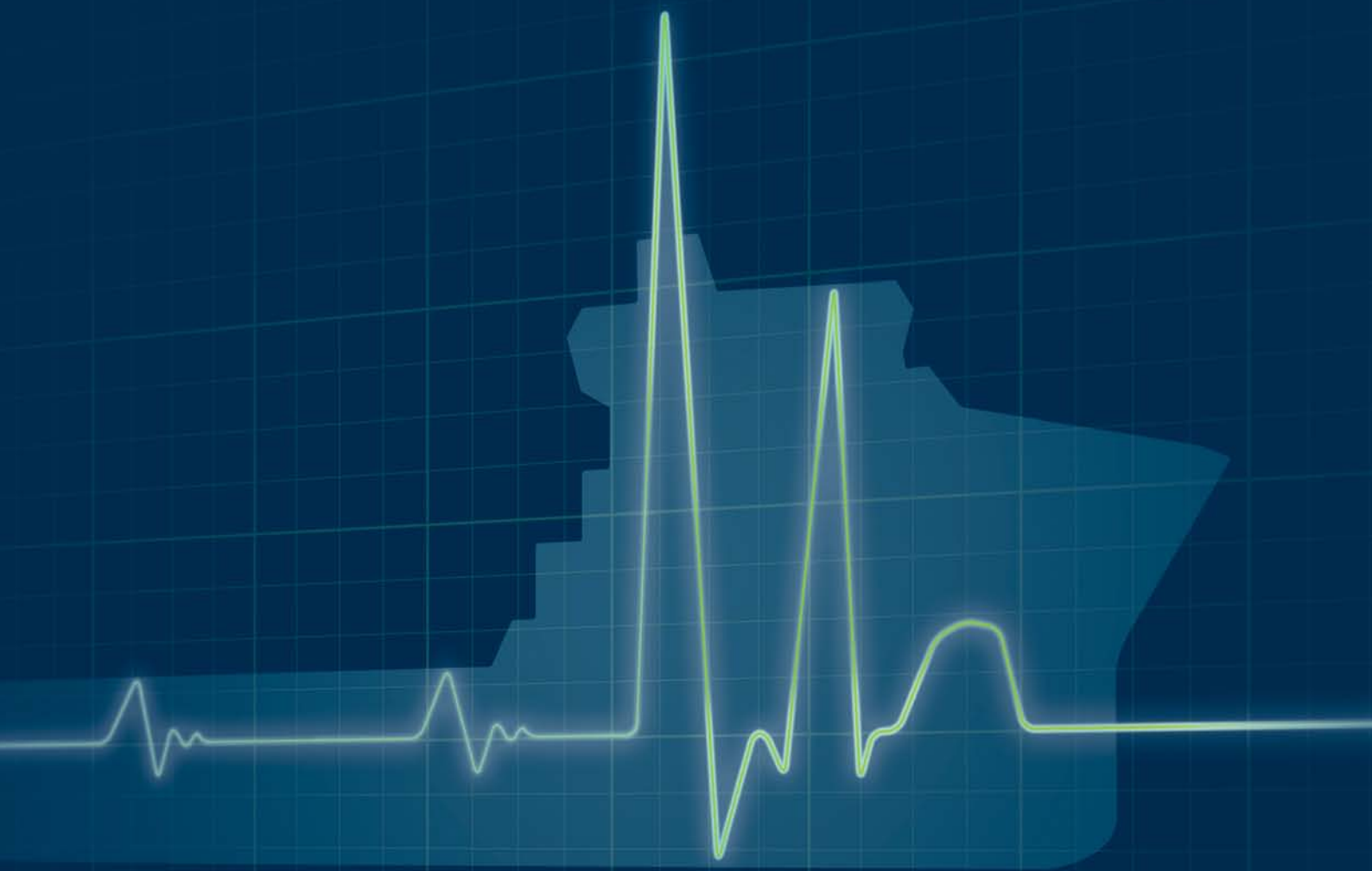
IT&O *is available through subscription or membership of the* ITS *Club. A standard annual subscription of £80 includes six issues plus a copy of the annual* Tug & OSV Review *(normally £30). A two-year subscription comes with a further discount – 12 issues of* IT&O *plus two copies of the annual* Tug & OSV Review *costs £120. If you wish to subscribe, or renew your subscription, go to www.tugandosv.com and click on the 'Publications and Clubs' tab. On the same page, you can find out about all the other numerous benefits that can be enjoyed by* ITS *Club members.*

A VESSEL'S PERFORMANCE DATA IS ITS PULSE



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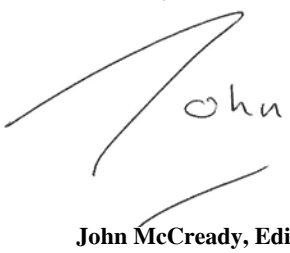
Two men go into a pub...

In the late 1960s two men went for an after-work drink in the famous Printer's Pie pub on London's Fleet Street, then the home of much of the UK's media, where national newspaper presses thundered and countless publishing firms and agencies had their offices. One of the men was Ken Troup, a qualified naval architect and editor of a technical magazine called Ship & Boat International, *the other was Allan Brunton-Reed, whose father had put him in charge of the magazine, having bought it a few months before. Allan also sold the advertisements. They had gone to the pub in search of inspiration for ways to promote the magazine, get better editorial content and more advertisements, and came up with the idea of holding a conference about tugs. The rest, as they say, is history. Now, 49 years later, due to health reasons Allan has decided to step down as chairman of The ABR Company Ltd, which publishes* IT&O *and organises the hugely successful* ITS *conventions and exhibitions and* Tugnology *conferences, handing over the chairman's role to his younger brother, Nigel. The almost half century that Allan has been at the heart of the tugboat industry has seen huge and fundamental changes and dramatic technological achievements, all of which have been reported and discussed in detail in this magazine and its predecessors, and nurtured and given a platform at* ITS *and later* Tugnology *events. As we enter another era of fundamental change and major technological advance, we will continue to deliver on Allan's vision.*

In this issue we introduce a new special feature on brokering in which, among other things, Steve Dougal, managing director of specialist tug and OSV shipbrokers Century Marine Services Ltd, argues that uncertain economic times allow brokers to prove their worth. Other special features include a focus on the Middle East where we look at a key initiative aimed at making Dubai one of world's most competitive maritime clusters and independent consultant Roy Donaldson looks at the challenges facing the region's OSV operators asking: where do we go from here? In our Deck Machinery section we look at Rapp Marine's launch on to the market of a new fully-electric tow winch. Meanwhile, in our latest Insider View column, Panos Kirnidis, CEO of the Greece-headquartered Palau International Ship Registry, argues that the Paris MoU ranking system which lists registries as white, grey or black, is anti-competitive and mathematically unfair to new, smaller flag organisations. In our regular features, contributing editor Joceline Bury visits the new Modal Training simulator training facility on the UK's east coast six months after its opening to see why it is attracting considerable local and international interest, and we celebrate 100 years of thinking outside the box with family-owned shipbuilder, designer and systems supplier Ulstein.

Finally, a word to the wise: stands at the exhibition accompanying the ITS *convention in Marseille, France, next year are selling fast. If you want to promote your business at this unique gathering of top-level decision-makers, let us know sooner rather than later. Full details of how to book space at the exhibition can be found at www.tugandosv.com*



John McCready, Editor

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By Rotortug.

Allan steps down after 49 years at heart of tug industry

Allan Brunton-Reed has stood down as chairman of The ABR Company, publisher of *International Tug & OSV* (*IT&O*) and organiser of the hugely successful *ITS* conventions and exhibitions, and *Tugnology* technical conferences.

Allan, who decided to stand down due to health problems, formed the company in 1993 having previously run tug conferences under the wing of his family's printing, packaging and publishing business; the first was held in London in 1969. He is succeeded as chairman of The ABR Company and publisher of *IT&O* by his younger brother, Nigel, 58, who took up the role on 4 July.

Nigel has recently sold a very successful renewable energy business that he built up over a number of years. However, his background is in printing and packaging and his career to date has seen him in a variety of senior roles including managing director, chairman, president and owner of companies in both the UK and US.

He says his biggest job was running and then selling Electrocal/Polymark on behalf of Citicorp venture capital, which meant commuting to Connecticut for 15 months. The business employed more than 300 people in three plants in the UK and US, plus a joint venture in Japan.

Nigel, who lives in Surrey in the UK and is married with an adult son, said: "Earlier in my career I worked with Allan on the publishing side of the family business.

"I was involved in book sales and advertising for *Reed's Nautical Almanac* and other publications, and helped out on the conference side."

▲ *Brothers Nigel, left, and Allan Brunton-Reed*

Nigel helped to run the *International Tug Conference* held in Rotterdam in 1977 – salvage was introduced in 1988 – and returned to the city earlier this year as part of the team running *Tugnology '17* there.

He said: "I find the tug community fascinating and fully understand why it has enthralled my brother for so many years."

ITS 2018 Marseille exhibition stands are selling fast

The exhibition accompanying the *International Tug, Salvage and OSV Convention* (*ITS*) being held in Marseille, France, next year is selling fast and is expected to attract more than 100 companies eager to showcase their products and latest innovations to the top level decision-makers attending the event.

Many big names in the tug, OSV, salvage, offshore, marine technology and associated sectors have already booked space. As usual, stands at the exhibition are being booked on a first come, first served basis.

Garth Manson, managing director of The ABR Company Ltd, said: "We have been delighted with the response so far. The number of companies that have already booked stands at this stage far exceeds expectations.

"I think a major factor is that *ITS* is unique in that it focuses solely on our sector of the marine industry and is attended by the highest level executives, key people who have the power to make decisions. The exhibition allows companies to showcase their products and expertise to them face-to-face."

ITS 2018 Marseille will be held at the Parc Chanot convention centre in central Marseille from 25-29 June, with the exhibition running from 26-28 June.

More details about the exhibition, including a floorplan, types and sizes of stand available, prices and how to reserve a stand, are available via the *IT&O* website – www.tugandosv.com

The convention centre is easy to access as it is just five metro stops on a direct line from Saint Charles TGV station. Marseille Provence international airport is only 30 minutes away with links to more than 100 destinations, 38 of which are on direct routes.

Organisers have also been pleased with the range and quality of papers submitted for possible presentation at the event. The *ITS* paper selection committee was meeting in September to discuss all the paper ideas and start the process of finalising the programme.

A much-anticipated conference and exhibition, *ITS* is firmly established as a must-attend event in the industry's calendar providing a unique opportunity once every two years to meet, learn and do business – a lot of business.

Manson said: "We go to great lengths to ensure that delegates and exhibitors have every available opportunity to network, renew friendships and forge new ties. Coffee and tea breaks take place within the exhibition area, and exhibitors can take lunch with the delegates, providing ample opportunity for discussion."

Held every two years in various port locations around the world, *ITS* – which is being held in France for the first time next year – will be celebrating 50 years in 2018.

Since the first convention, more than 8,000 delegates and 1,200 exhibitors from more than 50 countries have taken part, with a repeat attendance rate of more than 75 per cent.

The convention and exhibition also provide a good mix of business and pleasure with plenty of social events being built into the programme, including events especially for the spouses and partners of those attending, and the extremely popular gala dinner.

Chairman at the helm of powerful newbuild

New York tug royalty, Capt Brian A McAllister, chairman of McAllister Towing, is pictured at the controls of his newly delivered namesake tug, with company president Buckley McAllister.

The 6,770hp ***Brian A McAllister***, the first Tier IV tug on the US East Coast and the first of a series of newbuilds, was built at Horizon Shipbuilding.

• Delivery report, page 55

Semi-submersible carries tall ship home

▲ *Windjammer* **Peking** *on the heavy lift semi-submersible* **Combi-Dock III** *in New York Harbor*
Photo by Jonathan Atkin with professional drone

Historic tall ship *Peking* has hitched a transatlantic ride home to Germany from New York Harbor with Combi Lift's semi-submersible *Combi-Dock III* and is now undergoing restoration before beginning a new life as the centrepiece of a new €120m museum complex being built in Hamburg's harbour.

Peer Kelch, chartering manager at Germany-based Combi Lift, said the company's engineers had developed a sophisticated concept to bring ***Peking*** home safely. He said: "The ballast tanks were flooded to lower the cargo deck below the water's surface, allowing ***Peking*** to be moved into position for loading stern first. The tanks were then pumped out, and the deck rose to shoulder the load. The various tanks can be pumped separately to balance the cargo.

"After seafastening with more than 70 bottom and side support structures, ***Peking*** was carried piggyback across the Atlantic Ocean."

The windjammer has a length of 115.5m, a beam of 14.3m and a 4.2m draft with a weight of 3,700gt. Its masts are 52m high.

Alexandre Poirier, naval architect and project engineer for ***Peking*** at Stiftung Hamburg Maritim, said: "It is not particularly heavy, relative to, say, a military vessel, but it is long and fragile. It has 3 to 4mm of hull plating left at the waterline, out of an original thickness of 15mm or more."

Built in 1911 by the German company F Laeisz, ***Peking*** is part of the last generation of sailing ships, constructed just as steam-powered vessels started to dominate the market. It has a long history as a merchant ship from South America to Europe, where it transported nitrates – essentially bird droppings to be used as a fertiliser – between the two continents. It later fought in World War I, spent some time as a training ship and eventually became a school for boys in the UK, where it was briefly renamed ***Arethusa***.

Peking arrived in New York in 1974 at the ripe age of 63 after narrowly avoiding spending the rest of its life in a scrapyard. The vessel spent more than four decades at the South Street Seaport in New York before being offered to the Hamburg museum.

The 169.4m lOA ***Combi Dock III*** was built by Lloyd Werft Bremerhaven, in Germany, between 2008 and 2009.

German tug operators to merge

German tug operators Fairplay Towage and Bugsier, both headquartered in Hamburg, have signed a letter of intent to merge in the second half of this year. Fairplay will acquire Bugsier with all its assets and employees to create a fleet of more than 100 tugs.

The companies say the market for harbour towage services in northwest Europe has become extremely competitive and that an internationally well-established network will be crucial for success in the future.

Bugsier and Fairplay consider their networks and fleets to be complementary, the former boasting a strong presence in Germany with teams based in Hamburg, Bremerhaven, and Rostock and the latter with its European activities covering towage services in Polish ports, Rotterdam and Antwerp. The company also has a shareholding in Dutch firm Multraship Towage & Salvage.

Bugsier, which will continue to operate under its own brand, is expected to contribute new business areas and expertise to the Fairplay Group, such as ocean towage for the oil & gas industry and the offshore wind energy sector.

The companies are already established as a strong presence in north Europe and have previously co-operated in the provision of emergency towage vessels for German authorities.

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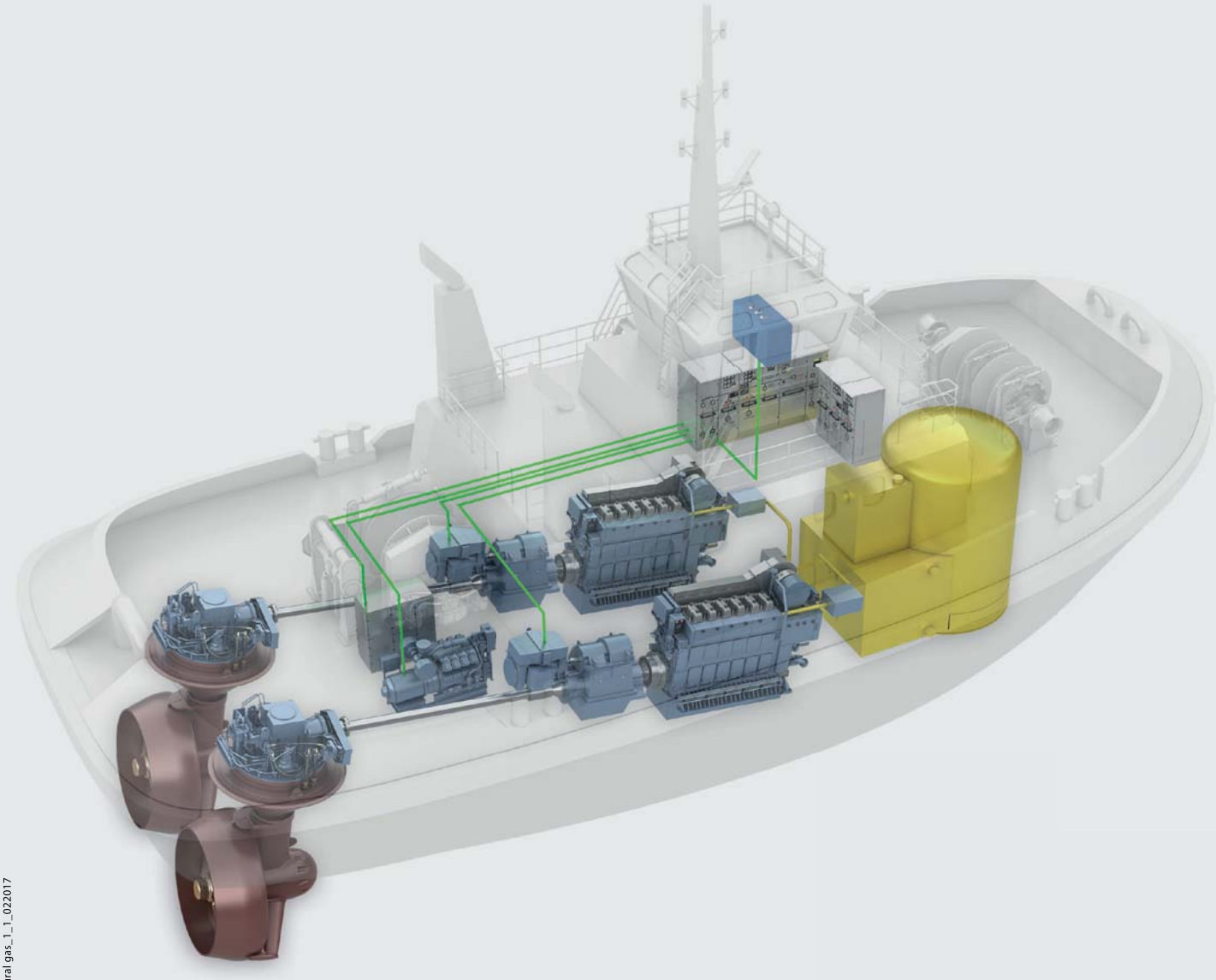

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Tug deployed to key region for company

Netherlands-headquartered towage and salvage specialist Multraship is further strengthening its prominent position in the Black Sea region by transferring its state-of-the-art Damen-built tugboat *Multratug 26* to the Bulgarian port of Bourgas for operation by its 100-per cent owned subsidiary, Bourgas Tug Service.

Pepijn Nuijten, joint-managing director of Multraship, said: "We believe very strongly in the strategic importance of the Black Sea region, and its prospects for commercial and economic growth. Multraship is committed to expanding its fleet in the area to provide the quality services which the industry needs, both now and in the future.

"We have seen a significant growth in our Black Sea operations, mainly in harbour towage and in offshore work, not least that involving the Turkish Stream project (and its predecessor the South Stream project) to build a natural gas pipeline from Southern Russia to Turkey."

The 63-tonnes bollard pull, ASD fi-fi ***Multratug 26*** will significantly strengthen the Bourgas Tug Service fleet, which consists of six tugboats, including ASD and Voith-powered units.

Multraship acquired Bourgas Tug Service in 2005, since when it has continued to enhance its reputation as a quality provider of harbour towage, salvage and line-handling services in and around the port of Bourgas.

Nuijten said: "We believe ***Multratug 26*** will be the best-equipped tugboat in Bulgaria, and its deployment in Bourgas is part of our commitment to provide specialist equipment and services in those parts of the world where they are most needed."

▲ **Multratug 26**, *which has been deployed in the Bulgarian port of Bourgas to strengthen parent company Multraship's already prominent position on the Black Sea*

UN statistics confirm consolidation

The UN Conference on Trade and Development (UNCTAD) has issued statistics regarding the world maritime fleet. They cover the world shipping fleet by flag and by country of ownership, as well as the 2016 tonnage for shipbuilding and scrapping. Greece takes the top place among ship owning countries, and outranks Japan, China, Germany and Singapore.

Together, these top five ship-owning nations have a market share of 49.5 per cent of dwt. Brazil is the only country from Latin America among the top 35 shipowning countries, and there are none from Africa.

The top five flag registries are Panama, Liberia, the Marshall Islands, China Hong Kong SAR and Singapore. Together they have a market share of 57.8 per cent. Developing countries flag more than 76 per cent of the world fleet in dwt.

Three countries, South Korea, China and Japan, constructed 91.8 per cent of world tonnage (GT) in 2016. South Korea had the largest share with 38.1 per cent. Four countries, India, Bangladesh, Pakistan and China, together accounted for 94.9 per cent of ship scrapping in 2016 (GT).

The data confirms a continued trend of industry consolidation, where different countries specialise in different maritime sub-sectors, as analysed in UNCTAD's *Review of Maritime Transport 2016* and a special chapter of the 2011 *Review*. It also confirms the growing participation of developing countries in many maritime sectors.

Four-vessel fleet tows drilling rig out to sea

Netherlands-headquartered Wagenborg performed a project to tow the drilling rig *Caspian Explorer* from its home port in Aktau into open waters on the Caspian Sea, working in close co-operation with its Kazakhstan-based partner Caspian Sea Support.

The company has been contracted to tow *Caspian Explorer* on several other occasions, but this was the first time it has been completed using only Wagenborg vessels.

The operation to transport the rig and position it at the Satpayev project, was completed by the multi-purpose support vessel ***Antarcticaborg*** and shallow draft tugs ***Kaynarborg***, ***Kulanborg*** and ***Kasymborg***.

French OSV operator reschedules debt

Offshore operator Bourbon has announced that it has successfully completed its debt rescheduling arrangements covering almost €1bn.

The French company announced in March that it had reached agreement with lenders to reorganise its debts subject to conditions which it has now met. The arrangements will see repayments on the majority of €692m of medium and long-term borrowing pushed back to between 2019 and 2025, with the first €63m repayable next year.

A further €196.8m of short-term debt has been refinanced and rescheduled for repayment from 2020, with another €22m due for repayment from next year.

The new arrangements are part of Bourbon Offshore's Stronger For Longer action plan to ensure the company survives the continuing downturn in the oil & gas industry that has seen it stacking many of the 500-plus vessels in its fleet.

▲ *The drilling rig* Caspian Explorer *under tow*

New tugboat series unveiled

▲ *An artist's view of the new RAmparts 2500-CL tugs being built at Cheoy Lee in Hong Kong*

Cheoy Lee Shipyards and Robert Allan Ltd have unveiled an exclusive new tug series being built by Cheoy Lee. The RAmparts 2500-CL is an evolution of the Canada-based naval architect's successful RAmparts 2500-W design, updated for Cheoy Lee's marketing objectives. The new design is very flexible and allows for a multitude of options according to the client's requirements. The first vessel is scheduled for delivery in early 2018.

The hull and skeg of the RAmparts 2500-CL have evolved to provide improved manoeuvring and side stepping capabilities. As with all RAmparts series vessels, the hull has been optimised for maximum thrust and bollard pull, while maintaining excellent manoeuvring and sea-keeping.

A half-raised forecastle deck helps to keep the working deck safe and dry, while a gently rounded deck line in plan ensures that the tug can safely and easily come alongside and remove itself from an attended ship at speed.

Most importantly, the characteristic double chined stern unique to all Robert Allan Ltd designs ensures that the tug can run astern at high speeds and maintain good control and directional stability.

The tug can be adapted to suit a wide variety of owner requirements including: propulsion packages to achieve 50-tonne, 60-tonne, and 70-tonne bollard pull; single or split drum forward winch and optional aft winch; optional FiFi1 systems (FiFi1/2 is standard) and a variety of MLC compliant accommodation layouts. The vessels will have an LOA of 25.4m, an 11.8m moulded beam and a least moulded depth of 4.6m.

The rule length has been kept less than the 24m loadline and tonnage convention limits while optimising for maximum hull volume, resulting in improved accommodation spaces and crew comfort.

The vessel has been designed to LR Class requirements with the following notation: LR ✠100A1 TUG, ✠ LMC, ✠ UMS, IWS. Tank capacities at 98 per cent are: fuel oil 91m^3, potable water 11m^3, optional foam 5m^3 and optional dispersant 5m^3.

Ministers urged to consult industry

Offshore Marine Management (OMM) is calling on the UK government to ensure that the renewables industry leads the conversation on the movement of offshore personnel before making a deal on the terms of the country's withdrawal from the European Union (EU).

The company is encouraging decision makers to listen to the industry about potential threats and the opportunities available.

OMPA, sister company of OMM, which trains and provides personnel for the offshore and marine industries, has backed the need for effective communications to secure a stable base of a qualified workforce that has the ability to continue to move freely within Europe. Without this, due to the increase of paperwork, there will be a reduction of personnel which will see a bottleneck in the availability of UK workers in EU waters and vice versa. Any reduction, it says, could see daily rates of personnel skyrocket.

OMM director Rob Grimmond said: "It's vital that the government talk to the industry to get a real picture of what is at threat for the renewables industry, especially offshore wind and marine energy, if the movement of people is limited."

Award-winning fleet monitoring system enhanced

Marine innovation company Reygar, based in Dursley, Gloucestershire, UK, has partnered with Actisense, an established manufacturer of marine electronics, to enhance the capability of its BareFLEET remote fleet monitoring system.

Reygar recently celebrated winning a European commercial marine innovation award for BareFLEET, which recognised the comprehensive measurement capabilities of the system, as well as the simple and concise way vessel performance, health, motion and fuel efficiency information is reported back to fleet operators.

Actisense offers a range of specialist marine electronic products allowing vessel navigational and engine data to be gathered and converted between different protocols. Its equipment can be fully integrated into BareFLEET to allow data to be gathered from a wide range of older marine diesel engines, as well to maximise data capture from existing instrumentation on the vessel such as hull speed sensors, wind anemometers, gyros and DGPS's.

Chris Huxley-Reynard, managing director of Reygar, said: "Combining the highly innovative reporting features of our system with the versatility and dependability of Actisense's electronics further broadens its capabilities while still keeping the system affordable for small and large commercial marine operators."

North Sea project

Netherlands-based Acta Marine's walk-to-work construction support vessel *Acta Orion* is carrying out accommodation and walk-to-work duties for Siemens on Dong Energy's offshore wind farm *Race Bank*.

Siemens is currently installing and commissioning 91 turbines at the North Sea wind farm, in a project due to be completed before the end of the year. ***Acta Orion*** will be occupied until mid-November 2017.

The vessel is being used by Siemens to accommodate up to 60 technicians carrying out commissioning and testing duties, as well as performing operations and maintenance duties on the installed turbines. It is following in the wake of the installation jack-up vessel ***Sea Installer***.

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Island support concept for offshore energy

The Netherlands' Maritime Research Institute (MARIN) has tested an innovative concept for a floating mega-island that could be used, among other things, to provide working space at sea to support offshore renewable energy production.

The island comprises 87 large floating triangles that are connected to one another. Together they form a flexible floating island that can be as large as 1 to 5km in cross-section.

Olaf Waals, MARIN project manager and the concept developer, said: "As sea level rises, cities become overcrowded and more activities are carried out at sea, raising the dikes and reclaiming land from the seas are perhaps no longer an effective solution."

MARIN tested the first scale model of a mega floating island in its offshore basin in a storm of waves, wind and currents.

▲ *Olaf Waals with the scale model and, above left, an artist's impression of the mega-island*

Waals says floating mega islands offer future-proof living and working space at sea for developing, generating, storing, and maintaining sustainable energy such as offshore wind, tidal energy, wave energy and floating solar panels; loading and transhipping cargo in coastal areas where there is little infrastructure; cultivating food, such as seaweed and fish; and building houses and recreation facilities close to the water.

In brief

The AGM of Bourbon Corporation saw shareholders approve the payment of a dividend for 2016 of €0.25 per share and agree that each shareholder could choose to receive the dividend either in cash or in new shares. Those electing to receive the payment in shares represented 55.3per cent of shares. A total of 1,156,611 new shares were issued on 17 July.

Voith Group has donated €12m for a planned extension to Baden-Württemberg Co-operative State University in Heidenheim, Germany, where it is headquartered, as part of events to mark its 150th anniversary year. The city of Heidenheim has guaranteed a further €8m, provided by local companies and institutions.

Bureau Veritas has issued a new chapter in its rules providing a framework for electric and hybrid power solutions. The new class notations include power management, power back-up and zero emission standards.

The second edition of *The Guidelines on Cyber Security Onboard Ships* has been published by the joint industry group led by BIMCO and is available to download at http://bit.ly/2tmwGZ3

Tugs among armada of 'little ships'

Director Christopher Nolan's critically-acclaimed film *Dunkirk* has been drawing huge audiences. More than 1,300 vessels took part in Operation Dynamo, the official name for the Dunkirk evacuation, in May 1940. More than 50 of them were tugs and at least seven are known not to have returned.

While some tugs served at the UK's south coast ports, berthing and refuelling the armada of 'little ships' that crossed the Channel to help rescue 300,000 of the 400,000-plus Allied troops trapped on the beaches, others made the journey themselves. All were steam tugs.

One such tug was the ***Empire Henchman***, built by Cochrane and Sons of Selby and launched in 1939 as ***Karl*** for Goteburg Bogserings of Sweden. The vessel was requisitioned and completed as ***Empire***

▲ *A scene from the film Dunkirk*

Henchman and managed by the United Towing Company of Hull. The 243grt vessel which had a 3cylTE engine, was damaged by bombs at Dunkirk, but in 1946 was returned to its owners and reverted to ***Karl***. In 1963 it was sold to Capieci Societe di Navigazione in Italy and again renamed ***Capo Faro***. The vessel was still in service in 1988, but has since been decommissioned.

Office will strengthen presence in market

Worldwide supplier of integrated bridge solutions, the Netherlands-headquartered Alphatron Marine, has set up an office in Willemstad, Curaçao, to enable it to strengthen its presence and expand its activities in the Central American markets.

It has strategically positioned the office close to the port of Willemstad, which is just a few kilometres away from a Damen Shiprepair facility.

The company says this expansion means it can offer high level technical support with major industry brands to vessels, either currently in operation or focused on new building projects.

New carrier is assisted into home port

Britain's future Royal Navy flagship *HMS Queen Elizabeth* has sailed into her home port of Portsmouth for the first time, assisted by six Serco tugs including the company's Damen-built ART 80-32 tug *SD Tempest*, specially procured to support the new aircraft carrier.

Capt Jerry Kyd, the commanding officer of the £6.2bn warship, said: "***HMS Queen Elizabeth***'s first entry into her home port of Portsmouth is an historic, proud and exciting occasion, not only for those of us serving in her, but also for the wider Royal Navy, the city of Portsmouth and the entire nation.

"The UK's future flagship, as well her sister ship ***HMS Prince of Wales***, will be powerful symbols of Britain's outward facing global character and ambition. The Royal Navy has a very special relationship with Portsmouth dating back half a millennium and both carriers will ensure the Navy's city remains the focal point of our great nation's maritime power for generations to come."

SD Tempest has a bollard pull of 80 tonnes, making it the most powerful tug in Serco's fleet. It has a crew of four and features the Rotor®tug propulsion system consisting of three azimuthing thrusters designed by Robert Allan Ltd of Canada. The vessel has controllable pitch propellers and a double drum render/recovery aft winch.

Other tugs involved in the operation were: ***SD Independent***, ***SD Indulgent***, ***SD Bountiful***, ***SD Christina*** and ***SD Suzanne***.

▲ *The tug* **SD Tempest** *assisting the Royal Navy's new carrier* **HMS Queen Elizabeth** *into its home port of Portsmouth and, right, an aerial view of the operation*
Photos: Royal Navy

Queen Elizabeth, which has completed six weeks of sea trials in the North Sea, berthed at the newly-named and upgraded Princess Royal Jetty at Portsmouth naval base, which will be home to both new carriers. ***Prince of Wales*** will be officially named in a ceremony at Rosyth next month.

Adding aft winch to tug enables diverse operations

The ASD format has become the norm for a great many tugs working in vessel assist around the world's ports. They now far outnumber the full tractor tugs with the azimuthing drives set forward under the house as do they the cycloidal drive tugs. Often, the ASD tugs are dedicated ship-handling units with a single hawser winch forward. However, a lot of owners, looking to maintain diversity of applications and markets are adding a towing winch aft as well.

Sealink Shipyard has recently launched one of these versatile tugs, ***Harmoni Satu***, from its facility in Miri, Sarawak, Malaysia. The 32m by 11.8m tug has a 5.2m moulded depth. Mounted forward it has a Macgregor MG-HAT/GDG22-0115U02080 combination anchor and hawser winch with 150-ton braking. Mounted aft is a Macgregor MG-HTW1-0218008048 towing winch, also with a 150-ton holding brake.

Power for this capable vessel derives from a pair of Cummins QSK60M diesels, each generating 2,300hp at 1,900 rev/min. These turn 2.4m controllable pitch propellers on Rolls-Royce azimuthing drive units. This power gives the tug a 59-tonne bollard pull ahead, a 55-tonne bollard pull astern and a 13.6-knot free running speed.

Cummins says when compared with medium speed engines, its high speed QSK60M diesel engines have better response during manoeuvring and with integrated systems enable more free space in the engine room. A pair of 110kW Cummins QSB7-DM-powered generators provide electrical power. For additional versatility the tug is fitted with a dispersant system to comply with MARPOL I, IV, V, and VI. External fi-fi capability is provided by two 141m^3/hr monitors supplied by a fire pump with power takeoff from the main engine.

The one-man operation bridge has a 360-degree view, along with extensive electronic navigation and communications equipment. Accommodation for up to eight crew members is provided in two one-person and three two-person cabins.

For ship-handling, the bow fendering includes D-fendering all round with W push bow and pilot boarding platform. Class notifications are: ABS ✠ A1, ✠AMS, Circle E, FFV1 and Towing Vessel (Harbour Service, Towing Service).

◀ *The versatile tug* **Harmoni Satu** *Photo: Sealink*

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In brief

US Coast Guard (USCG) crews medevaced a 67-year-old man off an OSV about 40 miles southeast of Port O'Connor, Texas, ealier this year. The crew of the ***Brutus*** contacted USCG watchstanders on VHF marine radio channel 16 to report a man on board who was suffering from a possible stroke. A helicopter aircrew hoisted the man from the ship. He was delivered to hospital where he was reported to be in critical condition.

China's Zhenjiang shipyard launched or lifted five newbuild tugs in the space of just over three weeks in response to demand from domestic shipowners. Designed and built by the yard, the vessels included the 4,400hp ASD tug ***Ninggang 26*** for the Nanjing Port Group Company, two 3,676kW ASD tugs, a 5,000hp ASD tug and a 2,942hp ASD tug.

System integrator Alewijnse Marine has successfully completed the full electrical outfitting of the sophisticated survey vessel ***Fugro Venturer***. The 72m vessel was built at the Fassmer yard in Berne, Germany, and can be deployed for a wide range of survey solutions, from offshore wind farm seismic surveys to oilfield inspections.

Sailors' Society, the maritime charity, has opened two seafarers' drop-in centres with birthing facilities in the Philippines, thanks to financial support from Swire Pacific Offshore Operations, the China Navigation Company and the Anscor Swire Ship Management Dependents Association.

The US Coast Guard and local agencies responded to an oil discharge on the Lower Mississippi River near Belle Chasse, Louisiana, when the tugboat ***Haley Brooke*** began taking on water.

BIMCO and Shipdex have signed an agreement to support the development and exchange of technical and logistics data across the shipping community, and to include BIMCO as an executive member of Shipdex steering committee.

The US Coast Guard has updated its guidance for the use of electronic charts in lieu of paper charts and publications.

Autonomous system tests service launched in UK

The UK's first dedicated service for conducting trials of unmanned and autonomous vessel systems is to be set up around the Solent on the south coast.

The Solent Local Enterprise Partnership has awarded BAE Systems a grant of £457,000 to design and deliver the UK's first dedicated autonomous systems testing service. Based around Portsmouth, Southampton and the south east of the Isle of Wight, BAE Systems together with ASV Global, Blue Bear Systems Research, Marine Electronic Systems, SeeByte and the University of Southampton, will work to provide the service's infrastructure, with other organisations set to join later this year.

The new service will be ready for use later this year and customers will be able to conduct trials and test systems such as unmanned boats, air vehicles and autonomous sensors in a safe, controlled and realistic environment in the Solent.

Backed by comprehensive safety measures, the service will make use of a secure maritime communications network and a mobile command and control centre, featuring the same technology BAE Systems provides to Royal Navy platforms.

The new service was announced during a two-day launch event at the Royal Marines Museum in Eastney, Portsmouth, attended by more than 100 guests from autonomous systems providers, local businesses, academia, the Armed Forces and other interested parties.

BAE Systems' combat systems head of technology, Frank Cotton, said: "Autonomous and unmanned systems are widely regarded as a vital technology for the future, but there is a great deal of work to be done if we are to unlock its true potential and understand how they are best integrated into wider systems.

"A wide range of organisations from the defence and commercial sectors, along with academia, have ambitions for this technology and this unique service will allow them to find valuable ways to use it while furthering its development."

In October 2016, BAE Systems and the test service partners successfully showcased their autonomous maritime capabilities in the Royal Navy's 'unmanned warrior' exercise – the world's first large scale demonstration of innovative maritime robotic systems.

Experimental floating turbine mooring in place

Offshore services supplier Bourbon has completed the mooring installation of the first floating wind turbine in France for École Centrale de Nantes (ECN) as part of the European Floatgen project at the Sem-Rev experimental test site, off Le Croisic.

Floatgen is a wind turbine with concrete float designed by Ideol and currently under construction at Saint-Nazaire port by Bouygues Travaux Publics. Its installation is scheduled for the end of this year.

The innovative mooring system using synthetic mooring lines was designed and developed by the Ideol team. Significant resources, including an AHTS vessel with a work class ROV, were required for its installation, conditioned by high tensions.

Responsible for the overall management of the project's implementation, Bourbon performed the engineering, operations preparation and the execution of the mooring system installation.

Patrick Belenfant, the company's senior vice president subsea services, said: "We are extremely proud of this successful operation, which confirms once again our ability to deliver integrated projects, our expertise in offshore engineering services and our adaptability to demanding environments for the entire energy sector."

▲ *Installing the experimental mooring*

Christian Berhault, head of Sem-Rev at ECN, said: "One of the Floatgen project challenges was to install an innovative mooring system that needed to meet the production conditions criteria of the floating wind turbine. This demonstrates the value of an experimental site to test innovative technological developments, their implementation and project management when in production. Competent and dedicated teams from Bourbon, Ideol and Centrale Nantes have contributed highly to the success of the operation."

Offshore giant joins project to build autonomous OSV

France-based leading offshore services company, Bourbon, has entered into a memorandum of understanding with Automated Ships Ltd (ASL) to support the building of the world's first autonomous, fully-automated and cost-efficient prototype vessel for offshore operations, in collaboration with the project's primary technology partner, Kongsberg.

Bourbon will leverage its expertise in building and operating a standardised fleet to provide detailed input to the development and design of the ***Hrönn*** project, ensuring flexibility, reliability and cost efficiency to operate safely and effectively in the demanding offshore environment. Based on its customer experience, the French company will thus help to match client demand.

In the second phase of the project, Bourbon and ASL will join forces to search for subsidies to finance the effective construction of the prototype.

Hrönn will be a light-duty, offshore utility ship servicing the offshore energy, hydrographic and scientific, and offshore fish-farming industries. It can also be utilised as a ROV and AUV support ship and standby vessel, able to provide fire-fighting support to an offshore platform working in co-operation with manned vessels.

ASL has progressed the original catamaran design of ***Hrönn*** since the project launch in November 2016, opting for a mono-hulled vessel of steel construction, to provide more payload capacity and greater flexibility in the diverse range of operations.

An artist's view of **Hrönn**

Bourbon's entry to the ***Hrönn*** project, follows the recent news that it has joined forces with Norway-headquartered Kongsberg in a new collaboration to develop digital solutions for the coming generation of connected and autonomous vessels.

The two companies will execute joint projects to develop new ways of efficient operations in the offshore services industry, with a fast time-to-market.

Kongsberg will contribute its technology expertise and deliver all major marine equipment necessary for the design, construction and operation of ***Hrönn***, including all systems for dynamic positioning and navigation, satellite and position reference, marine automation and communication. Its vessel control systems including K-Pos dynamic positioning, K-Chief automation and K-Bridge ECDIS and Radar will be replicated at an onshore control centre, allowing full remote operations of ***Hrönn***.

Sea trials will take place in Norway's officially designated automated vessel test bed in the Trondheim fjord and will be conducted under the auspices of classification society DNV GL and the Norwegian Maritime Authority (NMA).

Bourbon COO, Gael Bodénès, said: "In this era of digitalisation of industrial services, we are pleased to join this forward-looking project."

ASL CEO, Brett Phaneuf, said: "We are confident that Bourbon will provide a valuable contribution to the design and operation of ***Hrönn***."

Stene Førsund, Kongsberg Marine EVP global sales and marketing, said: "We are pleased to be collaborating with such expert partners in the development of ***Hrönn***, a vessel that will show how digitalisation and autonomy have the potential to revolutionise the offshore services market."

Digital twins to test performance

Rolls-Royce, the Norwegian University of Technology Science, research organisation SINTEF Ocean, and classification society DNV GL have signed a memorandum of understanding with the aim of creating an open source digital platform for use in the development of new vessels.

The platform will allow the creation of so called 'digital twins'. A digital twin is a digital copy of a real vessel, including its systems, that synthesises the information available about the ship in a digital world. This allows any aspect of an asset to be explored through a digital interface, creating a virtual test bench to assess the safety and performance of a vessel and its systems, both before its construction and through its lifecycle.

Asbjørn Skaro, director digital & systems at Rolls-Royce Marine said: "This will enable us to build digital twins, which in turn will form the basis for novel ways of designing, constructing, verifying and operating new maritime concepts and technology."

In brief

The US National Transportation Safety Board has concluded that the probable cause of a collision between a barge being pushed through the Panama Canal by the tug ***Matachin*** and the US Coast Guard (USCG) cutter ***Thetis***, which caused $US1.2m of damage to the USCG vessel, was the failure of the tug's master to maintain a proper lookout and use radar to detect the vessel traffic ahead. The failure of the pilot and the navigational crew on board ***Thetis*** to maintain a proper lookout contributed to the collision.

The global marine gen sets market is forecast to grow from US$4.5bn in 2016 to US$5.4bn by 2021, with the Asia Pacific region seeing the largest growth, according to a report by statistical research company MarketsandMarkets. The top five key players in the market are Caterpillar, MAN Diesel & Turbo, Wärtsilä, Cummins and Mitsubishi.

Robotics In Maintenance Strategies (RIMS) is the first company to receive an attestation from Bureau Veritas (BV) Marine & Offshore as an approved service supplier, allowing the use of drones during surveys of hull structure of ships and mobile offshore units classed with BV.

Indian Register of Shipping has released rules for LNG-fuelled coastal and inland vessels in addition to its already established rules for ocean going ships. The rules have been based on a study of international requirements such as the IMO IGF Code and consultations with various stakeholders.

IMO secretary general, Kitack Lim, was among the key speakers who addressed a workshop in London, UK, organised by Seafarers' Rights International, which called on governments to look at ways to implement locally-binding legislation on the fair treatment of seafarers following a maritime casualty.

A US Coast Guard air station Sitka, Alaska, MH-60 Jayhawk helicopter hoisted a 67-year-old male crewmember, who was suffering from a possible detached retina, from the tug ***Justine Foss*** 62 miles south of Yakutat.

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Gangway offers 24/7 W2W platform access

Barge Master and Bosch Rexroth's Next Generation Gangway is now in operation on Vroon Offshore Services' subsea-support walk-to-work vessel *VOS Start*. The vessel has been chartered by MHI Vestas Offshore for the installation of wind turbines at the *Walney Extension* offshore wind farm in the Irish Sea.

The Netherlands-headquarted companies say that to make ***VOS Start*** one of the most innovative ships in the market they provided a unique gangway solution. The gangway is certified under the new DNV GL rules.

The gangway is mounted on a height-adjustable pedestal with an integrated elevator enabling a continuous workflow. Additionally, the pedestal makes it possible for the gangway to land on any height, keeping it horizontal and providing stepless transfers. Both people and cargo can be transported from the ship deck or the level below to the level of the gangway, where they can instantly cross.

The gangway was extensively tested onshore at a specially-designed test facility at Bosch Rexroth in Boxtel in the Netherlands. The onshore testing made sure that only a very short period was needed to get the gangway operational on ***VOS Start***. Only a few days of offshore testing were needed.

Needing only a single operator, the gangway is equipped with extremely fast sensors and control technology. Movements of the ship can be translated into counter movements of the gangway within milliseconds. This enables the system to compensate for wave heights up to 3m, allowing safe transfers.

▲ *Barge Master and Bosch Rexroth's Next Generation Gangway*

Making the system unique is the fact that forces are also measured in the tip of the gangway. This allows the forces to be kept low, reducing the possibility of the tip slipping, to significantly increase workability.

Barge Master CEO, Martijn Koppert, said: "With this solution users are able to transfer people and goods from ship to platform 24 hours a day, seven days a week."

Vroon newbuilding superintendent, Foppe Molenaar, said: "***VOS Start*** is an ultra-modern and state-of-the-art subsea-support walk-to-work vessel, providing clients with a totally new concept that offers optimum safety and comfort. By introducing this vessel – the first of its kind and one of two sister vessels constructed in China for Vroon – our company aims to revolutionise working practices in the renewable energy and oil & gas sectors. The continuous access is what makes this system unique compared to traditional systems.

"These gangways are now our preferred option during construction and maintenance work at offshore windfarms and oil & gas platforms, offering clients a reliable and cost-effective alternative to helicopter flights."

Vessel kitted out to take on first offshore project

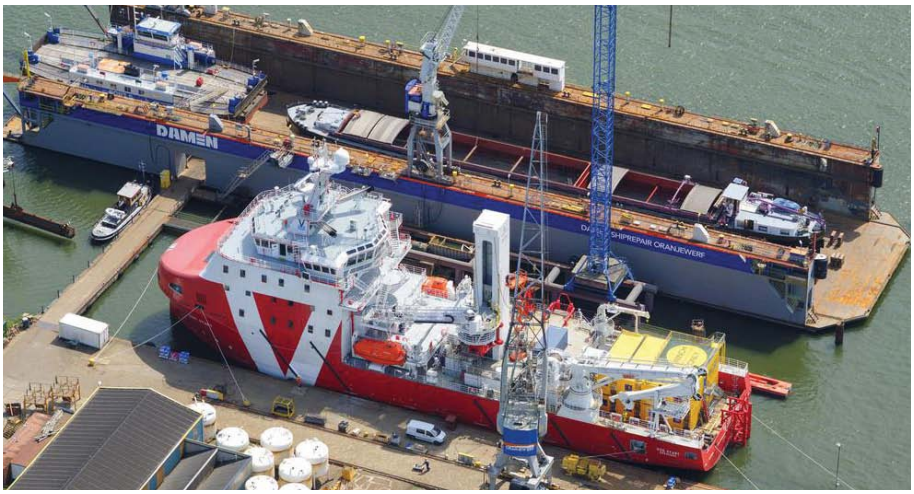
Damen Shiprepair Oranjewerf has bid farewell to *VOS Start*, Vroon's first DP2, subsea-support, walk-to-work (W2W) vessel (see also above).

The 80m ***VOS Start*** (*IT&O* July/August 2017, page 38) arrived at Oranjewerf in June from its build yard in China for the installation of a motion-compensated gangway system – the first of its kind – by Barge Master and Bosch Rexroth, the extended installation of a Kongsberg reference system – including a 'windfarm module' – and an active heave-compensated crane from SMST.

In the eight weeks that the vessel was in the yard, it also underwent a wide range of other upgrades and preparations for its first charter.

VOS Start is the fourth in a series of new vessels for Vroon that the operator has brought to Oranjewerf for finishing off following their initial build in China.

However, this was the first time that the yard and Vroon have worked together on a W2W vessel and, with Barge Master and SMST both Dutch companies, it was logical to do the final installations in the Netherlands.



▲ *Vroon's* **VOS Start** *at Damen Shiprepair Oranjewerf*

Other local specialist suppliers also contributed to what has been, owing to the W2W element, the most complex upgrade yet for a VOS subsea support vessel at Oranjewerf. These specialists included Niron Staal Amsterdam, another member of the Damen Shipyards Group, which fabricated two boat landing ladders which were then installed by Oranjewerf.

Other equipment installed included a lightweight taut wire, radius and a HIPAP position reference system, all manufactured by Kongsberg. The mountings necessary for up to eight temporary living units, supplied by H2M, were also fitted, along with many other modifications.

VOS Start's first project was a charter to MHI Vestas Offshore Wind to support the construction of the *Walney Extension* wind farm.

DIARY DATES

Meet us at these global events:

Offshore Marine & Workboats ME
Abu Dhabi, UAE
25-27 September 2017
www.seatrademaritimeevents.com

Europort
Rotterdam, The Netherlands
7-10 November 2017
www.europort.nl

International WorkBoat Show
New Orleans, USA
29 Nov-1 Dec 2017
www.workboatshow.com

Salvage & Wreck Removal
London, UK
6-7 December 2017
maritime.Knect365.com/salvage-wreck-removal

APM Maritime
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14-16 March 2018
www.apmmaritime.com

Offshore Technology Conference
Houston, USA
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2018.otcnet.org

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Rio de Janeiro, Brazil
14-16 August 2018
www.marintecsa.com.br

SMM
Hamburg, Germany
4-7 September 2018
www.smm-hamburg.com

Lack of communication and inexperience led to fatalities

The UK Marine Accident Investigation Branch (MAIB) has published a report on its investigation into the capsizing of the tug *Domingue* while assisting the container ship *CMA CGM Simba* out of the port of Tulear, Madagascar, in September 2016, which resulted in the deaths of two of its five crew members.

The tug had been connected to the container ship's port quarter to help pull its stern off the berth. During the manoeuvre, the prevailing tidal conditions caused ***CMA CGM Simba*** to move towards a mooring dolphin. To avoid striking the dolphin, ***CMA CGM Simba***'s master briefly manoeuvred his vessel ahead, but the pilot did not warn the tug and, as ***CMA CGM Simba*** built up ahead speed, ***Domingue*** girted and capsized.

The MAIB report highlights several safety issues that impacted on the incident. It states that ***Domingue*** was less manoeuvrable than the port's normal tug which was undergoing maintenance, and that its crew were inexperienced in assisting ships. The tug was not fitted with a gog rope, nor did the towing point have any mechanism to release the tow in an emergency, and doors and hatches on the tug were open.

The investigation also found that the extent to which a plan for ***CMA CGM Simba***'s departure had been discussed between the pilot and ***Domingue***'s skipper before commencement is uncertain, and that during the manoeuvre no-one on board ***CMA CGM Simba*** monitored the tug's position

▲ **Domingue** *connected to* **CMA CGM Simba**

In view of current published guidance and the actions since taken by ship management company Midocean (IOM) Ltd, the report makes no recommendations.

The scope of the MAIB investigation has focused on aspects concerning the involvement of ***CMA CGM Simba***, with only observations relating to the tug ***Domingue***, owing to limited access to evidence.

The Madagascar maritime authority, Agence Portuaire, Maritime et Fluviale, has confirmed it is conducting a safety investigation into the causes and circumstances of the accident in accordance with the IMO's casualty investigation code, but has not advised when its report into the incident will be published.

Rules for tugs and OSVs updated

Bureau Veritas (BV) has issued new rules for the classification of OSVs and tugs, including new class notations for pipe-lay vessels, accommodation units, offshore construction vessels and OSVs.

Gijsbert de Jong, Bureau Veritas marine marketing and sales director, said: "With this new publication, Bureau Veritas provides the industry with a clear framework for the classification of OSVs and tugs based on an end-user friendly system of class notations reflecting the terminology used by the industry. This document is the culmination of a development plan aimed at addressing the specific requirements of key offshore operations in our rules."

The new rules set out requirements for the classification of a wide range of vessels performing construction, installation, maintenance and other support activities at sea. The requirements cover towing, anchor-handling, supply, fire-fighting, oil recovery, diving support, lifting, standby and rescue, accommodation, pipe-laying, cable-laying and semi-submersible heavy transport vessels.

New and updated class notations and service features have also been included for, among other things: wind turbine installation vessels, service notations for tugs and escort tugs – indications for the design values of bollard pull, steering/braking force and speed, in combination with operating area notations for restricted operations for harbour tugs or coastal tugs.

Feedback, from cross-industry projects and working groups such as SafeTug and a range of IMO groups focused on stability for towing, anchor-handling, lifting operations and supply operations, has been incorporated into the new rules. The rules entered into force on 1 July and are described in a new booklet (NR467-E), which is now part of the BV *Rules for the Classification of Steel Ships*.

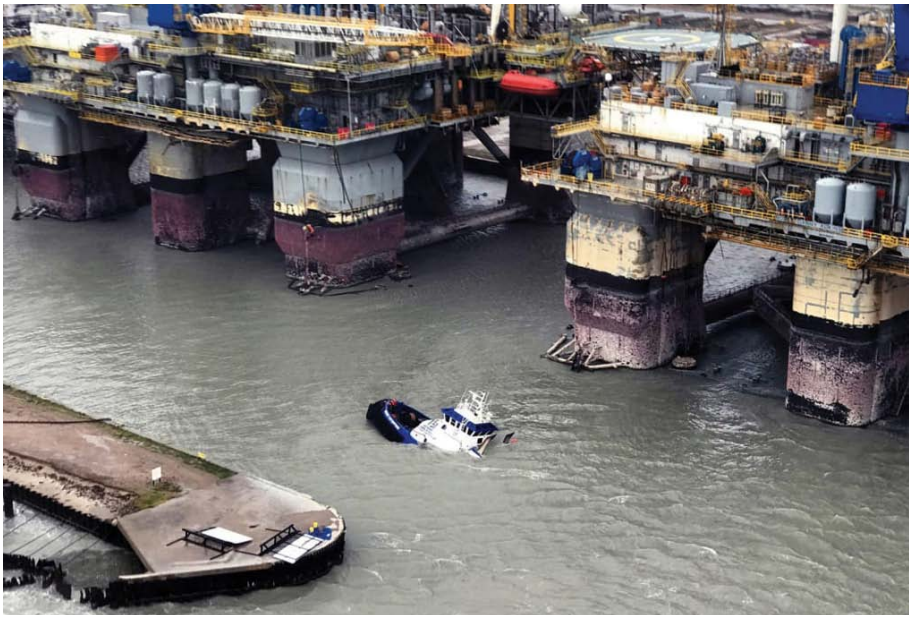
Copies of NR467-E (free download) are available at BV's marine client portal www.veristar.com or by emailing benjamin.eustache@bureauveritas.com

Airlift drama for tug crews in US storm

Tugboat crews have been rescued by US Coast Guard (USCG) helicopters after their vessels were pounded by Storm Harvey crashing into the coast of Texas.

Four people were rescued and airlifted to safety from the tug ***Signet Enterprise*** when it sank in the Port of Corpus Christi. Operated by Signet Maritime and built in 1999, ***Signet Enterprise*** was struck by a Paragon Offshore drill ship when that vessel broke its moorings in the port. The USCG also rescued seven crew members from ***Sabine Pass***, a second tugboat that was holding the drill ship.

Capt Tony Hahn, commander, USCG sector Corpus Christi, said: "This case included two Coast Guard MH-65 helicopters collaborating in a great effort to save multiple lives. To complete the evolution quickly and take these mariners out of harm's way, the aircrews delivered the survivors to a drop-off point and the tug ***Signet Constellation*** transported the survivors to a safer location. This was a great effort between our coast guard aircrews and ***Signet Constellation***'s crew in very dangerous conditions."



▲ **Signet Enterprise** *sunk by Storm Harvey in the Port of Corpus Christi, Texas*

As the storm blew in, the crew of Baldone Offshore's OSV ***Gulf Justice*** were evacuated by USCG helicopters. Four more people were rescued from the Gulf Coast-based tugboat ***Sandy Point***.

As *IT&O* went to press, efforts were being made to assess damage and re-open ports along the Texas coast closed in response to the storm that has killed more than 40 people, caused widespread flooding and destroyed thousands of homes and businesses.

Hahn said the USCG was working with federal, state and local partners. Additional resources were being transferred from across the US.

Hahn said: "We are continuing port assessments and collecting data on damage, debris and pollution in order to regain full operation of the affected ports."

Stringent emissions rules to help drive engines market

The global marine engines market is expected to grow from an estimated US$11.14bn in 2016 to US$13.53bn in 2021 at a compound annual growth rate of 3.85 per cent, according to a report by research company MarketsandMarkets.

Growth in the marine engines market will mainly be driven by a rise in the shipbuilding industry as well as increased maritime trade and stringent emission norms.

The report says key players in the sector are MAN Diesel & Turbo, Wärtsilä, Caterpillar, Mitsubishi Heavy Industries and Rolls-Royce Power Systems.

Stringent emission norms will increase demand for gas-powered and dual-fuel marine engines, but the report says that heavy fuel oil-based marine engines have always dominated the marine engines market, and will continue to hold the larger share in the sector when it is segmented by fuel type.

With recent emission norms announced by IMO and other organisations such as the US' EPA, there will be an increase in share of the cleaner-fuel mix segments of marine engines as a result of an increased demand for marine engines based on IFO, MDO, MGO, along with dual-fuel marine engines and gas-powered marine engines. Commercial vessels, as a consequence of increased shipbuilding orders for gas carriers and bulk carriers, will continue to have the largest market share for marine engines by vessel type, largely driven by rising economic growth in South Asia and Southeast Asia. There will also be an increased demand for pleasure vessels in Europe and North America.

The report is available via www.marketsandmarkets.com

New SOSRep looks forward to taking on rewarding role

The UK Maritime & Coastguard Agency has appointed Les Chapman to the role of Secretary of State's Representative (SOSRep) Maritime Salvage & Intervention, which oversees the response to accidents at sea.

He joined the agency on 21 August and will work alongside the existing SOSRep, Hugh Shaw OBE, for several months to allow a substantial transition and will not assume the role and responsibilities of the SOSRep until an agreed time later in the year.

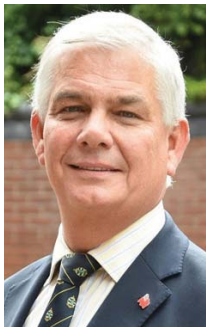
The SOSRep is responsible for reducing the risk to safety and the environment arising from accidents at sea. Recent incidents which were overseen by Shaw include the *Transocean Winner* rig grounding off the Isle of Lewis in 2016 and the ***Hoegh Osaka*** car carrier incident in the Solent in 2015.

Chapman is no stranger to the maritime world, having graduated from the Royal Military College of Canada and served in both the Royal Navy and the Royal Canadian Navy. In the Royal Navy he qualified for nuclear submarine command and held four command appointments.

Over the course of a career spanning the maritime, security and transportation industries, Chapman has also worked with a number of commercial maritime organisations including Associated British Ports Ltd, DNV and The Maritime Group.

He is a Fellow of the Institute of Marine Engineering, Science and Technology, the Institute of Civil Protection and Emergency Management and the Nautical Institute, a Liveryman of the Honourable Company of Master Mariners, The Worshipful Company of Arbitrators, The Worshipful Company of Shipwrights and a Younger Brother of Trinity House.

◄ ***Hoegh Osaka*** *on its side in the Solent in 2015*



▲ *Hugh Shaw OBE, left, and Les Chapman*

He said: "The SOSRep role can be a difficult, but very rewarding one as it's all about providing protection and safety in the maritime world. I'm looking forward to working alongside Hugh Shaw as I familiarise myself with all aspects of the job."

Sir Alan Massey, CEO of the Maritime & Coastguard Agency, said: "We are committed to safety of life and the environment at sea through safer lives, safer ships, cleaner seas. As we have seen from many serious incidents in UK waters over recent years, the SOSRep has a unique and critical role in rapidly and effectively marshalling the resources of all parties to achieve the best possible outcomes.

"I am delighted we have appointed Les Chapman as our new SOSRep. Les brings highly relevant skills and experience with him and I am sure he will be an excellent successor to Hugh Shaw OBE, who has done a superb job over the years in growing the effectiveness and influence of the SOSRep role."

Multi-task ASV can take on towing and mooring roles

Although designed with the specific purpose of supporting the fish farm sector, Scotland-based Macduff Ship Design says its new 25m aquaculture support vessel (ASV) *Gina Mary*, *pictured right*, is a multi-role concept also designed for tasks such as mooring work and towing and is suitable for smaller wind farm sector operations.

Built by Havyard Shipyard in Norway and delivered to owners Inverlussa Marine Services in May, the vessel boasts two cranes, 48 ton-metre crane with 18.5m outreach, and 100 ton metre crane with 22m outreach.

With a beam of 9.7m and depth of 3.5m, the vessel is capable of carrying four 7m containers on deck or a total of 115 tonnes of deck cargo. The vessel is powered by twin 600hp at 1,800 rev/min Caterpillar C18 main engines, driving fixed pitch propellers in nozzles through ZF W650 gearboxes. Auxilliary power is provided by a Caterpillar C12 engine, a Volvo D7 genset and a Cat C4.4 genset.

Built in just five months, ***Gina Mary*** is the third vessel that Macduff has designed for Inverlussa, with a fourth, ***Kiera Fiona***, due to be delivered in September.

Macduff has had a busy year so far, with a series of new vessels being commissioned and built including a 16m tug for UK owners, a fishing vessel and a 12.75m pilot boat.

FPSO heads for Brazil after major refit project

Damen Shiprepair Rotterdam has delivered the FPSO *Petrojarl 1* to Teekay Offshore following a complete redeployment project taking place over two-and-a-half years.

Petrojarl 1 has been operating in the North Sea for 28 years but is now destined for the Atlanta Field in Brazil. After extensive engineering, amounting to more than 450,000 engineering hours, more than 50 per cent of the process equipment was removed and replaced by new and additional equipment required to treat heavy oil at the new location, in accordance with the most stringent specifications and Brazilian compliance requirements.

Mark Witjens, director with Damen Shiprepair & Conversion, said: "The ***Petrojarl 1*** project fits within the strategy of Damen to expand further into the repair and conversion of complex offshore vessels and operating units."

◄ **Petrojarl 1** *at Damen Shiprepair Rotterdam*

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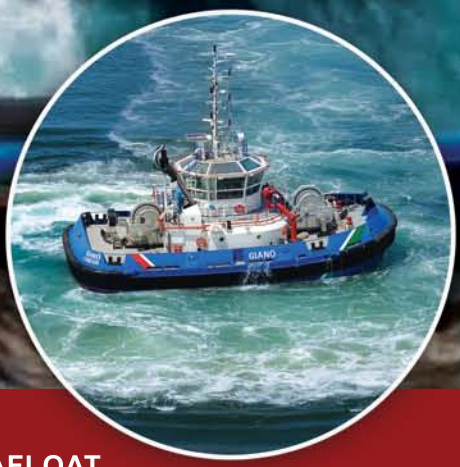

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North Sea PSV controlled from California

Technology group Wärtsilä has taken a further important step towards developing its Smart Marine capabilities by successfully testing the remote control of ship operations.

The testing, which involved driving a vessel through a sequence of manoeuvres using a combination of dynamic positioning (DP) and manual joystick control, was carried out off the North Sea coast of Scotland in collaboration with Gulfmark Offshore, the US-based operator which provided a PSV for the project.

Although the test vessel ***Highland Chieftain*** was in the North Sea, the remote control navigating was carried out from the Wärtsilä office located in San Diego, California, 5,000 miles (8,000km) away.

Wärtsilä's DP unit developed remote control capabilities in the early part of 2016, but this was the first test carried out on an offshore vessel. ***Highland Chieftain*** is 80m long and fitted with a Wärtsilä Nacos Platinum package for navigation, automation and DP systems, as well as a Wärtsilä drives package. For the test, additional software was temporarily added to the DP system in order to route data over the vessel's satellite link to the onshore work station in California.

Most importantly, the Wärtsilä testing was carried out using standard bandwidth onboard satellite communication. No land-based technology was used for the communications between the vessel and the remote operator work station.

The retrofitting of the DP software was completed within just 30 hours and with minimal inconvenience, thanks to Wärtsilä's modular and easily upgradable system.

The successful test was conducted over an almost four-hour period, during which time the vessel was driven through a series of manoeuvres at both high and low speeds. All the test procedures carried out went according to plan.

Roger Holm, president of Wärtsilä Marine Solutions, said: "Wärtsilä is committed to developing technologies that enable a Smart Marine future. In the age of digitalisation, the future Smart Marine ecosystem will involve connecting 'smart' vessels with 'smart' ports to enable an even more efficient use of resources. It will also reduce the impact on climate while enhancing safety."

▲ *Gulfmark Offshore's* **Highland Chieftain,** *which was successfully driven in the North Sea for four hours from a land base in California*

Andrea Morgante, head of digital at Wärtsilä Marine Solutions, said: "One of the first and most critical hurdles to overcome along the path to the enablement of intelligent shipping is to develop efficient and reliable remote control and monitoring capabilities, taking factors such as bandwidth limitations and cyber security into consideration.

"This test provides a clear indication that we are well on the way to achieving this. The fact that the ship was enabled for remote operation in only a few hours is a strong endorsement of Wärtsilä's position at the forefront of marine technology development. We are fully engaged in developing 'intelligent' vessels since we consider such technologies to be vital to maintaining a profitable future for our customers."

It is anticipated that Wärtsilä's development of successful remote access to ships will also enable virtual service solutions to customers needing tuning or testing of their DP systems. Furthermore, this solution will be used for other pilot projects, such as automated docking procedures.

Ashley Robinson, SVP, operations, at Gulfmark, said: "We believe that it is important to embrace new technologies since they represent the future of our industry. If companies are to remain competitive they must look ahead and take advantage of the tremendous development work being done by companies such as Wärtsilä. For this reason, we are most happy to co-operate with them in this exciting project."

Wärtsilä has earlier supplied three of Gulfmark Offshore's Highland series vessels with various products, systems and solutions, as well as DP systems to several other vessel series within the company's fleet.

Royal Navy salute for veteran steam tug

One of the last coal-fired twin-screw steam tugs in the world was saluted by the Royal Navy in London to mark its 90th birthday.

Portwey, which was built on the Clyde in Scotland in 1927, came under the command of the Royal Navy during World War II when it was based in Dartmouth and carried out rescues of vessels and crews sunk by enemy action in the English Channel.

To mark its anniversary, the tug steamed alongside *HMS President*, the Royal Navy's permanent shore establishment in London, and was saluted by Commander Richard Pethybridge, who said: "It was a real honour to salute this little steam tug which is one of hundreds of tugs and other vessels that were taken under command during World War II and carried out sterling work.

"The Royal Navy and its warships could not have worked as well as they did without the help and support of vessels such as ***Portwey*** and their crews, which put themselves in harm's way to carry out rescues, tow ships and remove all sorts of debris from the Channel. It seemed fitting that we should salute a 90-year-old veteran which gave such service and is still steaming thanks to a group of dedicated volunteers."

In 1944, ***Portwey*** was involved in preparations for the D-Day landings. Landing craft were massing in the River Dart and sometimes required ***Portwey***'s help. The tug also rescued damaged vessels from the disastrous US Slapton Sands exercise in April 1944, which was detected and attacked by German torpedo boats.

Today ***Portwey*** is being preserved and run by the Steam Tug Portwey Trust charity. The tug is manned by a small group of volunteers who raise money to keep the veteran running so that future generations can see a steam tug in action. After visiting *HMS President* the steam tug and its volunteers steamed down river to Gravesend, where it was put on show and opened to the public as part of the riverside town's 'Something for the Weekend' event.

Trust chairman, Steven Page, said: "It was a great honour for the tug to be saluted by the Royal Navy on its 90th birthday and for the Navy to recognise not only the role that the tug played during the war, but the work that the volunteers do in raising funds to keep her running. We want future generations to see ***Portwey*** in action and our next goal is to get her to her 100th birthday, but if this is to happen we need more volunteers and we need to generate thousands of pounds to keep her running."

- Individual and corporate donations can be made via www.stportwey.co.uk

◄ **Portwey** *receives a Royal Navy salute from Commander Richard Pethybridge for its 90th anniversary*

Photo: Martyn Goddard

Expanding firm marks anniversary

Quebec, Canada-based marine services provider Groupe Ocean has celebrated its 45th anniversary by unveiling a new corporate image.

President, Gordon Bain, who founded the company as Aqua-Marine, said: "We would like to thank our partners and all stakeholders for contributing to our growth, to the development of our markets and to our success. When I founded the company, I had in mind to offer integrated marine services. The confidence of the customers, the support of the partners and the ingenuity of my team allowed Aqua-Marine to become Ocean, a leader in the maritime industry.

"Over the past few years, we have experienced considerable growth which has enabled us to expand our range of services and expand our territory in Ontario, Quebec, New Brunswick, Newfoundland and Labrador, Western Canada and the Caribbean."

Today, nearly 850 employees carry out a multitude of projects in three main complementary sectors of activity: shipbuilding and repair, harbour towing and maritime transportation, and rental of specialised marine equipment and dredging.

Groupe Ocean CEO, Jacques Tanguay, said: "We have surrounded ourselves with the best in order to make Ocean grow, and customer confidence has enabled us to project ourselves into the future."

To celebrate its anniversary the company has unveiled a new logo and the slogan 'GO full force'.

◄ *Groupe Ocean tugs* **Ocean Yvan Desgagnés** *and* **Ocean K Rusby** *assisting* **Fairmount Glacier** *and the barge* UR-171 *to deliver the accommodation block of the AOR replenishment oiler of the Royal Canadian Navy at Davie Shipyard earlier this year*

OSV giant emerges from restructuring

New Orleans-based oil services company Tidewater has emerged from Chapter 11 bankruptcy after completing a financial restructuring that eliminated approximately US$1.6bn of debt in a move designed to better position the company to weather the extended downturn in the offshore energy industry.

Tidewater has one of the biggest OSV fleets in the offshore oil & gas industry, with more than 300 vessels. It has remained in business throughout the restructuring.

Company president and CEO, Jeffrey M Platt, said: "We now have the financial flexibility to continue to provide our customers with the safe, compliant, and efficient services that are the hallmark of our company. Tidewater is thankful for the continued support of our many stakeholders, including our lenders, noteholders, stockholders, employees, customers, vendors and trade creditors."

The company and certain of its subsidiaries filed for Chapter 11 bankruptcy in Delaware in May as part of pre-packaged restructuring support agreement with creditors.

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Company designs fifth SOV for Danish offshore operator

Norway-headquartered Havyard Group has designed its fifth SOV for Danish operator Esvagt as part of a NOK70m (US$9m) design and equipment contract.

Sales director, Gisle Vinjevoll Thrane, said the contract leads to work for both Havyard Design & Solutions and several sub-contractors in the region.

The equipment package includes a diesel-electric propulsion system from Norwegian Electric Systems, which is just over 50 per cent owned by Havyard, as well as Havyard IAS and Havyard Concept Bridge.

Thrane said: "We have developed a vessel that has met requirements from both ship owner and operator of the vessel. We have balanced technical aspects with commercial requirements, and as such, we have been able to win this contract in a tough and competitive market. The vessel is due to be delivered to Esvagt in August 2019, and will enter a contract with the Danish wind power company MHI Vestas and serve in the OWF Deutsche Bucht field.

"There is an expected NOK1,000bn (US$128bn) investment within offshore wind power, in Europe alone. In addition, there is an increasing number of ocean wind farms around the globe. Farms are also increasingly further away from shore compared to previously. As a result, purpose-built vessels are needed.

"With this contract we show once more that we understand the requirements within this market and deliver vessels with the best solutions for offshore wind farms."

Design manager, Arve Helsem Leine, said the starting point for the development of Havyard 831 SOV was to design a compact, efficient and profitable vessel for smaller wind farms. He said: "As we now sign a second contract for this design, it confirms that we have succeeded in creating a design that meets expectations."

Kristian Ole Jakobsen, COO of Esvagt, said: "Through our close co-operation with Havyard we know that we get vessels that provide our customers with safe, innovative and efficient services."

Along with the SOVs, previous Havyard contracts with Esvagt have been for an oil service vessel and a crew transfer boat.

CEO recognised for contribution to the maritime industry

Damen Shipyards CEO, René Berkvens, has been presented with the prestigious Council of the Confederation of European Maritime Technology Societies' (CEMT) annual award in recognition of the substantial contribution made to the success of the European maritime industry by an individual, company or organisation.

CEMT chairman, Trevor Blakeley, said: "I am sure that your colleagues at Damen, and those in the maritime industry who have knowledge of your achievements, will join me in congratulating you on this well-deserved recognition."

Receiving the award Berkvens, *pictured above*, said, "It is an honour to receive this award. Reflecting as it does, Damen's contribution to the success of our industry, it is a demonstration of the hard work and dedication of the entire Damen team."

In brief

The offshore wind market is projected to grow at an annual rate of 15.3 per cent from 2017 to 2022 to reach a market size of US$55.1bn, according to a report by research firm MarketsandMarkets. The report says key players in the sector are Siemens, ABB, MHI Vestas, General Electric, EEW Group, A2Sea and Nexans.

The US tugboat, towboat and barge industry, with nearly 5,500 US-flag tugs and towboats and more than 31,000 barges, moves an average of 763m tons of cargo on the nation's waterways each year, according to the agriculture news website Feedstuffs.

MAN Engines is expanding its sales and service network for marine engines with bases in the UK, Poland, Sweden and Chile. These partnerships will build on existing commercial ties.

PTR Holland, the Rotterdam headquartered embarkation ladder and gangway manufacturer, has opened its first facility in North America at Pasadena, Texas, US.

Tugs assist with FPSO float-off

Kotug Smit tugs assist the float-off of the FPSO **Western Isles**

Kotug Smit tugs assisted the float-off of FPSO *Western Isles* from a heavy-lift transport ship and its transport to the Keppel Verolme shipyard. The tugs also supported the drydocking and undocking process at the yard.

Western Isles had been transported from a COSCO construction centre in China to the Netherlands for a final outfitting at the shipyard. A Kotug Smit tow master was responsible for the co-ordination between the tugs during this special project.

Prior to the start of operations, pre-meetings were held between representatives of the owners of the FPSO, COSCO, Rotterdam pilots, the dock master and port captain. All aspects of the float-off, transit to the yard and docking operations were discussed, agreed and planned.

Once fully refitted, ***Western Isles*** was due to be transferred to the northern sector of the UK side of the North Sea for the Western Isles oil & gas project. The vessel, which has a storage capacity of up to 400,000bbl of oil, will be used by Dana Petroleum, a UK North Sea operator, to produce oil from the Harris and Barra fields located some 160km east of Shetland.

In brief

Rolls-Royce says its marine business "continues to face challenging offshore oil & gas markets" as it reported lower revenues and increased losses for the first half of 2017. Revenue for the half-year fell 15 per cent to £524m, with losses rising to £31m compared to £13m for the same period last year. The company says cost savings from restructuring its marine business over the past two years were more than offset by lower offshore volumes and predicts the full year will remain "mixed".

SeaCURE ballast water management system, the electrochlorination-based solution pioneered by Evoqua Water Technologies, has successfully completed all biological efficacy US Coast Guard type-approval tests, carried out under the supervision of classification society Lloyd's Register and the independent laboratory NSF International.

Giant pipe segments washed up on the UK's Norfolk coast came loose as they were being towed to Algeria from Norway, according to the Maritime and Coastguard Agency. The plastic pipes were 8ft (2.4m) in diameter with the longest segment 1,574ft (480m) long.

There are now 28 offshore wind farms in UK waters, five times more than 10 years ago, according to a government report.

Busch joins company board

Todd Busch, senior vice president and general manager, technical services, at Crowley Maritime, has joined the board of directors of Sea Machines Robotics.

Boston, US-based Sea Machines is a technology leader in the emerging space of smarter ships. It is building autonomous control technology for commercial vessels, which will herald a smarter, safer and more efficient era of marine operations.

Michael G Johnson, CEO of Sea Machines, said: "The addition of Todd Busch to our board of directors provides the company with a top-tier advisor who is a leading figure in the global marine industries with demonstrated leadership credentials.

"As Sea Machines pushes the cutting edge of vessel control technology, Todd's more than three decades of experience in the shipping, offshore oil & gas, and marine salvage sectors, will further enable and bolster our strategy to become the world's solution provider of choice for advanced marine systems."

Busch said: "It's a privilege and an honour to join the board at Sea Machines. I look forward to both sharing my expertise and learning from others as the company continues its drive to bring new technology and advanced marine systems to the industry."

Busch, who joined Crowley in 1987 as an ordinary seaman, is currently responsible for naval architecture and marine engineering, government services, ship management, marine salvage and wreck removal, new-vessel construction and the chartering and operations of Crowley's offshore tug and barge fleet. Crowley is a privately-held, 125-year-old marine solutions, energy and logistics services company with more than US$2bn in annual revenues, 5,300 employees and operations worldwide.

► *Todd Busch*

Early in his career Busch served aboard company tugs as a chief mate and came ashore in 1994 as a tug dispatcher.

He has managed the company's ship-assist and marine services contract businesses, overseen pricing and the negotiating of contracts and managed the commercial activities for Crowley's emergency response services and the US Navy salvage contract.

He was named vice president of Titan Salvage (now Ardent Global) in October 2005. He is the chairman of the board for Ardent, the joint venture between Crowley and Svitzer Salvage, a former director of Marine Response Alliance, Clean Pacific Alliance, and served as a member of the executive committee, and past president of the International Salvage Union. Prior to joining Crowley, Busch sailed with the Southwest Alaska Pilots Association.

Sea Machines Robotics, founded in 2014, is a growing venture-backed company that is focused on 21st century innovation for the marine and maritime sectors. This year the company launched the SMR-300 autonomous control system for commercial workboats which is proving the viability of remotely-commanded, self-aware and self-piloting surface vessels.

Heavy lift vessel ships 12 tugboats to Europe

The latest Damen vessel transport has arrived in the Port of Rotterdam in the Netherlands. The multiple vessel shipment comprises various tugs and and a Multicat constructed at Damen's yards in Vietnam. The vessels were transported on board the SAL heavy lift vessel *MV Lone*.

Consisting of two Stan Tugs 2608, three ASD Tugs 2411, four ASD Tugs 2810, two ASD Tugs 3212 and a Multicat 1908, the shipment is a strategic positioning of built-for-stock vessels in Europe. In line with market needs, Damen has strengthened its ability to offer swift deliveries for clients and operators in Europe, western Africa and Central America.

Choosing to transport multiple vessels on board a heavy lift vessel is not a new strategy for Damen; the company has done this on numerous occasions. The success of this customer-focused approach lies in the increased efficiency of moving vessels to where the markets need them. Damen has developed a system of modular vessel cradles that, in combination with integrated lifting points on the tugs, results in safe and efficient loading and unloading of the vessels.

▲ *The Damen tugs and Multicat on* **MV Lone**

Corporate director commercial with SAL Heavy Lift, Justin Archard, said: "With a combinable lift capacity of 2,000 tonnes, more than 3,300m² deck space and a hold size of 107m by 17m by 13.7m, ***MV Lone*** is the right ship for the job of transporting these vessels safely and rapidly from Vietnam to the Netherlands."

People in the news

Severin Sima

Severin Sima is the new head of marine service support at **MAN Engines**, with responsibility for all aspects of after sales support and service. Before joining MAN in 2011 he spent 10 years working in technical development for Audi. His latest role also involves co-ordinating the service area of MAN Engines, and will serve as a centralised contact for all service-related topics and market segments within that division of the company.

Will Roberts

Will Roberts, formerly of Rolls-Royce, has joined **Foss Maritime** as chief commercial officer (CCO). Roberts is responsible for building the customer-facing team to drive and sustain Foss Maritime's market share and long-term revenue generation. CCO is a newly developed position at Seattle-based Foss Maritime and, in his role, Roberts will advance the company's global perspective on market opportunities and lead in the assessment and prioritisation of geographic and operational market segments through marketing, sales and business development activities.

Bunker and lubricant trader Guyson Kang has recently relocated from **Glander International Bunkering** in Singapore to the company's Dubai office.

Reinhold Rückel

Electric automation and drive systems manufacturer **Baumüller Nürnberg** has announced the appointment of Reinhold Rückel as commercial director; he will be managing the company alongside Andreas Baumüller, as well as acting as chief financial officer for the Baumüller group.

Hakan Tunc has taken over from Muhammet Gökhan as procurement manager with Turkey's **Sanmar Shipyards**. Tunc takes on the new role in addition to his responsibilites as project manager.

Ryan Rendall

The Shearer Group, Inc (TSGI) has announced a new addition to its naval architecture, marine engineering and marine surveying firm: naval architect Ryan Rendall. Prior to joining Houston-based TSGI, Rendall worked for Metal Shark Boats as a naval architect and marine engineer. He is also a member of the American Society of Mechanical Engineers, Society of Naval Architects & Marine Engineers, and the Marine Technology Society.

Caterpillar Inc's group president and CFO Brad Halverson has elected to retire in early 2018, concluding a career spanning more than three decades with the company. Halverson will continue working into early 2018 and will help ensure a smooth transition for the new CFO. Prior to becoming CFO, Halverson served two years as vice president of the finance services division, having joined Caterpillar in 1988 as an accountant.

Shawn Garry

Bouchard Transportation has announced that Shawn Garry has joined the company as vice president of regulatory compliance and inspections. In that role, he will be an instrumental part of ensuring that Bouchard meets SubChapter M requirements, while also guaranteeing that the highest level of regulatory compliance is achieved.

Cruise ship marine operations expert John Schneider is joining the board of directors at **FarSounder, Inc**. Schneider has utilised FarSounder's innovative sonar systems since 2010 in his role as vessel manager for Wilhelmsen Ship Management (WSM).

Sean Fernback

Global marine navigation technology firm **C-MAP** has engaged Sean Fernback as CEO of Digital Marine Solutions Holding AS and the C-MAP Group. Fernback will focus on strengthening the product portfolio and developing and implementing the company's strategic initiatives to further grow the commercial and recreational divisions. Fernback has a strong background in new technology innovation and has held several leadership positions in the field.

BIMCO has appointed Philip Tinsley as its new head of maritime security. He joined the association in 2015 and assumes his new position after the sad and untimely death of his colleague, Giles Noakes, earlier this year. Before joining BIMCO, Tinsley spent 31 years with the Royal Marine Commandos – an elite unit of the British Royal Navy.

Bart Brom

Bart Brom, currently director and business unit manager marine & offshore at Eekels Technology, has been appointed as CEO of **Alphatron Marine Group** in Rotterdam, effective from 1 January 2018. Brom succeeds co-founder Luuk Vroombout, who will remain involved in the company as president and a co-director.

The Mission to Seafarers has named Jan Webber as its new director of development. She takes over from Jos Standerwick, who has been appointed as CEO of Maritime London.

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▲ *The late Idar Ulstein, former CEO, with two of his children: Gunvor Ulstein, present CEO, and Tore Ulstein, deputy CEO and chair of the board*

When Martin Ulstein and Andreas Flø flung open the doors to their small mechanical workshop in 1917 they had no idea what they were destined to create. Initially conceived to repair and then reconstruct wooden fishing vessels, Ulstein mek Verksted rapidly built a workforce, competence and influence that made waves beyond the west coast of Norway. The firm would become Martin's lifelong passion, while Andreas chose to move on to pastures new.

By 1924 the business was representing and installing Rapp engines, leading to assignments to provide new vessel wheelhouses and exhaust systems. In 1957 it made its mark as a modern shipbuilder with its first steel newbuild, the car ferry ***Torulf***, and by 1965 Ulstein had demonstrated an ambition to extend its reach further into the maritime supply chain with the formation of Ulstein Propeller. The business was now intent on emerging as a 'package' supplier, providing both vessels and equipment.

However, it was the discovery of oil off Norway in 1969 that really switched Ulstein into overdrive.

As Idar Ulstein, former CEO and chair of the board, and the son of founder Martin, explained in 2007, the growing interest in exploiting North Sea oil reserves led to a burgeoning demand for offshore vessels.

He said: "We received regular enquiries concerning the construction of supply vessels of American design, but we believed that these vessels would not be particularly suitable for the prevailing weather conditions in the North Sea."

An intimate understanding of this harsh environment, and how to refine vessels to tackle it, presented an obvious business opportunity for Idar and his team: "We began to develop new types of vessels in-house, splitting them into different series. Offshore vessels were in the UT700 series (UT300 denoting fishing craft). The hulls were broader and had a larger freeboard, allowing them to operate safely in rough seas."

This ability to innovate with design was matched by a business acumen to exploit it.

The company began marketing the UT series worldwide, selling designs to international shipyards and, in doing so, establishing an industry network and financial base that would facilitate rapid growth and recognition.

Ulstein was no longer a name associated with a small Norwegian settlement; it was now a global brand in specialist ships for the most demanding operational environments.

A further example of Idar's ability to adapt and innovate was provided by the VROS development. The idea came to him in 1980 when he was walking across a runway to board a plane home.

Always on the lookout for inspiration, the retractable nose wheel on the aircraft caught his eye. His mind immediately began racing. Upon return to Ulstein he asked his engineers to construct a rotating, retractable thruster named 'VROS', an abbreviation of two Norwegian words meaning rotating and retractable.

Meanwhile, the Farstad shipping company had awarded Ulstein a contract for the vessel ***Stad Ulstein*** in which Ulstein mek owned an 80 per cent share. This vessel was to be equipped with two new thruster prototypes, one of which was a VROS. The design began simultaneously with the construction of the ship. Right from its initial tests the VROS was a success, and few structural changes have been made since.

According to the company, the swing-up thruster is not just an example of how existing ideas can be adopted and developed further, but of how it is possible to open one's mind to inspiration, and innovation, from the world around us.

Throughout the '80s and '90s Ulstein leveraged its niche within offshore to build an international business, acquiring other firms – such as deck machinery and engine producer Bergens Mekaniske Verksted (BVM) in 1985 – and creating a sales and service network that spanned the world's key ports.

Prior to the acquisition of 90 per cent of the business by Vickers and then Rolls-Royce in 1999, Ulstein had grown to more than 4,000 employees, with a turnover in excess of NOK4bn (US$50m).

◄ *Martin Ulstein and his colleagues at Ulstein mek Verksted, probably in 1927*

Divesting itself of so much allowed the new look Ulstein Group to refocus on a core strength – providing innovative vessels and systems tailored to customers in demanding segments. And, initially, the offshore sector was the key.

Multifunctional anchor handling vessel ***Olympic Hercules***, delivered in 2002, was the first of a new generation of advanced Ulstein designs. However, it was in 2005 that the firm's flair for innovation truly revolutionised offshore shipping, with the advent of X-BOW®.

The X-BOW demonstrated the company's ability to rip up the rulebook – creating, realising and commercialising concepts that are unique in characteristics, performance and customer benefits.

First seen on the AHTS ***Bourbon Orca*** in 2006, the X-BOW hull design gives vessels reduced pitch motion and, therefore, increased comfort – minimising movement from waves and bow impact – greater performance in rough weather, and optimised fuel efficiency. In fact, the unconventional shape of the hull reduces power consumption by 7-8 per cent compared to vessels with traditional hull lines.

The critical reception of X-BOW was one thing (it was recently placed second in Aftenposten's round-up of the best Norwegian designs of all time), the commercial one another. By 2015 more than 100 X-BOW designs were sold around the world, showcasing how even the most bold ideas can be accepted into the mainstream if they deliver benefits to match their ambition.

Inspired by this success, and driven by the desire for continuous improvement, Ulstein has now created X-STERN®.

This concept transfers the X-BOW benefits to the aft of the ship. In doing so it provides reduced pitch motion, increased flexibility, extended operational windows in bad weather, improved crew safety, and reduced fuel consumption, with lower environmental emissions. It marks a full circle evolution of the X hull design and is particularly suited, although not limited, to the blossoming offshore wind segment.

The first X-STERN delivery was made on 23 June 2016 with the SOV ***Windea La Cour*** setting sail.

▲ *The offshore age in the North Sea started in the early 1970s, after the Ekofisk oil field discovery in 1969*

Ulstein's move into offshore wind is indicative of a history built on adaptation and knowledge transfer. The firm is always looking for the next opportunity where its expertise and evolving product and service portfolio can deliver customer advantage.

As such wind, with its obvious similarities to the offshore oil & gas sector, is a growth market, while cruise, yachts and RoPax, where Ulstein's design innovation and shipbuilding pedigree can deliver added value, are seen as future development drivers.

But the company is not just focused on steel. The digital revolution has transformed life on land and is sweeping over the seas, with increased system technology, management systems and automation paving the way for a truly connected shipping industry.

Ulstein aims to emulate its position at the vanguard of ship design with developments in vessel technology, using its X-Connect® architecture as the platform for on-board products such as Ulstein IAS and Ulstein PMS, connected to digital and autonomous systems.

X-Connect provides a cornerstone for current and future systems. It unites them on a single platform and gives on and offshore teams the data they need to make decisions enhancing operations, environmental performance, business efficiency and stakeholder value, not to forget feeding back into new generations of Ulstein designs.

The concept connects systems, data and people, but also, as group CEO Gunvor Ulstein and Tore Ulstein note, marks the intention to be as relevant to the industry for the decades to come as it has for those in the past.

"The future market is as difficult to predict in 2017 as it was in 1917," the two note in a joint statement. "The only constant through the years is change, and we expect that change, driven by continual digital development, will accelerate into the future.

"Shipping businesses that fail to keep pace with that will be left behind, while those that engage with change – driving it wherever possible – will always be at the forefront of the industry when it comes to answering customer needs and satisfying market demand. We're proud that our first 100 years have had so many defining moments, for ourselves and the industry, and, through a combination of delivering future-ready products and services, expect the next 100 to hold many more. We've come a long way from that small workshop in Ulsteinvik, but our focus now is on where we're going. And where, with the right blend of experience and industry insight, we can take our customers in the future."

◄ *Ship designers cruising around in an X-BOW tank test model while the real thing is in the background*

► *Two UT704 and one UT705 designs quayside at Ulstein Verft in 1975*

Caspian Sea deal worth US$100m

UAE-based OSV operator Topaz Energy and Marine has signed a US$100m contract with Dragon Oil, the upstream oil & gas subsidiary of Emirates National Oil Company.

Topaz will supply Dragon Oil Turkmenistan with five anchor-handlers and an emergency recovery and response vessel. The contract is scheduled for a five-year term with a two-year option and brings Topaz's market leading revenue backlog above US$1.5bn.

The company says the contract award demonstrates its ability to secure substantial, long-term contracts in a weak market by offering clients a young fleet equipped with the latest technology, delivering cost, efficiency and safety benefits.

Topaz has been active in Turkmenistan since 2010 and is committed to the country and the wider Caspian Sea region. Out of a global fleet of 97 vessels, 62 of Topaz's OSVs are deployed in the Caspian, servicing the exploration, development and production needs of major companies such as BP, Chevron, ExxonMobil and Saipem in Azerbaijan, Russia, Kazakhstan and Turkmenistan.

▲ *Topaz's* **Caspian Qala**, *part of its 97-vessel OSV fleet*

René Kofod-Olsen, CEO, Topaz Energy and Marine, said: "This is a critical contract win for Topaz. It not only increases our revenue backlog above US$1.5bn – the highest in the industry – but it also demonstrates the trust that Dragon Oil has placed in our ability to deliver the technology and safety capabilities our clients increasingly require. We look forward to supporting the development of Turkmenistan's offshore hydrocarbon resources through safe, reliable and competitive offshore vessel services."

Major players sign six-year turbocharger agreement

Wärtsilä and ABB have signed a comprehensive six-year service agreement covering standard maintenance and performance optimisation of ABB turbochargers installed with Wärtsilä 4-stroke engines.

ABB has the largest turbocharger population in the Wärtsilä-installed base with 27,000 ABB turbochargers on Wärtsilä 4-stroke engines.

To ensure smooth processes and effective management of installation performance, the companies will share specific service data and maintenance documents. This also enables the inclusion of ABB turbochargers in the Wärtsilä Online Services offering.

Under the agreement, ABB has granted Wärtsilä authorised service provider status for standard maintenance, which includes disassembly, exchange of parts, balancing and reassembly of ABB turbochargers installed with Wärtsilä 4-stroke engines. It is seen as an important step in Wärtsilä's strategy to expand its analytic approach to lifecycle performance optimisation to turbochargers.

Tomas Hakala, vice president, 4-stroke engine services, at Wärtsilä Services, said: "Being able to look at the whole installation increases its availability and efficiency, optimising service speed and agility. Customers can reduce their operational risk, ensure optimal tuning and save time by being able to overhaul their ABB turbocharger at the same time as the engine."

Herbert Müller, head of service, ABB Turbocharging, said: "This is a logical expansion of the co-operation established for new engine developments, where we jointly aim to push the boundaries of engine performance to new levels. ABB aims to foster our leading position in the field of advanced upgrade solutions during the lifecycle to improve performance of our customers in their businesses."

Multi-role DSV designed to be best in class

A new diving support vessel (DSV) being built for Shanghai Salvage Bureau (SSB) has been purpose-designed for a range of roles including deep-water salvage operations, deep-water pipelay and construction as well as a saturation diving capability for up to 24 divers in two bells.

SSB, one of the largest rescue and salvage companies in the world, says the new vessel is a testament to the demand for top-rated technology and equipment of the highest reliability.

Huang Yan, project director at SSB, said: "This vessel will be the best of its class anywhere in the world. The sophisticated electrical system, including an innovative closed-ring arrangement of the propulsion switchboard, is a top priority for us to achieve our design goals. Undoubtedly, reliability of the technology on board the ship is of paramount importance, and that requires an experienced partner."

GE's Marine Solutions has been chosen by SSB to provide a suite of marine technologies including power and propulsion equipment, dynamic positioning (DP) and automation and control systems to the new DSV. The vessel will become the world's first deep-water DSV with a multi-saturation diving system. Once delivered, it will enable diving operations to be performed at depths of up to 500m and salvage work at 6,000m.

"We are pleased to work with GE to ensure that the deep-water DSV will be one of the most advanced of its kind in the world," added Huang.

Keeping the vessel on station and enabling smooth deep-water operations makes the DP system a critical component, particularly in the tough offshore environment and in challenging weather.

GE's latest technology – SeaStream DP system (Class 3) – uses multidirectional thrusters and sensors to monitor real-time wind, current and wave conditions and automatically activate the propulsion units to counteract the environmental forces. This technology will enable the ship's position and orientation to be safely and efficiently controlled.

▲ *An artist's view of SSB's new DSV*

GE's deep-domain expertise in DP has also extended its capability to include fuel usage optimisation. The company's Ecomagination energy-efficient mode uses advanced algorithms to optimise vessel heading and the number of generators needed for operation, further reducing power consumption, operational costs and emissions.

In addition, the vessel will be powered by an electric power and propulsion system, including the company's 4,656kW generators, switchboards and medium-voltage frequency drive propulsion controllers, as well as a vessel automation and control system, all configured for optimum power and propulsion performance. The main propulsion switchboard will be arranged in a closed-ring configuration to get to maximum efficiency and availability.

The ability to provide the full spectrum of marine solutions – from power and propulsion to navigation and positioning and automation and control – within one integrated package is also a key reason why GE was chosen.

Tim Schweikert, president and CEO, GE Marine Solutions, said: "Thanks to the GE Store, we are able to provide a suite of marine technologies through a blend of high competence in one integrated package. This is one of the landmark projects in the offshore marine industry, and we are excited to be part of the journey."

After-sale support deal key to winning Tahiti contract

Damen Shipyards has won an open tender for the supply of a tug to Port Autonome de Papeete on the Pacific island of Tahiti, part of French Polynesia. The tug will be Damen's popular ASD 2810 model, a rugged, versatile vessel capable of delivering 60 tonnes of bollard pull. Papeete is the capital of French Polynesia and the economic hub of the archipelago.

Port Autonome de Papeete serves a wide range of vessels, including local ferries, cargo ships, naval vessels, cruise ships and oil tankers, and having a modern towage capability is vital for both the port and Tahiti, given its remoteness and reliance on trade.

With the current primary tug becoming increasingly outdated, the decision was taken to acquire a new, more powerful vessel capable of handling the larger cargo, oil tankers and cruise ships expected in the coming years.

Following the award of the tender, Damen received 'L'ordre de Service' in early May. With an ASD 2810 in stock at Damen Song Cam Shipyard in Vietnam, the process began immediately of finishing and commissioning the vessel in accordance with French regulations, in time for delivery in early October this year. Additional equipment being fitted includes an extra aft winch and a fi-fi installation.

With French Polynesia being one of the remotest inhabited areas on Earth, an important part of the contract is ensuring that the tug will be properly supported and maintained. To meet this requirement, Damen has established a partnership with a local marine engineering company in Papeete that will operate in co-operation with the Damen Service Hub in Brisbane, Australia, 3,220 nautical miles to the west. As well as keeping the ASD 2810 in good working order, this arrangement will result in a welcome transfer of skills and technology to the Tahitian maritime sector.

► *A Damen-built ASD 2810 model tug*

Energy storage system deal

▲ *SolstadFarstad's soon-to-be hybrid PSV* **Far Sun**

Corvus Energy has been selected to supply a lithium ion based energy storage system (ESS) for the hybridisation of Solstad Farstad's PSV *Far Sun* being integrated by Vard Electro, in the second half of 2017. The Orca Energy ESS from Corvus will supply electrical power to the PSV's propulsion system electrical network to enable environmentally-friendly and lower cost operations.

The ESS will be utilised during all aspects of the PSV's operation, particularly during dynamic positioning and harbour operations where fuel consumption and emissions will be significantly reduced.

Equally important to SolstadFarstad and Statoil, which maintains a long-term charter for the PSV, the ESS will increase safety through provision of spinning reserve for improved response time as well as increased redundancy.

Ronald Hansen, global service manager of Corvus Energy, said: "As we have experienced with many vessel types, the Orca ESS is ideally suited for the hybridisation of ***Far Sun***. Through close collaboration with Vard, our teams have developed a lean solution which meets the aggressive environmental, safety, performance and operating cost objectives of both companies."

Statoil strategy is focused on improved safety, efficient operations and reduced environmental impact. Through a long-term contractual relationship and a strong emphasis on reducing emissions, Statoil has been a key element in the efforts to have battery technology installed on board ***Far Sun***.

Christian Søvik, VP global services of Vard Electro, said: "The energy storage system will provide significant savings for SolstadFarstad and Statoil over time, enabling the ship to more efficiently utilise energy produced by the generators, as well as simplifying the use of shore power. This will substantially reduce consumption and emissions. Another effect is less noise from ships in port."

A leading manufacturer of energy storage systems for maritime applications, Corvus now has 80-plus installations utilising a Corvus ESS, totalling more than 45MWh and a million operating hours.

Agreement provides multi-port cover

Svitzer has signed an agreement with Rebosado to service the Portuguese firm's towage customers and time-charter its fleet, enabling Svitzer to offer enhanced multi-port cover in Portugal.

Svitzer operates in the ports of Lisbon, Sines and Portimão and is now increasing its capacity in Setubal from two to nine tugs.

Managing director of Svitzer Europe, Kasper Friis Nilaus, said: "Svitzer can now offer comprehensive port cover for the main ports in southern Portugal. Utilising both the Svitzer and Rebosado fleet we can increase the reliability and efficiency of our Portuguese operation."

Manoel Ferreira, founder of Rebosado, said: "We have worked with Svitzer for many years and welcome this opportunity to strengthen our relationship while ensuring high service levels for our customers, employment for our crews and the continuation of the Rebosado fleet in Setubal."

The deal increases the Svitzer-controlled fleet in Portugal by seven, to 15 tugboats.

SOV charter contract

Bibby Marine Services has signed a contract with Total E&P Nederland to charter the Damen designed and built *Bibby WaveMaster 1* – an SOV with walk-to-work capabilities. Total E&P Nederland will charter the vessel from April to October 2018, with options to extend up to three years.

Stephen Blaikie, CEO of Bibby Marine Services, said: "Total E&P Nederland made a conscious decision to explore and utilise the innovation and efficiencies developed for the offshore wind market and use them in the oil & gas market. The comfort, logistics flows and 'access certainty' of ***Bibby WaveMaster 1*** were key influences in their decision."

Total E&P Nederland will use the vessel to replace jack-ups and helicopters and to provide access to gas platforms in the southern North Sea.

Ice-breaking escort tug will work in Gulf of Bothnia

After a rigorous selection process, Canada-based naval architects Robert Allan Ltd was chosen to design a high-performance ice-breaking escort tug for the Port of Lulea, Sweden.

The design will be fully customised for the port's operational requirements, including ice-breaking, ice management, escort, ship-assist, coastal towing, fire-fighting and navigation aids service duties. Special consideration will be made for operation in the extreme climate conditions and ice-infested waters of the northern Gulf of Bothnia between Sweden and Finland.

The vessel will be a TundRA 3600 class tug, designed as a compact icebreaker capable of breaking ice with a thickness of 1m at a speed of 3 knots. The hull structure will be designed in excess of Finnish-Swedish Ice Class rules to ensure safety during icebreaking operations.

The vessel will be equipped with an innovative hybrid propulsion system featuring diesel main engines, shaft motor/generators, and electrical battery energy storage. This configuration allows effective power and fuel consumption management. The tug will be capable of operating on the electrical battery power only or utilising a single main engine in the hybrid diesel-electrical mode with a bollard pull up to 55 tonnes, or on two main engines in diesel-mechanical mode with possible battery boost. The resulting operational flexibility will yield significant fuel, emissions and maintenance savings.

The tug will be the most powerful ice-breaking escort tug of this size in the world with hybrid/electrical propulsion.

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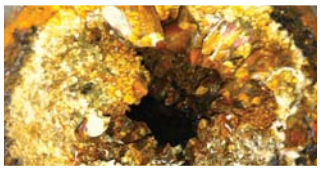


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Companies in 74-vessel joint contract

Norway-headquartered Siem Offshore and UK-headquartered Subsea 7 have signed a joint three-year service agreement with Rolls-Royce covering a total of 74 offshore vessels. It is the first agreement the two Siem-owned companies have signed with the same service provider.

Under the agreement, Rolls-Royce will maintain and service all of the equipment it has delivered to the two companies' offshore vessels.

Steinar Sandberg, Siem Group head of group procurement, said: "Naturally, we believe we can save money by jointly entering into this kind of service agreement. We have a modern and technically advanced fleet that requires good follow-up throughout the vessels' working lives."

Knut Hovland, Rolls-Royce director marine services, said: "We have delivered equipment to around a quarter of the world's registered fleet.

"As a result, we also have service assignments and long-term agreements with a large number of ship owners globally. We also have a network of service stations at 34 locations worldwide, so we can be close by whenever equipment needs servicing or repair."

At present, aftermarket services account for roughly 40 per cent of Rolls-Royce Marine's revenues. Long-term agreements make up around a quarter of this.

The company is now exploring digital opportunities to provide ship owners with a growing range of new and more effective service solutions. These include new types of services based on surveillance of ships' operations and equipment from control centres located on shore. Hovland said: "We are particularly pleased to sign new service agreements in these current times.

"We have obviously been affected by the fact that many vessels in the offshore market are still laid up, and it will be interesting to see what impact this will have on the service market going forward."

▲ *Subsea 7's OSV* **Seven Borealis** *will be covered by the service deal with Rolls-Royce*

In brief

The DOF Group has been awarded two contracts for the provision of the multi-purpose support vessel ***Skandi Skansen*** and the platform supply vessel ***Skandi Caledonia*** in the Mediterranean. The 90-day and 300-day contracts, both with options, are due to start later this year.

Navis Engineering is to supply a DP2 system for the fourth Kotug infield support vessel operated by KT Maritime Australia, designed by Robert Allan Ltd of Canada and currently under construction at Damen Shipyard Sharjah, UAE.

Damen Schelde Naval Shipbuilding has awarded Radio Holland a contract to supply the IT systems on board a state-of-the-art Antarctic supply research vessel being built for the Australian Antarctic Division.

Tug operator signs software deal

◄ *A Westar Marine Services tug off San Francisco*

Washington state-based US marine software company MobileOps has signed a deal with West Coast-based tug and barge operator Westar Marine Services of San Francisco, to use its platform across its entire fleet of tug and crew boats to further bolster the operator's safety, quality, and maintenance initiatives.

Westar vice president, Dave Morrow, said: "The ease and flexibility of MobileOps has provided us with the ability to integrate several programs into one platform. The outstanding support we receive from the MobileOps team will help to give us the ability to customise the program to meet the maritime industry's regulatory requirements."

The platform is a cloud-based subscription solution that includes both a web application and an offline-capable iPad application called Voyager. The Voyager app allows data to be input, stored, and then synced with the MobileOps platform once within cellular range, allowing for seamless and efficient communications with personnel based on shore.

Operator awarded long-term contract at new LNG terminal

▲ *A file picture of a RAstar 3200 similar to the three being built for Svitzer in China*

Svitzer has been awarded a 15-year contract to provide marine support services at Bangladesh's first LNG import terminal by Excelerate Energy Bangladesh (Excelerate). The project will be located off Moheshkhali Island in the Bay of Bengal.

The terminal will enable Petrobangla, the state-owned energy company, to increase natural gas supply in the country by up to 20 per cent, sufficient to support up to 3,000 MW of power generation capacity. The construction of the terminal will commence in the fourth quarter of this year and is anticipated to be in service by mid-2018.

Svitzer will serve the facility with a suite of five vessels – three Robert Allan Ltd RAstar 3200 ocean-going terminal tugs under construction at the Cheoy Lee Shipyard in China, one 36m crew boat under construction at the Penguin Shipyard in Singapore and the MSV ***Svitzer Foxtrot*** from the existing fleet. Svitzer will establish a Bangladesh branch office to oversee the operation.

Alan Bradley, managing director of Svitzer Asia, said: "It is a vote of confidence that Excelerate chose Svitzer to support its operations in Bangladesh, recognising that we have a great deal of experience operating tugs and other support vessels.

"We are looking forward to a long-term partnership with Excelerate providing safe and reliable marine support services in Bangladesh and our appointment to perform this work is in line with Svitzer's global expansion into the oil & gas terminal towage sector.

"The 15-year contract with a five-year option signals a confidence in Svitzer's ability to deliver on a greenfield project and to meet the challenges of service provision that satisfy the demanding project timeline."

Svitzer won the much sought after Excelerate tender based on proven operational experience and a cost-effective solution that draws on the combined strengths of the wider Maersk Group.

Headquartered in Texas, US, Excelerate is a pioneer and market leader in innovative floating LNG solutions. It has a presence in Abu Dhabi, Buenos Aires, Dubai, Rio de Janeiro and Singapore.

Charter tug to work in severe ice

Baltic Sea Towing Agency (BSTA), based at the Port of Ust-Luga in Russia's Leningrad region, has entered a time charter agreement with Port Fleet for the Damen ASD Tug 2509-series tugboat *Moschny*.

Konstantin Protsko, BSTA deputy CEO fleet operations, said: "The state-of-the-art tug with enhanced manoeuvrability will operate at the Ust-Luga, providing towing and mooring services, including operations in severe ice conditions."

Built at Damen Shipyards Gdynia in Poland, the 3,550hp ***Moschny*** has an LOA of 26m and BOA of 9m.

BSTA has a fleet of seven tugboats operating in major Russian ports in the Gulf of Finland waters.

The company's fleet is comprised of modern Ice Class 5,200hp ASD tractor tugs with fi-fi capabilities, used to escort large-tonnage dry bulk carriers and oil tankers, along with small tugs and other vessels to support hydro-engineering, underwater engineering, dredging, hydrographic and operations.

Three specialist wind farm support vessels win charter deals

***Seacat Ranger*, a highly versatile catamaran owned and operated by offshore energy service vessel (OESV) operator, Seacat Services, has been chartered by Galloper Wind Farm Ltd.**

Under the terms of a three-year contract with Galloper, ***Seacat Ranger*** was deployed at the offshore wind farm from August. In September, the vessel was due to be joined by sister vessels, ***Seacat Liberty*** and ***Seacat Vigilant***. This followed a separate two-year agreement with turbine supplier Siemens Gamesa Renewable Energy.

Galloper is currently under construction off the UK's Suffolk coast, with Innogy SE leading the construction and operation of the 336MW wind farm on behalf of the project partners. Siemens Gamesa is supplying and maintaining the turbines.

All three specialist OESVs have been built in the UK by South Boats IoW and their shared specifications will ensure familiarity for the technicians working on site.

Yard gains 10-vessel order from oil firm

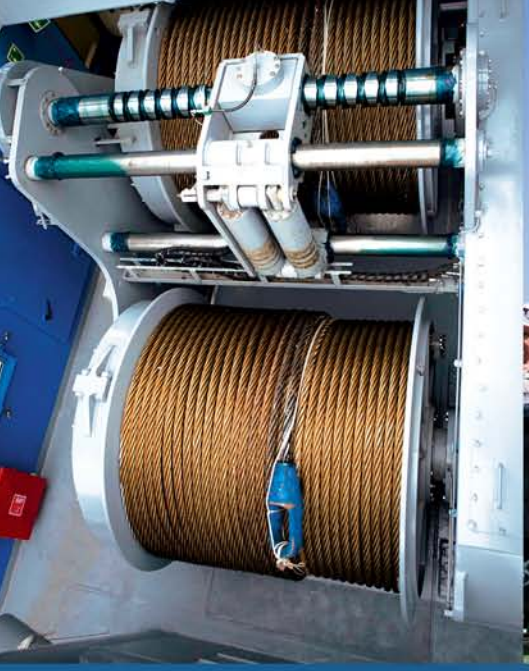
Dubai, UAE-headquartered Grandweld Shipyards has secured a contract to design, construct and deliver four crew boats and six pilot boats for Kuwait Oil Company. The contract was signed earlier this year by Ismail Abdulla, deputy CEO of Kuwait Oil Company, and Jamal Abki, the shipyard's general manager.

The 25m-long aluminium fast crew boats, with a deck area of 40m^2, will have two propellers driven by high-speed marine diesel engines to produce a speed of 25 knots. Each vessel will have the capacity to carry 33 people, including passengers, pilots and crew. The 23m-long steel pilot boats, which will each accommodate three crew and 15 passengers, will be powered by two high-speed marine diesel engines, each driving fixed pitch propellers to reach a speed of 22 knots.

Four tugboats ordered

US-based Suderman & Young Towing Company of Houston, Texas, has signed a contract with Gulf Island Fabrication of Houston, though its subsidiary Gulf Island Shipyards, for the construction of four Z-Tech 30-80 class terminal/escort tugs.

Kirk J Meche, president and CEO of Gulf Island Fabrication, said: "We are excited to have the opportunity to build these vessels and are pleased with the confidence Suderman has placed with our company. These vessels will be built at our Jennings, Louisiana, location."



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From 2018, Ecuador will have updated ships to strengthen control and security of its waters

Astilleros Navales Ecuatorianos (ASTINAVE EP) has long been involved in the construction, repair and maintenance of vessels to support the defence, security and the maritime industry. The company, which uses 100 per cent national work force, leads the Ecuadorian shipping industry, standing out for its innovation, operational capacity and technology.

ASTINAVE EP contributes to the operational role of the Ecuadorian Navy, including enhancing the operational capabilities of the corvettes Los Ríos, Manabí and Loja, three highly equipped naval units, destined to provide security for about 20 years in Ecuadorian waters.

Having served the Ecuadorian Navy for more than 30 years, the corvettes are now in operational and logistical obsolescence, especially their electronic components. This has resulted in the development of projects Triton and CMS Orion to provide radio communication and surveillance solutions.

Development vanguard technology projects

With the Triton project, the issue of communications is being addressed by utilising a set of radio communication equipment to enable secure communication networks with other naval units, air units and ground stations, with a cryptographic system to transmit and receive confidential and restricted-access information. For this, ASTINAVE EP has designed, developed and implemented its own encryption algorithms, with equipment acquired abroad. In addition, it includes redundant internal communications network systems, for operations, manoeuvres and administrative functions, with normal or emergency power.

The CMS Orion project has developed maritime surveillance systems that include a state-of-the-art set of sensors and directors, with solid-state radars and electro-optic systems provided by international strategic partners. These sensors are integrated by a management system developed entirely by ASTINAVE EP, which allows mission planning, tactical panorama compilation, presentation of nautical charts and different format maps, cinematic support, acquisition and presentation of air and surface targets detected by directors.

It also includes delivery of required information to the weapon systems for firing to the assigned targets. It can record different scenarios for future evaluations. In other words, it supports the Corvette Commander to follow the OODA (observe, orient, decide and act) loop which employs the world's most prevalent military doctrines.

The modernisation of these systems, as well as the corvettes' integral recovery, will allow the Ecuadorian Navy to increase its permanence at sea to carry out control operations, providing safety for seafarers, protecting and safeguarding the natural resources of the marine environment and neutralising illegal activities, without omitting its fundamental mission: the defence of sovereignty and territorial integrity.


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Bulgarian ports benefit from first in series

In early June, the Varna, Bulgaria-based MTG-Dolphin Shipyard delivered to Navigation Maritime Bulgare (Navibulgar) JSC the tug *Alcor*, the first of three vessels in a series built to the Robert Allan Ltd RAmparts 2700 design.

This tug adds to the fleet of the company's four tugboats and is the first tug built by Navibulgar, a Bulgarian ship owner with more than 30 bulk carriers. The vessel is named after the star Alcor from the Ursa Major constellation. Just as the star Alcor complements the bigger star Mizar in this double star formation, the tug ***Alcor*** will be accompanying large vessels in the ports of Varna and Burgas.

Alcor is a multi-purpose RAmparts 2700 tug working off a forward towing winch for ship handling and is equipped for coastal towing with towing gear aft, including a tow hook and fittings for an optional winch.

The new vessel, which was designed and constructed to satisfy all applicable rules and regulations of Bureau Veritas and Bulgarian Flag State, measures 27.6m overall with a beam of 10m and a maximum draft of 3.95m. Main propulsion for each tug comprises a pair of Caterpillar 3512C diesel engines, each developing 1,350kW at 1,600 rev/min, and driving Veth VZ-1250A azimuthing units, having 2,000mm diameter fixed pitch propellers.

Maximum trials results were recorded as 41 tonnes bollard pull (ahead) and 40 tonnes (astern), while the free-running speed attained is fractionally in excess of 13 knots.

The electrical plant consists of two identical Caterpillar C7.1 diesel gen-sets, each with a power output of 118ekW, 50Hz.

Outfitted to the highest standards for a normal operating crew of six, the vessel has four fully en-suite cabins. The master's and chief engineer's cabins are located on the main deck, with two additional double crew cabins located on the lower accommodation deck. A galley and mess room are also located on the main deck and there is a laundry down below.

The deck machinery comprises a DMT Marine Equipment ATW-210 ship assist hawser winch on the bow, spooled with 150m of 40mm Dyneema line. The vessel is also fitted for an optional DMT Marine Equipment TW-010 towing winch aft with a capacity of 600m of 40mm steel wire. A DMT Marine Equipment DTH 45-90 tow hook is additionally fitted aft, on a towing staple. An AMCO VEBA V812FM knuckleboom deck crane is also located on the aft deck.

A raised forecastle and elevated wheelhouse ensure good all-round visibility of the working decks.

The reduced beam provides for a higher free running speed when transiting between ship assist tasks. The tug has tank capacities to carry 57.8m^3 of fuel oil and 11.9m^3 of potable water.

Andy Smith

Baby sister makes a perfect tool for sales and training

When Ton Kooren came up with the Rotor®tug concept, the writer was among many who queried the ability of a single helmsman to be able to adequately control three azimuthing thrusters. An albeit short spell at the helm of the first Rotortug in Rotterdam harbour was convincing evidence that it was easier than could be imagined.

One major advantage of ***RT Borkum***, a baby sister of the full size Rotortugs, is that as a training vessel-cum-demonstrator, it will help convince even more in the tug world of the many benefits of the triangular propulsion system. Some 60 tugs of this principle are now in operation, probably best described as a true tractor with an extra Z-drive in place of the usual aft skeg.

All of the modern Rotortugs have been designed by Robert Allan Ltd and this liaison has brought about ***RT Borkum***. At the *ITS 2010* convention in Vancouver, one of the 'hits' of the event was the ***Bratt*** – which stood for the Burchett, Robert Allan traning tug. The new tug – a similar attraction at the *Tugnology '17* event in Rotterdam – is a comparable vessel but with three engines and thrusters.


Image: Ruud Aantjes, Maritime Holland

The new boat, which measures 14m x 8m

and has a maximum navigational draft of 3.3m, has been built by the Padmos Shipyard in Stellendam, the Netherlands – the same yard that built ***RT Magic***, the first full size Rotortug – and has delivered it to Kooren, part of the Kotug group of companies.

Power aboard ***RT Borkum*** is provided by three Scania D19 070M diesels, each developing an output of 221kW. On trials, this configuration gave the vessel an average bollard pull of 10 tonnes and a free-running speed of 8 knots. Two of the engines drive Veth Z-drives mounted forward whilst the third engine powers an identical single Veth thruster mounted aft. A Sisu generator set is also fitted.

The high quality of fit-out aboard ***RT Borkum*** is outstanding and more reminiscent of a luxury yacht. Teak, leather and stainless steel fittings abound and the vessel is well equipped with audio visual presentation systems and satellite TV. The two island control consoles, fitted with communication and navigational equipment by Alphatron, are leather covered. No sleeping accommodation is provided – the lower deck is a superior lounge with comfortable seating and adjacent pantry.

Although the vessel is a scaled-down version for training purposes, ***RT Borkum*** contains a patented innovation which surely will eventually be scaled-up. The towing point on the aft deck is described as an azimuthing friction-free towing point (AFTP) which comprises a Padmos in-house developed winch with a towing point which moves around a curved track. Although this can be locked in one of three positions, it can also be left to move freely from side to side. The system has been patented by Rotortug BV.This highly attractive and practical vessel has tank capacities for 1.2m^3 of fresh water and 8m^3 of fuel oil. **AS**

European design makes its mark in the US

The first of 10 Stan Tug 1907 ICE vessels has been delivered by Great Lakes Shipyard to its sister company The Great Lakes Towing Company, both based in Ohio, US. Named *Cleveland*, the new vessel is a significant milestone in a licensing programme agreed between the Damen Shipyards Group of the Netherlands and Great Lakes Shipyard, following discussions that began in 2014.

While the initial agreement is for the series build of 10 tugs for Great Lakes Towing, the vessels will also be available to third party buyers on a priority basis. The present schedule proposes that two vessels will be built per year over the next five years.

The Stan Tug 1907 ICE is a compact design capable of 30 tonnes of bollard pull. Its relatively small size and high manoeuvrability make it ideal for the narrow waterways with their many low bridges that characterise the Great Lakes region. The ability to operate safely in icy waters is also essential, given the very cold temperatures that occur there in the winter.

Built in accordance with ABS Sub-Chapter M, the new series all measure 19.34m LOA with a moulded beam of 7.3m and a maximum loaded draft of 3.05m. The boats are powered by a twin arrangement of Tier III MTU 8V4000 diesel engines, each delivering 1,000hp at 1,600 rev/min through Twin Disc MGX-5321, reduction gears with 5.46:1 ratio and 'Quick Shift' controls.

The propellers are fixed pitch of 1,800mm diameter and are Kaplan type running in fixed nozzles. Other engine room equipment includes a pair of 65kW John Deere/Marathon generator sets.

Below main deck, the accommodation comprises two twin berth cabins forward of a full width open plan galley and mess separated from the engine room noise by a toilet and bathroom arrangement. The wheelhouse incorporates a wide console against the forward bulkhead with central helmsman chair and additional chart desk with seating to port. Aft is more seating in L-shaped bench format.

Cleveland has got off to a good start. On its first morning in service it provided two ship assists.

"The first was for Fednav International Limited, Montreal, and the second was for Rand Corporation, based in New Jersey," reported Joe Starck, president of Great Lakes Shipyard and the Towing Company.

"Both tows went without a hitch and the feedback then and since has been very positive. One of the pilots on the first day even commented that the new tug made manoeuvring much easier. The boat has

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performed even better than we expected, without the need for the typical tweaks that are normally required after completion of a new tug."

As was predictable, the build of the new tug was something of a learning experience, not least because various European working practices had to be translated into their American equivalents, and numerous adaptations had to be made to meet US regulations. However, with these achieved for ***Cleveland*** and the production process now fully optimised, the follow-on hulls will be completed more quickly and efficiently.

"Damen was always there when we needed them," continued Starck. "It has truly been a pleasure to work with them, and we have really enjoyed getting to know the entire Damen team. They're a first class organisation."

The Great Lakes Group traces its roots back to 1899, and from its headquarters in Cleveland, Ohio, operates its shipyard as well as over 40 tugs based in 11 ports. Damen tugs operate in considerable numbers in virtually every country where such vessels are needed, with the major exception of the US as a result of the Jones Act. The tie-up between Damen and Great Lakes could prove highly significant. **AS**

Latest arrivals christened in honour of medical pioneers

Diversified Marine in Portland, Oregon, US, has delivered to Harley Marine Services the first of two new ASD tugs scheduled for delivery this year. *Dr Hank Kaplan* was delivered in June, with *Richard J Padden* due to be completed before winter starts.

The two new boats, designated for operation in the Puget Sound area, are sisters to ***Michelle Sloan*** and ***Lela Franco*** (see *IT&O* Sept/Oct 2015). Their design is the enhanced RAmparts 2500 class from Robert Allan Limited naval architects of Vancouver, Canada. The naming of these newest tugs follows a Harley tradition of celebrating people who have contributed significantly to medical research in the Pacific Northwest.

Harley Franco, chairman and CEO of Harley Marine Services told *IT&O*: "My wife and I have had the experience of witnessing Dr Hank Kaplan's goodness at work. We have friends, family, and co-workers who are under his care. Needless to say his dedication, innovation, and constant search for a path for wellness for all of his patients has made a deep and lasting impression upon us.

"Dr Kaplan may have a finite amount of patients but he makes sure he is available to them 24/7. At Harley Marine, we try to live by the same code. We dedicate ourselves to making sure that our customers are taken care of. We emulate the kind of dedication Dr Kaplan shows his patients and his practice, and he is saving and extending lives."

On the new vessel, he continued: "The ***Dr Hank Kaplan*** is the continuation of the RAmparts series of tugs we have developed with Robert Allan Ltd, but it is the first of three with the new Cat drive units – the second being the ***Richard J Padden*** and the third being the ***Vern Patterson***. We have partnered with Caterpillar to field test these products by providing data daily on the use, wear and tear of their products so that we can improve the technology and meet the needs of the bigger ships being built for the future. Our goal is to be the industry leader in green technology, manoeuvrability, power and performance."

Measuring 24.38m x 10.97m with a draft of 5.31m, the design is being constructed to satisfy all applicable rules and regulations of USCG and meet or exceed the minimum scantling requirements of any classification society.

Main propulsion for each tug comprises a pair of Caterpillar 3516C diesel engines, each rated 2,575bhp at 1600 rev/min. While the two previous tugs used Rolls-Royce Z-drive units, the two latest vessels employ Caterpillar azimuthing thrusters, the first in the US to do so, to give a bollard pull of 62 tonnes along with a maximum free-running speed of 12.5 knots. Electrical needs are supplied by two identical Caterpillar C7.1 diesel generator sets, each with a power output of 125ekW, 60Hz.

The ability of Caterpillar to provide a complete propulsion package is the result of Caterpillar's acquisition of Berg Propulsion – best known for big ship CP propellers. They also produced an ASD with a fixed pitch propeller made in Sweden or Singapore.

The increased beam of the enhanced design results in a more generous accommodation layout with a spacious galley and day-room

area on the main deck and comfortable seating area with flat-screen TV. There are also two well-appointed cabins on the main deck with en suite facilities. By maintaining established standards, the latest vessel has been outfitted for a normal operating crew of two, but with accommodation provided for up to six persons. There are two additional double crew cabins located on the lower accommodation deck.

Deck machinery comprises a Markey DEPC-48 render-recover type ship assist hawser winch on the bow, spooled with 152m of 228mm line, and a Markey DEPC-32 towing winch aft with a capacity of 126m of 165mm line. In addition, a capstan is installed on the fore deck to facilitate line handling-operations. The raised forecastle and elevated wheelhouse ensure good all-round visibility of the working decks and when handling large barges with high freeboard. This higher freeboard feature also provides a high standard of sea-keeping when working in exposed waters, but is also configured so as not to impede the ability of the tug to work closely under the flare of the newer generation of large ships.

Ship-handling fenders at the bow consist of one tier of cylindrical fender at the main deck level, with loop type Schuyler fenders between the main deck and the knuckle, laminated bow fenders below, and hollow D style fenders along the stem and skeg. Tyres and hollow D fenders offer protection at the main and forecastle sides and sheer lines, and loop type fendering is used at the stern. **AS**

Russia's new icebreaker follows in wake of polar explorer

On 15 June 2017, the delivery and naming ceremony took place for a new multifunctional ice-breaking standby vessel (IBSBV) built to order for the SCF Group. Arctech Helsinki Shipyard constructed the 104.2m x 21m ship and it was commissioned under a long-term agreement between SCF (Sovcomflot) and Sakhalin Energy for the Sakhalin-2 project. *Stepan Makarov*, as the vessel has been named, will have St Petersburg as its home port and is registered under the Russian flag.

It arrived on station in August and will be used for the year-round delivery of supplies and consumables to Sakhalin Energy's three offshore platforms in the Sea of Okhotsk, and for performing standby duty near the platforms. In an emergency, the vessel will also be used for integrated environmental protection and rescue operations.

Stepan Makarov is the second of four vessels built by Arctech for operations at the Sakhalin-2 project. The lead ship of the series, ***Gennadiy Nevelskoy***, has already been delivered and arrived at Sakhalin Island in April this year. The agreement between Arctech and SCF Group involves two further vessels to be delivered in 2017. All four vessels are contracted to operate in support of the Sakhalin-2 project for 20 years.

The vessel is named after Stepan Makarov, a Russian admiral and a polar explorer who played a prominent role in establishing the Russian icebreaker fleet. He introduced the idea of employing icebreakers for Arctic Ocean exploration, and was directly involved in the design and construction of ***Yermak***, the world's first Arctic icebreaker (1898).

Diesel electric powered, the new ship is equipped with a quartet of Wärtsilä 9L32 diesels, each developing 5,220kW. These drive a pair of ABB Azipods, each of 6,500kW. Additional manoeuvring capability is provided by two Brunvoll bow thrusters. The builder advises that the vessel has a speed of 16.8 knots.

Maximum draft is 7.9m and maximum deadweight is 3,880 tonnes, with gross tonnage given as 8,365 tonnes.

Stepan Makarov has accommodation for 26 crew and 72 passengers, with additional space for 150 evacuees. It is equipped by an Ampelmann walk-to-work (W2W) bridge for safe year-round transfer of personnel to the drilling platforms. It also has tanks for 750m^3 of polar oil, 300m^3 of cargo fresh water and can carry some 800m^2 of deck cargo, handled by two offshore cranes. Its oil recovery equipment includes two skimmers and 600m of boom and has tank capacity for 1,300m^3 of recovered oil.

The vessel has been constructed to Russian Maritime Register of Shipping (RS) standards including Icebreaker6, Aut-1, OMBO, FF3WS, DynPos-2, Anti-Ice, Eco, Winterisation (-35), Supply Vessel, Oil Recovery Ship, Passenger Ship.

Esko Mustamäki, CEO of Arctech Helsinki Shipyard said: "Today, Russia is the largest operator of icebreakers in the world, with an astounding fleet of icebreakers. Co-operation with the best icebreaker builder allows the strengthening of the existing operations at the Sakhalin-2 project. Delivery of this vessel will tighten our existing excellent co-operation with Sovcomflot."

Vladimir Emelianov, vice president and chief strategy officer of SCF Group, said: "SCF Group continues to implement its current strategy and steadily expands the involvement of its fleet in long-term energy projects, Sakhalin-2 taking a prominent place among them. Servicing offshore oil & gas fields, especially in regions with harsh environments, is one of the priority segments for SCF Group."

Arctech Helsinki Shipyard, which is owned by Russian United Shipbuilding Corporation, specialises in Arctic shipbuilding technology, building icebreakers and special offshore vessels. The Helsinki Shipyard is a pioneer in its industry, with more than 150 years of experience in shipbuilding, and employs approximately 600 shipbuilders.

The Sakhalin-2 project is an oil & gas development around Sakhalin Island in the Sea of Okhotsk off mainland Russia's eastern coastline. The two fields contain an estimated 1,200m bbl of crude oil and 500bn m^3 of natural gas.

AS

New York arrival is in a class of its own

McAllister Towing is proud to announce the arrival in New York of the tug *Capt Brian A McAllister*, the first in a series of newbuilds which, it is claimed, will enhance ship docking on the east coast of the US for years to come. Named after the company's chairman, it is the 31st and most powerful omni-directional tug in McAllister's fleet.

This vessel is the first EPA Tier 4 tug on the US East Coast being powered by twin 3516E Tier 4 Caterpillar engines, each developing 3,386bhp at 1,800 rev/min with twin Schottel SRP4000FP Rudderpropeller units mounted aft in ASD configuration. This arrangement gives the 100ft (30.5m) x 40ft (12.2m) hull more than 80 tonnes of bollard pull. According to the owners, the combination of this level of power with a Markey class III escort winch on the bow and a 2¼in (57mm) wire winch on the stern puts this latest vessel in a class of her own.

State-of-the-art remote controlled fire monitors from FFS and deluge systems (ABS FiFi1 certified) complete the package, making the tug a total escort/shipdocking/rescue tug unique to any US East Coast port, let alone New York.

Capt Jackie Benton, who delivered the tug from builders Horizon Shipbuilding in Alabama, said: "This is one of the best riding Z-boats I've ever handled. She runs smooth as silk and is a fantastic boat."

On arrival, the tug was quickly put to work on the recent ULCVs and SULCVs calling at the port. On one of her first jobs, mate Matt Jernegan was at the helm and said "Her rate of turn was amazing. The power this tug has, and her capabilities, allow us to be more efficient and safely handle these monstrous container ships."

This is a Jensen Maritime design to McAllister specifications and standards and follows the proven Jensen 100ft x 40ft platform, which has exceeded performance expectations in escorting and ship docking service. The dimensions have been chosen to allow the vessel to actively escort to the terminal in safety. The length allows for improved sea-keeping abilities yet still allow for excellent manoeuvrability in confined spaces.

The 40ft beam allows the tugs to utilise their full 6,772hp while escorting vessels at higher ship transit speed and generate steering forces to match in an indirect assist at 8 knots.

The tugs are equipped with bow winches which are matched to their exceptional escorting capabilities and exceed the standards of most tugs. The 100hp AC-variable frequency drive Class III asymmetric render-recover electric hawser winch has a rated line pull of up to 158 tonnes and adjustable brake holding power up to 253 tonnes. The winch has a spooling capacity of 244m of 254mm HMPE line. The winch system has constant tension and automatic inhaul/payout feature that permits full hands-free control allowing the operator to focus fully on tug manoeuvres while the line is handled by the winch.

At the bow the radius has been increased to allow the Shibata cylindrical/soft loop fendering system to have greater contact area on the ship's hull. Two courses of 305mm extruded D-fender are installed at the shear on each side and across the stern. A laminated fender is fitted at the stern to prevent steel to steel contact with bulbous bows of vessels being assisted.

All the auxiliary engines, including those powering the two dedicated fire pump movers, are also by Caterpillar but Tier 3, the highest level currently available for this size engine. Caterpillar engines were chosen for all the engines on the tugs due to their reliability, efficiency, availability of parts and service in any port in which the owner operates. The main engines also offer exceptional response to the throttle commands to ensure effective manoeuvring ability of the tug.

The engines are coupled to the newest design of Schottel Rudderpropellers. The SRP 4000 units are equipped with a Leacon system to ensure that the unit oil seals remain leak free by capturing, through a vacuum system, any leakage from either the oil seals or water seals. The system will alarm if there is any leakage alerting the operator to a potential issue and will continue to maintain a leak free seal allowing the vessel to be removed from service for repair without any fluid leakage into the water.

The shaft line incorporates a vertical offset gearbox to allow for a straight line shaft eliminating the need for Cardan shafts, which produce vibration. The gearbox also reduces the input speed into the drive – again reducing vibration and increasing drive unit reliability. The SRP 4000 drive unit has been designed with a hydrodynamic optimised lower gearbox housing to reduce cavitation and improve running efficiency. All engines, exhaust system and reciprocating equipment have been designed with vibration mounts to reduce the noise transmitted to the hull.

On main deck there is a large lounge/mess with adjacent galley, a single officer cabin and a twin crew cabin, while below there are two more twin cabins. Both decks have generous head compartments. **AS**

Maximum versatility in a compact package

A crew transfer vessel, which is also capable of undertaking towing duties, is a recent arrival for Scottish tug operator and owner, Targe Towing. *Skua* has begun work alongside oil terminal platforms on the east coast of Scotland, where swell conditions have been up to 2m in wave height.

Designed by small craft specialist Camarc in Scotland and built by Welsh workboat builder Mainstay Marine, ***Skua*** incorporates a steel hull and aluminium structure. The 15m by 4.8m vessel can carry 12 passengers – in addition to two crew members – but is also fitted with a towing winch capable of 6.4 tonnes of bollard pull.

Tom Woolley, managing director of Targe Towing, explained the dual role: "We wanted a more versatile vessel than just a passenger craft and ***Skua*** is designed to carry out line handling, light equipment carriage and emergency response including towage of oil booms at BP's Hound Point Marine Terminal on the Firth of Forth."

Targe Towing provides dedicated towage at the terminal as well as in other ports along Scotland's north-east coast – Peterhead, Aberdeen, Montrose and Dundee.

The new vessel is powered by two Volvo Penta D13-450 6-cylinder in-line, 4-stroke engines, each with an output of 331kW (450hp) at 1,800 rev/min. These drive ZF Marine ZF500 hydraulic, single-speed reverse reduction gearboxes. This combination gives ***Skua*** a top speed in excess of 15 knots – with 16.8 knots reported in test conditions – and a range of 15 hours even at 100 per cent maximum continuous rating.

The generator is a Kohler 7EFKOZD with an output of 7kW at 1,500 rev/min. However, AC power is seamlessly managed through a Quattro inverter with the main engines and large battery banks able to handle nearly all of the onboard AC loads resulting in no need to connect to shore power and very few generator hours being accumulated.

Excellent all-round visibility was a key aspect of ***Skua***'s design, with the vessel featuring full-height glass in the rear door, windows for a view of the side bollards and low passenger seating so as not to restrict the 360-degree views. The wheelhouse console is a simple, ergonomic layout incorporating chart plotter, AIS, radar, VHF DSC and CCTV. Deck equipment consists solely of the towing H-bitt, although there is space to fit a crane or quick-release hook if required. Similarly, the space below is extremely basic, but has scope to do more.

Woolley added: "After being awarded an extension to our contract with BP, we went to the market for a new crew vessel…We looked at facilities in Turkey and Holland, but Mainstay's base in Pembroke Dock was outstanding. Mainstay was also able to demonstrate the quality of its work and its rigorous attitude to health and safety."

For Mainstay Marine, managing director Stewart Graves said: "We were delighted to win the contract for Targe Towing. There was a short build timescale on the project and, while we already had a substantial order book, we are proud to say we were able to deliver to time and to budget while at the same time maintaining our renowned quality workmanship. The project has given us even more confidence to be able to manage numerous newbuild and maintenance projects simultaneously."

The company now employs 80 people, with 10 per cent of the direct workforce consisting of apprentices. In the past 12 months, the firm's turnover has increased from just under £4m to more than £5m. Since ***Skua***'s arrival, Targe Towing has also taken delivery of a more conventional tugboat in the form of a Boğaçay class 24m ASD from Sanmar named ***Kittiwake***. The contract for the new vessel was signed at *Tugnology '17* and it arrived shortly afterwards – going straight into service as part of an 11-strong team of tugs manoeuvring the Royal Navy's new aircraft carrier, ***HMS Queen Elizabeth***, out of the Rosyth dockyard to begin sea trials (*IT&O*, July/August 2017, page 11).

John Oliver

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Deliveries in brief

The first of a new four-tug series to handle Svitzer's recently-established Brazilian port operations has been delivered from the in-country **INACE Shipyard**.

Svitzer Zoe is a RApport 2400 series model designed by Robert Allan Ltd with substantial input from INACE for the detailed design, including 3D models of the structure, tubing, hull and deck fittings.

The 23.8m by 11m vessel is powered by two Caterpillar 3516C engines, each developing 1,864kW (2,502hp) and driving a pair of Rolls-Royce US205 azimuth thrusters with ducted propellers that rotate 360 degrees horizontally. Bollard pull is given as 57 tonnes.

Particular attention was paid to ensuring low noise and vibration levels in accommodation and work areas, meaning it is very comfortable throughout for the five-strong crew.

Svitzer Zoe has ABS certification including ABCU classification (Automated Bridge Control System for Unattended Engine Room) as the vessel features a high degree of automation in the operation and remote monitoring of propulsion, power generation and other equipment.

Svitzer, part of Danish shipping group Maersk, entered the Brazilian harbour towage market in 2015 with the acquisition of operator Transmar Serviços Maritmos.

US shipyard, **Nichols Brothers Boat Builders**, has delivered the heaviest vessel in its history dating back more than 50 years. ***Abundance*** is the first of two 139ft (43m) by 44ft (13.5m) ATB ocean-class tugboats built to push ammonia barges in US waters.

Designed by Ocean Tug and Barge Engineering, ***Abundance*** can achieve 14 knots powered by two EMD 16-710T13 engines each rated at 4,000hp at 900 rev/min. These drive Rolls-Royce shafts and 3,400mm fixed-pitch propellers through two Lufkin RHS 3200 reduction gears. Electrical power comes from Caterpillar in the form of two C7.1 200kW Tier III auxiliary generators, one C9.3 200kW Tier III generator with mounted fire pump and one C7.1 138kW Tier III emergency generator system.

The tug was built at Nichols Brothers' yard in Freeland, Washington state, where sister vessel ***Vision*** is also currently under construction and due for delivery early next year. Both are connected to their barge units by an Articouple hydraulic connecting pin system and each will push a 501ft (154m) by 96ft (29.5m) barge.

Abundance and ***Vision*** are US-flagged and ABS-classed and meet all rules and requirements for unrestricted ocean pushing/towing service.

Italian tug operator Ocean has received its first Damen tug: ***Bat*** is a Stan 2608 now in operation in the ports of Monfalcone and Porto Nogaro on Italy's north-east Adriatic coast near Trieste.

The 26m long tug is powered by two Caterpillar 3512C engines. Its 45-tonne bollard pull has been supplemented with an aft winch to allow operations over the stern as well as over the bow with a view to strengthening Ocean's towage capacity in the compact confines of the port of Monfalcone. Other modifications to the standard design included installation of 600m^3 capacity fi-fi equipment, towing pins and adjustments required for Italian flag compliance.

The signing of ***Bat***'s delivery protocol, following the vessel's arrival from **Damen Song Cam Shipyard** in Vietnam, was attended by King Willem Alexander and Queen Máxima of the Netherlands as part of a recent state visit to Italy with a parallel Netherlands economic mission.

The Ocean Group operates more than 40 vessels and barges to provide tug, towage and offshore services in the Adriatic, Mediterranean and Caspian seas.

Another Italian operator, Rimorchiatori Riuniti, has continued to expand its fleet with the deliveries of two new Damen tugs – ASD 2913 ***Danimarca***, built at **Damen Shipyards Galati** in Romania, and ASD 2411 ***Columbia***, built at UAE-based joint venture **Albwardy Damen**.

Both new arrivals are operating from the port of Genoa alongside previously-delivered sister vessels. Like older sibling ***Germania***, ***Danimarca*** has been installed with FiFi1 capability and an aft winch in addition to oil recovery and escort capabilities. This extra equipment, combined with a bollard pull of 80 tonnes, means Rimorchiatori Riuniti can use the two ASD 2913s for offshore tasks as well as harbour duties.

Meanwhile, ***Columbia*** (*pictured above*) has joined sister vessel ***Malta*** in harbour towage duties. At 24m long and 11m wide, these tugs are compact enough to allow deployment in small port operations while still yielding a 70-tonne bollard pull capacity.

Isle of Wight boat builder **Aluminium Marine Consultants (AMC)** has handed over new wind farm support vessel ***MO4*** to Mainprize Offshore. The 24m catamaran will carry cargo, equipment and personnel from the port of Hooksiel on the German North Sea coast to the *Nordergründe* windfarm in an eight-year contract with Deutsche Windtechnik.

Powered by twin Caterpillar C32 main engines, delivering 3,000hp in total and driving fixed pitch propellers, the vessel has a service speed of 26 knots even when fully loaded.

With huge amounts of deck space fore and aft, ***MO4*** has provision for four 20ft containers and 30 tonnes of deck cargo, which can be transferred using the onboard Palfinger 4501M crane. A layout for 12 passengers can easily be reconfigured to accommodate 24, while crew numbers can be between two and six depending on how long the vessel is at sea. Furuno provided a full package of bridge equipment including radars and mini ECDIS.

Bob Mainprize from Mainprize Offshore said: "We chose Aluminium Marine Consultants because of their flexibility and the company's attention to detail and workmanship. This now means that ***MO4*** will start to pay back four months earlier than any other builder could offer."

Starnav Libra is the latest PSV to join the fleet of Brazilian operator, Starnav Servicos Maritmos, cementing the company's position as one of the country's top three OSV owners/operators.

The new arrival is the 16th of 18 Brazil-built vessels ordered to fulfil eight-year contracts for Petrobras's offshore oil & gas fields. The GPA 688SC series – designed by US naval architects Guido Perla Associates (GPA) from Seattle – will consist of five fluid carrier PSV 4500s and 13 general cargo PSV 4500s.

Starnav Libra, like its predecessors, was built by **Detroit Brasil Shipyard**, where the final two vessels are also under construction. The yard and Starnav Servicos Maritmos are subsidiaries of the Detroit SA Group from Chile.

All the PSVs are 90m long with a beam of 19m, a deadweight of more than 5,100 tonnes and accommodation for 30 crew. The diesel-electric propulsion system comprises four MTU 4000 generators of 2,800kW each, two Schottel SCD 2020 combi-drives of 2,500kW each, and two 900kW bow thrusters. Service speed is 13 knots.

The general cargo variant is fitted with two Rolls-Royce draglink cranes which can be moved over rails along the entire length of the cargo deck. All vessels in the series are classed by ABS, with A1, Offshore Support Vessel, AMS, DPS-2, ACCU, E-circle and UWILD classification.

Hot on the heels of the first dual fuel tug to be built in Europe, the second and third have now been delivered following successful completion of sea trials. ***Pax*** and ***Audax***, like slightly older sibling ***Dux***, are a Robert Allan Ltd design built at **Gondan Shipyard** in northern Spain and owned and operated by Norwegian company Østensjø Rederi.

The 40.2m by 16m RAstar 4000-DF escort tugs are providing tug services to Norwegian state-owned energy company Statoil. Operating from the country's far-north terminal at Melkøya, they have been built to withstand harsh environments. The vessels are shaped specifically to provide full operational availability even at -20 degrees C and combine environmental sustainability through the use of LNG in most of their operations – complying with IMO Tier III emissions standards – with the flexibility of diesel power to ensure a high level of operational security.

Pax and ***Audax*** have a free running speed of 15 knots and their direct and indirect towing capabilities include 107-tonne bollard pull and 167-tonne steering force, both class approved by Bureau Veritas.

Each of the three vessels in the series will carry out an estimated 300 LNG ship escorts annually as well as assisting with berthing operations and will be kept ready for emergency services such as long line towing, fire-fighting and oil-spill response.

General Dynamics NASSCO's San Diego shipyard has a new compact yard-tug whose role is to move newly launched vessels and other resources as well as deploying pollution containment booms. ***Blue Fin*** is a 38ft by 15ft (11.7m x 4.7m) steel-hulled tug designed specifically for shipyard work by Seattle-based Jensen Maritime and built by NASSCO's near-neighbour, **Marine Group Boat Works**.

The vessel, which can be operated by a single person, is powered by two Cummins QSL9M Tier 3 engines, each producing 410hp and turning 38in by 26in (965mm x 660mm) four-blade bronze propellers. The propulsion system gives ***Blue Fin*** a top speed of 11 knots and delivers up to 20 tons (18.1 tonnes) of bollard pull.

In addition to conventional rudders, the tug is fitted with flanking rudders for enhanced manoeuvrability and handling. Work in the often-tight confines of a shipyard requires excellent visibility, so the designers have given the pilothouse a 300-degree unobstructed line of sight. In addition, a flying bridge, complete with communication and control consoles, is an integral part of the wheelhouse.

The name was chosen following a naming competition among local elementary school students. Contest winner Edgar Cordoba took part in the launching and naming ceremony, along with Bonnie Fanelli, wife of assistant dock master and 43-year NASSCO employee Tom Fanelli.

John Oliver

By purchasing a brand new tug from Sanmar Shipyards, experienced UK operator, SMS Towage, has taken delivery of its seventh ASD tug, ***Superman***, built by the Turkish tug builder.

The new tug is of the Robert Allan Ltd RAmparts 2400 SX (Sanmar exclusive) design, designated by the builder as the Bogaçay series. This has proved a highly popular model, ***Superman*** being the 27th of this design, and based on the equally successful and similar Ulupinar series but with increased beam for enhanced stability and greater power for more bollard pull.

Measuring 24.4m x 11.25m, Boğaçay series tugs are available with a variety of Caterpillar engine and Rolls-Royce Z-drive options to give bollard pulls ahead of up to 75 tonnes. This latest delivery is equipped with a pair of 2,000hp main engines to give approximately 70 tonnes of bollard pull. In addition, ***Superman*** is fitted with external fire-fighting equipment to FiFi1 notation with a dedicated Caterpillar diesel powering the pumps.

Andy Smith

‘Odds stacked against new flag registries’

Panos Kirnidis, CEO of the Greece-headquartered Palau International Ship Registry, argues that the Paris MoU ranking system – which lists registries as white, grey or black – is anti-competitive and mathematically unfair to new, smaller flag organisations

► *Panos Kirnidis*

When a new ship registry is launched it needs to be able to grow. It will not at first be attracting the new and larger vessels, operators or owners. It takes time for a new registry to build trusted relationships with the shipowners and stakeholders in the industry and to demonstrate its values.

Consequently, the fleet may start as one made up of older, up to standard vessels and numbers will not match those of the established registries; however, there is a higher risk of older ships being detained.

The performance of a flag is based on the ratio of total number of inspections and detentions over a rolling three-year period, with at least 30 inspections taking place in that period. But during the process of growing a fleet, any new registry will be at a disadvantage when any detentions are recorded; a smaller fleet means a lower number of inspections which can result in a higher ratio of detentions.

The performance lists within the MoU place an unbearable burden on new registries trying to grow and prove their credentials. You can find yourself placed in the lower ranks for even a series of minor infringements and detentions are recorded as detentions no matter what the issue is. This is where the system really falls down. The numbers are stacked against a small registry.

It is the inevitability of being placed on a black list (the lowest ranking) that concerns me and why a change is needed. Palau has been placed on the black list because it currently does not have enough vessels in its fleet to escape the formulaic consequences.

One detention means we need 19 other inspections to be clean to avoid its negative effect, something that is hard to achieve when you have a small fleet.

To grow our vessel base we need to gain the confidence of ship owners and managers and this is made harder when you find yourself on the black list. It’s a vicious cycle. Even though our services and credentials can be ranked as among the finest in the industry, we find ourselves not on a level playing field.

New registries have to compromise on the age of vessels they accept. Owners want to see how a new registry performs, so attracting new vessels is almost impossible. Older vessels are not necessarily of a lower standard or quality, but they will be more rigorously inspected more often.

Palau would like the system to be re-evaluated and is calling for support from other registries to rewrite the mathematical algorithms and help attract new entrants into the sector. We are not asking for a dilution of the regulations affecting the critical issues that classification societies, flags, registries and any other relevant bodies are subject to. We are asking for the anti-competitive practices defining the performance lists to be reviewed.

Contracts allow swift response to pollution

Chartered shipbroker Donald Chard welcomes the introduction of standard agreements for cleaning up pollution caused by escaping oil and other hazardous substances

Arrangements for salvors to respond to a maritime casualty to save ship and cargo using the legendary Lloyd's Open Form (LOF) are well known. However, there is often less focus on the separate, but equally important, contractual provisions for cleaning up pollution caused by the escape of oil and hazardous substances. Arrangements vary but contractors' use of their own individual agreements can lead to protracted negotiations about terms and conditions and might in turn delay the start of work.

In order to close this gap in market needs, BIMCO took up a proposal from the International Spill Control Organisation (ISCO) to develop a standard contract for the deployment of spill response equipment and personnel for pollution clean-up operations.

Work was undertaken by a subcommittee chaired by Tony Paulson of the West of England P&I Club (who is also chairman of the International Group of P&I Clubs' vessel response plan subcommittee) together with representatives from ISCO, the International Salvage Union (ISU), the International Group of P&I Clubs and the Spill Control Association of America.

Two contracts have been produced. RESPONSECON International, for spill incidents other than in the US, is for use between the party liable for clearing up pollution and a contractor. The equivalent US RESPONSECON for incidents in the US reflects practical and legal differences in the jurisdiction. It is a 'contract of necessity' for use by and between contractors requiring additional capabilities or support; it is not an OPA 90 contingency plan agreement.

The contracts, which are framework agreements to be refined according to specific party needs, share many common features. Both have been developed to conform with the international group guidelines for vessel response plan (VRP) contracts.

ISCO's activities are not exclusively with shipowners; they also include pipeline operators, oil companies and governmental interests. In order to reflect the agreement's potential breadth of usage, the contractor's counterparty is defined as the 'requesting party'. The requesting party has ultimate control over clean-up operations, but the contractor can refuse to carry out any order that would be unlawful or put personnel in danger.

The contractor must provide the equipment and personnel required for the clean-up operation unless the option for equipment hire only is agreed. Time is important and, in order to avoid delay in getting started, the contract can be signed while negotiations continue on rates and services. This enables resources to be moved on site at an early stage. If, however, negotiations subsequently fail, the contract can be cancelled subject to any costs or obligations already incurred.

The requesting party pays the contractor's costs for preparing and organising equipment and personnel for despatch (mobilisation) and demobilisation on return to base when operations have been completed. Hire is payable throughout this period and, for equipment, continues until it has been cleaned and is ready for further use or the requesting party may provide an equivalent replacement.

"As the entity that has caused or is otherwise responsible for the spill incident and resulting pollution, it follows that the requesting party must accept the risks associated with the clean-up operation. This is the premise underpinning the liability regime"

The requesting party is also responsible for out-of-pocket and third-party expenses. This includes charges for licences, authorisations, permits and visas which must be obtained and maintained by the contractor but with the costs for the requesting party's account.

Invoices are issued at the frequency agreed between the parties. Other than in the case of agreed large sums, where an advance payment of up to 80 per cent may be required by the contractor and subject to arrangements for withholding a proportion of a disputed account, settlement must normally be made within 30 days of the invoice. Late payments will attract interest and failure to settle an outstanding amount may lead to termination of the contract.

Agreements do not always run to finality. Under certain conditions, the requesting party may terminate the contract on giving 24 hours' notice. This might arise where negotiations on rates fail or where there is a change in operational conditions. There is also a mutual right of cancellation for a range of events including bankruptcy, force majeure, party default and loss of equipment. However, the contractual right of termination may be limited by the demands of regulatory authorities anxious to contain an incident and reluctant to allow the discontinuation of clean-up operations without suitable alternative arrangements being put in place.

▶ *Donald Chard*

As the entity that has caused or is otherwise responsible for the spill incident and resulting pollution, it follows that the requesting party must accept the risks associated with the clean-up operation. This is the premise underpinning the liability regime. While the US RESPONSECON is structured to reflect the legislative approach in the US, both contracts provide that, other than in certain limited instances of negligence, the contractor is largely immune or exonerated from liability.

Bad news attracts public interest and it is important that an incident is fairly and accurately reported. The requesting party therefore has exclusive responsibility for all media and press communications. Any approach made to the contractor must be referred to the requesting party. In this day and age social media is often used, sometimes without proper thought, to impart views and opinions or send photographs and film footage which quickly enter the wider public domain. This might compromise the requesting party's interests. The contractor must therefore use reasonable efforts to prevent unauthorised comment. This might, for example, include a prohibition of mobile telephones on site or warning personnel to avoid apparently innocent discussions with interested strangers.

As with any contract, disagreements can arise and the BIMCO dispute resolution clause has been incorporated with modifications to suit the separate circumstances of the two forms. As RESPONSECON International applies to spills outside the US, provision is made for arbitration in London (which is the default forum), Singapore or as agreed by the parties, but the New York option has not been included. In contrast, since US RESPONSECON applies exclusively to incidents in US jurisdiction, New York is the only named forum for dispute resolution.

● *Donald Chard is a chartered shipbroker and fellow of the Chartered Institute of Arbitrators. After more than 38 years at the UK Chamber of Shipping, where he was head of legal and documentary, he is now a practising maritime arbitrator and consultant with BIMCO's contracts and clauses department.*

Crowds cheer successful refloating

Salvors re-floated the ultra-large container ship *CSCL Jupiter* after it ran aground on Scheldt river bank near Bath, Zeeland, in the Netherlands, while proceeding downstream en route from Antwerp, Belgium, to Hamburg, Germany.

The 366m-long, 51m-wide, 14,074 TEU, Hong Kong-registered vessel, which has a 13.7m draft, ran aground at a high speed of some 13 knots, after suffering steering failure. The notoriously difficult busy waterway was closed to traffic while the salvage operation took place, blocking 10 inward and outward-bound vessels.

A total of nine Multraship and Kotug Smit tugs attended the scene and managed to refloat the container ship on the high tide. The operation was watched by hundreds of people on the nearby riverbank who cheered as the vessel was refloated.

CSCL Jupiter, built in 2011 and owned by COSCO Shipping Lines, was assisted back into the Port of Antwerp, the second largest container port in northern Europe, where it was unloaded and inspected for damage.

▲ *The operation to refloat* **CSCL Jupiter** *grounded on the Scheldt river*

There were no reports of injuries to crew members or environmental damage.

The cause of the grounding is believed to be due to a rudder failure, and the vessel's emergency rudder equipment not being able to cope with continuing to steer the ship clear on the tight corner of the river channel connecting the port to the North Sea. A full investigation has been launched.

Chris Welsh of the UK Freight Transport Association said that while mega-ships such as ***CSCL Jupiter*** could provide huge economies of scale, they could also prove to be a far greater financial risk for companies using them if things go wrong.

Conference to look at industry challenges

Hundreds of salvors will gather in London later this year to hear more than 60 industry experts speak at the 2017 Salvage & Wreck conference. Here, organisers look at some of the major issues to be discussed

Caught between two opposing trends, the salvage industry finds itself in a difficult position. One trend is seeing the profit margins for salvors decreasing with the proliferation of non-LOF contracts; profits for 2016 were only half those of the previous year according to recent ISU data. The other is witnessing a steady increase in container vessel sizes up into the 20,000-TEU-plus range – the rise of the so called 'megaship' – meaning that when disaster strikes, the operational challenges presented by the salvage effort may be on an unprecedented scale.

Responding to the challenges of the future will require increased investment by salvors in equipment and personnel. Unfortunately, with falling profits the industry is currently ill equipped to do this.

Martin Hall, head of marine casualty for legal firm Clyde & Co, recently spoke out about the dearth of investment in the salvage industry, warning against "less salvage investment at a time when ships are getting bigger and more sophisticated".

Evidently salvors need to take advantage of new sources of revenue if they are to maintain operational readiness.

One promising option is to focus on wreck removal. According to an International Group of P&I Clubs' study, national authorities are demanding increasingly thorough and extensive wreck removal operations, which drives up costs for insurers, but also increases the potential pay-out for salvage contractors.

This has led to a rise in the total revenue for wreck removal among ISU members from US$32m in 2004, to an average of US$400m per year for the years 2013-2015. The ISU also predicts that the IMO's International Convention on Wreck Removal, which entered into force in April 2015, will likely lead to a long-term increase in the number of wreck removal contracts issued.

"Over the next five years, 140 oilfields are scheduled for decommissioning in the North Sea alone. But such operations are fraught with risks, both technical and financial"

Another growth opportunity for the salvage sector is in offshore decommissioning. Over the next five years, 140 oilfields are scheduled for decommissioning in the North Sea alone. But such operations are fraught with risks, both technical and financial. The high initial cost of the specialised equipment needed for decommissioning projects can spell disaster for a company if contracts are not forthcoming, as both Monitor Oil and MPU Offshore Lift have discovered to their disadvantage in recent years.

▲ *Decommissioning is a growth opportunity for salvage companies, but carries high risk*

Some may argue that the primary responsibility of salvors should always be to act as first responders to marine casualties as and when they occur. It is, after all, during the progress of an incident that the extent of the damage caused can best be minimised. But in order for them to survive insurers' imposition of thrifty commercial alternatives to LOF – and to maintain their emergency response capacity – diversification will be a necessity, rather than a choice, for salvors.

● *To hear more about LOF and commercial contracts, wreck removal best practice, new technology for salvage operations and opportunities for growth, join more than 200 industry professionals and 60 expert speakers at the Salvage & Wreck conference in London from 6-8 December.*

Pollution avoided

Multiple agencies under a unified command, including Resolve Marine Services salvors, responded to a potential pollution emergency from the fishing vessel *Akutan*, which lost electrical power in Captains Bay near Unalaska in Alaska.

They continuously monitor levels of anhydrous ammonia and removed various petroleum products including 19,000ltrs of oily water from the engine room bilge and 4,500ltrs of oily mixture from one of the slop tanks.

Ship splits in two

The general cargo ship *Leonardo* buckled amidships and broke up at an anchorage near the Black Sea entrance to the Bosporus. A tug, one of eight rescue vessels at the scene, grounded the stern section of the vessel on a rocky peninsula.

Mongolian-registered ***Leonardo***'s 11-man crew were evacuated. The vessel had earlier been detained by Russian authorities in Rostov for six days due to "hull damage impairing seaworthiness".

Warship collision

Two tugboats from Singapore joined the search and rescue mission following the collision between the US guided-missile destroyer *USS John S McCain* and the oil tanker *Alnic MC*, which left 10 sailors dead and five injured.

The warship had asked for tug assistance after the pre-dawn collision in the South China Sea which caused extensive damage to its port aft, but later sailed under its own power to Singapore's Changi Naval Base.

Communication vital to offset risk

► Simon Tatham

Regular columnist Simon Tatham argues that over-reliance on the ability of a tug and its crew to be able to prevent the vessel from capsizing is common to many incidents

I have not been on board a girting tug, nor want to be. I do know that when a yacht broaches in high winds or a dinghy gybes and capsizes it happens very quickly. Once the inversion process has begun it is invariably too late to stop it. Reviewing the latest UK Marine Accident and Investigation Branch (MAIB) reports on girting and capsizing incidents, one has to feel for the predicament of the crew.

Girting has been defined as when high athwartships towing forces cause a tug to be pulled sideways through the water by the towline. If the tug is unable to manoeuvre out of this position it is likely to capsize.

With the benefit of hindsight all accidents are preventable and there is much to be learnt from the following five MAIB reports on tug capsize incidents.

The first was ***Trijne*** in 1998, when the tug attempted a peel-off turn, from where it was running ahead of the assisted vessel's starboard quarter, to her port quarter. The towline came tight across the tug's beam heeling it over with water over the aft deck. The coxswain could not break out of the girting and the vessel capsized with the loss of a deckhand.

Then came ***Flying Phantom***, which capsized in fog with the loss of three of her four crew in 2007. The main recommendations, aside from operations in fog, were in relation to the use of quick release and the securing of openings to avoid downflooding.

In the case of ***Ijsselstroom*** in 2009, the tug was acting as stern tug to a barge. As the flotilla increased speed, the tugmaster was unable to control the tug's yawing motion, it took a large sheer to starboard and was girted. The tug was criticised for connecting without a gog rope and for failure to operate the towline's emergency release.

More recently, in March 2015, at Fawley Terminal in Southampton Water, ***Asterix***, a mooring launch with towing ability, capsized while assisting a departing tanker in windy conditions. ***Asterix*** was deployed to pull the tanker's stern away from the berth. However it did not then succeed in turning port to run with the tanker prior to letting go.

Had her adjustable gog rope been at the optimal length that might have assisted the tug to turn on its axis. The tanker gained way and the tug was pulled over. An attempt to operate the emergency towing hook release was unsuccessful. Miraculously, no-one on board was hurt.

Most recently MAIB has reported on the case of ***Dominique***, a 16m-long tug, involved in an incident where all five crew drowned (*see page 24*). In September 2015, at a port in Madagascar, the tug was connected to the port quarter of a UK-managed vessel to assist in pulling her stern off the berth. The tide took the vessel down towards an outlying mooring dolphin so the vessel's master manoeuvred ahead, for a brief time at full ahead, under hard starboard helm, quickly reaching 5.4 knots.

Dominique, which appears to have been still pulling at full power, was unable to counter the effects of the movement, girted and capsized. The tug was criticised for not being fitted with a gog rope and having no emergency quick release.

In all these cases the operation, set-up of the tugs or training of their crew were criticised, with the absence of or ineffectual use of gog ropes and/or quick release systems standing out as significant.

However, it would be wrong to conclude that tugs are therefore to be considered always at fault. For example, quick release systems are designed not to prevent tugs getting into trouble, but rather to save them from capsize when all else fails. While important, and critical to the safety of crew, the failure to utilise a quick release should not exonerate an assisted vessel from an ill-considered manoeuvre: a tug is attached to a vessel at the end of a towline and what the assisted vessel does or does not do has a direct effect upon the smaller and more vulnerable craft.

More specifically, in ***Trijne***'s case the pilot could not see the tug from the bridge and wrongly assumed that it had been running with the ship stern to stern rather than off the quarter. Nor was he aware that the tug's coxswain was a novice.

In the ***Flying Phantom*** incident, the port had failed, despite a previous accident in fog, to implement operational limits or procedures for tug operations in restricted visibility.

With ***Ijsselstroom***, it was found that the pilot was unaware whether the tug was towing over her bow or stern and he had no knowledge of its operational limitations.

In the ***Asterix*** case, no-one on board the assisted vessel was monitoring the mooring launch. The coxswain was not advised that the tanker was about to come ahead. The lookout saw the launch in difficulty, but a call to the bridge to stop engines received no response. Evidently the pilot relied on tugmasters to act autonomously and inform him when in doubt or difficulty, diminishing reliance on proactive communication.

In the ***Dominique*** incident, the pilot and master became focused on trying to prevent the ship's stern from making contact with the mooring dolphin. Their intention to proceed ahead was not then communicated to the tug. This omission resulted in the ship moving rapidly ahead before the tug could manoeuvre into a safe position.

Common to these cases appears to be an over-reliance on the tug and its crew being capable of preventing the tug from girting and capsizing. Critically, MAIB has recommended that vessels should ensure that the limitations of tugs and how they are to be operated are identified and understood by the bridge team. Further, there should be proactive communications and an agreed means for monitoring the tug throughout the towing operation to reduce the risk of the tug girting should the manoeuvre not go according to plan.

● *Simon Tatham is a partner of Tatham Macinnes LLP and a founder member of the TugAdvise.com service. He has more than 30 years' experience of shipping law.*

▲ Ijsselstroom

▲ Asterix

US salvage industry defended at Congress hearing

▲ *Todd Schauer*

President of the American Salvage Association, Todd Schauer, has defended the response capabilities of the industry at a congressional hearing.

It came after US salvage and marine fire-fighting (SMFF) providers – whose services are required by shipowners and operators under the wider requirements of OPA 90 – had their ability to respond and resources questioned.

Schauer suggested that commercial interests lay behind the criticisms, adding that there would be no delays to response caused by contractual issues and that all the contracts of the SMFF providers met the requirements.

He said no provider could offer 100 per cent availability of resources without back up. It is not possible, he said, to offer every type of resource all the time at all locations, as the range and cost of equipment would be prohibitive. He added that this was not the intention of the SMFF regulations.

Schauer said SMFF providers rely on the system of 'vessel of opportunity' and 'resource of opportunity'.

He said compliance with verification programmes and extensive oversight by official agencies ensured requirements were met and that this had been demonstrated successfully in practice.

Divers prevent pollution

Seattle-headquartered Global Diving and Salvage personnel placed a boom around the sunken commercial fishing vessel *Donna* in the Hoquiam River near Hoquiam, Washington state, US and pumped off the diesel from the its fuel tanks.

US Coast Guard (USCG) and Washington Department of Ecology responders oversaw the operation to remove an estimated 150 gallons (568ltrs) of diesel.

The 48ft (15m) ***Donna*** sank at its mooring causing an oil sheen on the river triggering the clean-up response. An electronic position indicating radio beacon alert received in the USCG 13th District Command Center, located in Seattle, guided responders aboard a 47ft (14m) motor life boat from Station Grays Harbor to the sunken vessel.

After being unable to contact the owner of the vessel, the federal on-scene co-ordinator representative opened the Oil Spill Liability Trust Fund (OSLTF) to contract Global Diving and Salvage for the clean-up.

Nine evacuate sinking tow vessel

Around 106,000 gallons (401,000ltrs) of diesel fuel have been recovered from the towing vessel *Eric Haney* which sank on the Upper Mississippi River in Kentucky.

Approximately 6,000 gallons (23,000ltrs) of lube oil and slops, including contact water, were also recovered in a combined operation involving Tennessee Valley Towing, the US Coast Guard and the Missouri Department of Natural Resources. The nine people aboard evacuated the vessel without injury before it sank. The cause of the incident is under investigation.

The vessel has been lifted and transferred to dry dock at James Marine in Whickliffe, Kentucky, where it received temporary repairs.

Salvors bring 'time bomb' under control

A burning ship carrying 40,000 tonnes of ammonium nitrate from Thailand to Norway, dubbed 'a ticking time bomb' after its crew were evacuated following an explosion in the Atlantic off the Canary Islands, was brought under control after a week-long fire-fighting operation.

The 56,597dwt, 190m-long, UK-registered Bibby Line Group cargo ship, ***MV Cheshire***, was left to drift after its 24-strong crew were airlifted to safety by Spanish coastguard helicopters Helimer 202 and 207.

The recovery operation was led by Resolve Marine, which has a base at Gibraltar, using the tugs ***Mar Rojo Fos***, ***Miguel De Servantes*** and ***VB Hispania***. The Moroccan tug ***Jacques 2*** also attended the scene.

The four tugs used water cannon to tackle the blaze and cool down the vessel to enable a tow line to be attached. After the huge explosion, the vessel's crew had frantically tried to divert to Las Palmas, but authorities there refused entry, fearing the ship could go up in flames at any moment.

MV Cheshire has been owned by Bibby Line since 2012, when it was delivered from a shipyard in China.

► **MV Cheshire** *ablaze*

News In brief

Large shipping losses have declined by 50 per cent over the past decade, largely driven by development of a more robust safety environment by shipowners, according to Allianz Global Corporate & Specialty's (AGCS) ***Safety & Shipping Review 2017***. There were 85 vessels reported as total losses around the shipping world in 2016, down 16 per cent compared with a year earlier (101). Last year set safety records in the sector with the lowest number of losses in the past 10 years, preliminary figures show. The number of shipping casualties also declined slightly year-on-year, by four per cent with 2,611 reported, according to the review, which analyses reported losses of vessels over 100gt.

South Carolina, US-based Stevens Towing Company's 500-ton floating crane, *Ocean Ranger*, successfully performed the lift of the sunken 320-ton (290-tonne) US Navy harbour tug ***Tutahaco*** at Ormond Beach, Florida. In a joint operation with Texas-headquartered T&T Salvage, the derelict tug was placed on a deck barge and taken away to be scrapped. Transporting the oversized crane barge down the intra-coastal waterway from Charleston to Ormond Beach required two tugs. The tow measured 350ft (107m) long by 72ft (22m) wide, making it a tight squeeze through bridges as narrow as 74ft (22.5m) wide.

ISU salvage sub-committee member, Daniel Dettor, commercial manager of Resolve Marine, gave a well-received presentation about the salvage industry and the benefits of Lloyd's Open Form (LOF) to the London-based Marine Under 35s group. The ISU aims to address the declining use of LOF by improving knowledge of it among younger members of the maritime industry.

UAE goes for IMO council membership

The UAE has completed preparations for its candidacy to become a member of the executive council of the IMO.

The UAE has prepared for the competition in category B, along with 11 leading countries in the field of international sea trade, including Germany, Sweden, the Netherlands, Brazil, Argentina, France and Australia. The decision to run for the second category – which comprises 10 countries with major interests in international maritime trade – falls in line with the UAE's role as a major player in the international maritime sector, backed by its leading position on ports management and its global position in the top three countries in terms of quality in port infrastructure.

Dr Abdullah bin Mohammed Balheif al Nuaimi, minister of infrastructure development and chairman of the board of the Federal Transport Authority for Land and Maritime, said the UAE aspires to become a second category member so it can continue its role in upgrading the international maritime system, and to enhance the growth of international maritime trade by leveraging on its experience as incubator for 20 of the world's major ports.

Hub strategy makes waves

A key initiative aimed at making Dubai one of world's most competitive maritime clusters has made solid progress over the past few months – including a successful presentation at Nor-Shipping in Oslo.

Dubai Maritime City Authority (DMCA), the government authority charged with regulating, co-ordinating and supervising all aspects of Dubai's maritime sector, has been presenting the Dubai Maritime Cluster Office (DMCO) initiative with considerable success. DMCO, established last year, aims to support efforts to realise the objectives of the Dubai Maritime Sector Strategy (MSS) to make the emirate a leading global maritime hub.

DMCO represents a major boost to ongoing efforts to substantially increase the current 5,500 maritime companies operating in the city. The newly launched office is set to enhance the level of local maritime activities, which rose further to 13,000 in 2017, as well as reinforcing the sector's economic contribution, which is valued at AED26.9bn (US$7.3bn). More than 76,000 jobs have been created, highlighting the emirate's transformation into one of the world's most important maritime hub centres.

DMCO's tasks and responsibilities include identification and implementation of key performance indicators and other relevant targets; determination of current and emerging challenges; and the establishment of effective tools to address industry concerns.

The office oversees the promotion of maritime best practices across various sub-sectors in the maritime cluster in the emirate as part of its goal to catapult Dubai into the ranks of the world's most competitive maritime centres. It is also deploying a series of programmes and initiatives aimed at upgrading maritime and logistics-related services, in addition to updating legislation, regulation and infrastructure and improving the operational processes according to the highest standards of excellence, quality, innovation and maritime safety.

Amer Ali, executive director of DMCA, said: "Within its first year of operation, DMCO has proved to be an important addition to the range of capabilities and services we can offer and one that aims to further enhance the status of the emirate as a maritime centre, within the overall strategy for Dubai's industrial and economic development.

"The feedback we have received has confirmed that the role played by the DMCO is crucial as Dubai moves towards a more sustainable economic growth model."

A number of initiatives fall under the DMCO. These include the Maritime Advisory Council, Dubai Maritime Intelligence, Dubai Maritime Club, Dubai Maritime Week, Dubai Maritime Summit and Dubai's Maritime Agenda, the Dubai Maritime Training Centre and the Maritime Creativity Lab. The office is also tasked with representing the UAE at various international maritime forums, including London International Shipping Week, which took place in the UK from 11-15 September.

Founded in 2007, DMCA has brought about a radical change in the local maritime sector through an extensive range of industry initiatives and regulations which support its ambitious approach to creating a safe investment environment for industry leaders from all over the world.

'Compact and powerful' tug built for bulk terminal

A keel-laying ceremony was held at the end of August at Damen Shipyards Sharjah, in the UAE, where the Dutch company is building an ASD Tug 2913 for Saqr Ports, part of Ras al Khaimah (RAK) Ports.

The keel-laying was attended by Capt Brand, group general manager RAK Ports; Capt Magee, harbour master RAK Ports; Pascal Slingerland, Damen sales manager Middle East, and the Albwardy Damen management and project teams. The keel was lowered on to the building blocks by Capt Brand, after which Capt Brand and Capt Magee marked the occasion by breaking a coconut over the keel.

Damen will deliver the vessel to RAK Ports next year, in time for the opening of a new bulk terminal at Saqr Port. RAK Ports required a tug that was both compact and powerful, in order to handle the large carriers that will call at the port.

Saqr Port is the main bulk-handling port in the Middle East and a vital part of the regional economy.

▲ *Personnel from RAK Ports and the Albwardy Damen management and project teams attended the keel-laying ceremony at Damen Shipyards Sharjah.*

OSV markets: where do we go from here?

Independent consultant Roy Donaldson looks at the challenges facing Middle East OSV operators as charter rates and vessel utilisation reach a historic low

▲ *Middle East shipyards such as ASRY in Bahrain (above) are hungry for business, says Roy Donaldson*

The OSV industry remains in flux, where the optimist states we have reached the bottom and the pessimist that there is no way up. What is agreed is that we have dipped further than anyone expected.

With charter rates and utilisation at an all-time low, we face a double-edged sword; no-one really believes that an oil price increase will be the industry's saviour – primarily because the need for substantial recovery is immediate and even with stable oil prices it will take many months, if not years, for international oil companies (IOCs) to build confidence to invest even in already-slated development projects, let alone future exploration.

On the upside, investment decisions are on the increase but IOCs remain cautious and selective. The offshore services industry is recovering ever so slightly, but with a structurally lower activity level when compared to historical markets.

Charter rates in the Middle East have always been challenged but relatively stable. Three years ago, vessels were earning US$11,000 a day but are now struggling at US$6,500 to US$7,500. Through deflation, opex has reduced but remains at about US$5,000, leaving little to pay the millions of dollars of finance secured on the asset. Operators are now working not to make more money but to lose less. In any supply and demand situation it is not sustainable to sell products or services for less than you paid for them in the first place.

OSV operators' equity is minimal, working cash tight and IOCs have cut as much as is feasible on charter rates. Every OSV operator is losing money, and although many give the impression that the EBITDA percentage remains high, 50 per cent of a small revenue is still small.

So where are the cost savings for the IOCs as we move forward? The immediate answer is using new technology to further reduce operating costs – the greatest of these now being fuel consumption. But here again, we have a *Catch-22* situation because existing asset values have plummeted and few have access to cash to invest in new, technologically advanced vessels. Some existing operators brag of 'young' fleets averaging 10 years old. I have news! Technology has improved significantly in the past 10 years and these vessels will shortly be described as too old to compete in today's modern industry. Even if new investor cash comes in, what do we do with the existing vessels that are still carrying heavy mortgages?

Solar power, battery, diesel electric and gas-powered vessels are all initiatives we have heard much about over the past few years. What is clear is that what is acceptable today will not be in five years' time. Technology is the key to success, but ships are expensive and we build them to last 20 to 25 years – but it is impossible to predict what will be the norm in 2042.

> *"When the industry does stabilise, it is inevitable that within a very short time there will again be a shortage of units which will elevate prices. Today shipyards are hungry for business, and newbuild prices have never been so advantageous"*
>
> **Roy Donaldson**

The future of technology is where we take it, but legislation will inevitably tighten even further with regard to emissions. Ferries are already using battery power and we are witnessing vessels transiting greater distances on ultra clean energy. Norway's Statoil recently awarded long-term contracts on the proviso that a battery room be installed on the vessel within five years. This will involve commissioning an additional deck house as a battery room to meet the DNV GL and Norwegian Maritime Authority's 2016 requirements for battery installations on vessels, but it is deemed cost-effective and viable nevertheless.

We are many years away from having sufficient redundancy on battery to power an OSV undertaking anchor-handling or rig supply duties – but 70 per cent of the life of an offshore vessel is spent on passage, in port or standing by, where with enough energy output battery power is becoming more feasible.

The future of the marine industry probably lies in a hybrid of solar and wind power charging a battery system. Although we are a little way away from that concept, presently allowing that the vessel operates while it is safe to do so purely on battery power with a secondary diesel or preferably a gas-powered system used for charging and close quarter situations is with us today. But technology constantly changes and investment in its infancy is very often wasted by virtue of early technological improvements.

The global OSV industry remains challenged, with around 30 per cent of the purported 3,500 industry fleet in lay-up. Laid-up vessels are either too old, becoming technologically challenged or too expensive to reactivate in today's leaner and meaner industry. It is estimated that as many as 1,000 of the presently static vessels will never return to service.

When the industry does stabilise, it is inevitable that within a very short time there will again be a shortage of units which will elevate prices. Today shipyards are hungry for business, and newbuild prices have never been so advantageous. Ships are built for 20 to 25 years' active service, so either converting present diesel-electric powered vessels to back-up battery power or building new vessels with the new technology will never be more attractive.

It would be foolish not to embrace new technology and while the environmental savings are ours and our children's, for the OSV operators any savings in operational fuel costs will be to the benefit of the IOC or end client.

There are few OSV operators currently in a position to invest in this technology. It is therefore evident that we need to work together with the cash-rich IOCs to achieve the common goal of sustainability and reduction of greenhouse gases, and then use the subsequent fuel savings to both further the development of technology and ensure that it is financially feasible in its operation.

In brief

Saudi Aramco has announced the award of the first major contract in the planned construction of a US$5.2bn shipyard complex designed to reduce Saudi Arabia's dependence on oil exports. The national oil company said it awarded the contract for dredging, reclamation and marine structures to a consortium comprising Saudi Archirodon and Huta Hegerfeld AG Saudia.

UAE-headquartered Topaz Energy and Marine's DP2 MPSV ***Topaz Captain*** has finalised a ROV campaign in ultra-deep waters. The vessel recently departed from its base in San Diego, California, and is now being repositioned to the Gulf of Mexico, where it will be available for charter.

Classification society ClassNK has issued a Statement of Compliance to Isiksan Ship Recycling and Trading Company, in Izmir, Turkey, verifying that its facilities are in line with the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009.

Dubai takes a global position

Dubai, UAE, has been named as one of the top 10 global maritime capital cities, in a report pubished by DNV GL and Oslo-based Menon Economics.

The third edition of the influential *The Leading Maritime Capitals* report benchmarked the world's top maritime hub cities against five criteria: shipping, finance and law, maritime technology, ports and logistics, and overall attractiveness and competitiveness.

In the Middle East, India and Africa, Dubai was ranked the leading maritime centre, confirming its regional status as the dominant hub. The city has also strengthened its overall global position compared to the 2015 report, moving up from 13th to 10th. In addition, Dubai was ranked the fifth highest maritime city in terms of attractiveness and competitiveness, behind only well-established centres such as Singapore, Oslo, Copenhagen and Hamburg; it was placed eighth in 2015.

Dubai is expected to rise higher still, now that it has broken into the Top 10 worldwide: the experts' assessment contained in the report predicts that the city will continue to grow in stature and will become the world's sixth most important maritime centre by 2022.

Amer Ali, executive director of Dubai Maritime City Authority (DMCA), said: "The findings of the report are validation of the work of the DMCA in delivering the emirate's Maritime Sector Strategy. It will also encourage us to work harder to further enhance the legislative, legal and financial structures that are in place and improve the range of maritime services on offer, to propel Dubai even further up the rankings as a global maritime centre."

Heavy lift specialist branches out

Having seen an increase in projects across the Middle East, Mammoet has opened two new offices in order to provide more localised support.

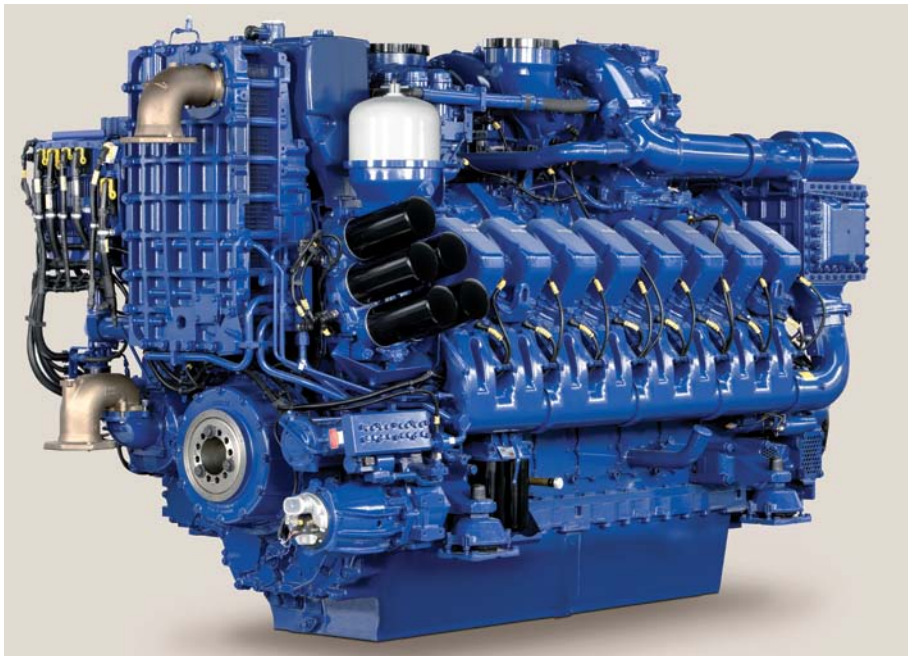
With an established office in Dubai, the Netherlands-based company has branched out and taken up residence in the Mussafah Industrial Area in Abu Dhabi, and in Sohar, Oman. These new offices will allow Mammoet to increase its offering of specialist services in engineered heavy lifting and transport, and to better support its clients in the region.

Mammoet has been operating in the Middle East for more than 40 years, carrying out many prestigious projects.

High speed engine first for tug class

Rolls-Royce and Sanmar Shipyards in Turkey have signed a contract for the delivery of eight MTU Series 4000 engines for four new terminal tugs, including an option for a further four engines. The tugs will each be fitted with two 16V 4000 M73L MTU engines, each delivering an output of 2,700kW at 1,850 rev/min. The MTU brand is part of Rolls-Royce Power Systems.

Ali Gürün, projects director at Sanmar Shipyards, said: "We were impressed by MTU's technical support, the service and the reliability of the MTU engines, which is why we will also be equipping our new Robert Allan Ltd-designed RAstar 2900SX tugs with MTU engines."



▲ *An MTU Series 4000 engine*

Sanmar and MTU have been working closely together since 2009. Knut Müller, head of the marine and government business division at MTU, said: "This is the first time high-speed engines are being used to power harbour tugs in this power class. To date, it has only been possible to use medium-speed engines for harbour tugs with a bollard pull of more than 85 tonnes. We are delighted that we have been successful in entering this market."

◄ *The RAstar 2900SX tug*

The speed of the engine has been reduced to 1,850 rev/min specifically for this application in order to provide shipyards with direct control of the propeller without an intermediate gearbox. The RAstar 2900SX terminal tugs, with a length of just under 30m, are scheduled to be delivered to Danish towage company Svitzer in 2018.

The powerful tugs are to be used in the Tanger-Med Port in Morocco, the operators of which have now signed a 20-year contract with Svitzer for terminal towage services.

The port is strategically located on the north-west coast of Africa, close to the entrance to the Mediterranean on the Strait of Gibraltar, and is the second busiest container port on the African continent.

MTU and Sanmar have signed an additional contract for the delivery of four 16V 4000 M63 engines, each delivering 2,000kW of power, for two tugs with a 70-tonne bollard pull. These new contracts now bring the number of tugs built by Sanmar to date and fitted with MTU engines to 16.

Thruster lifecycle enhanced by corrosion protection

The first steerable thruster to be equipped with the newly developed and patented Schottel ProAnode will be delivered to a Russian customer.

The Germany-headquartered company, which manufactures azimuth propulsion and manoeuvring systems, complete propulsion systems and steering systems, says that the ProAnode's new form and position set new standards in corrosion protection, thereby extending the lifecycle of the thruster.

Furthermore, moving the position of the anode from the outside surface into the cross-section of the nozzle tail leads to subsequent operational benefits, such as reduced flow interference, resulting in fuel savings.

Schottel's core idea was to remove the anodes from the outside surface of the nozzle, where they are prone to being knocked off by flotsam, such as wood or ice, or even by slight ground contact.

Loss of the anodes is usually only discovered during maintenance downtime, by which time corrosion might already have become a problem.

Also, depending on the nozzle's diameter and the anode's material, anodes for up to five years' cathodic protection against corrosion can be integrated into the nozzle. This enables a reduction of additional anodes for the hull or other thruster parts.

The new position in the tail of the nozzle not only shields the anodes, but also offers additional operational potential as it contributes to the optimal hydrodynamic flow. As its smooth overall surface reduces flow interference, it meets the customer's need for highly efficient propulsion systems and results in lower fuel consumption and pays off in terms of reduced operating costs.

The ProAnode is now available with Schottel Rudderpropellers.

◄ *The new position in the tail of the nozzle on the Schottel ProAnode not only shields the anodes, but also offers additional operational potential as it contributes to the optimal hydrodynamic flow of the nozzle*

Diesel engine surpasses IMO standard

The launch of *L'Astrolabe*, a 72m polar logistics vessel fitted with a complete Wärtsilä propulsion machinery package and Wärtsilä NOR (NO_X reducer) selective catalytic reduction (SCR) exhaust gas cleaning systems for all the main engines, took place in July. This is the first vessel operating with IMO Tier III engine international air pollution prevention (EIAPP) certified Wärtsilä diesel engines.

The vessel was built by Piriou in France for the French Southern and Antarctic Lands Administration. It will be used to transport personnel and supplies to the Dumont d'Urville research station in Antarctica.

The four IMO Tier III certified 8-cylinder Wärtsilä 20 diesel engines are combined with Wärtsilä NOR systems to be fully compliant with the IMO Tier III exhaust emission regulations set out in Annex VI of the MARPOL 73/78 convention. The IMO Tier III EIAPP certification was carried out according to Scheme B based on the requirements of IMO Resolution MEPC.198(62). The Tier III EIAPP certificates were issued by the Bureau Veritas classification society.

The full Wärtsilä scope of supply for this vessel comprises four Wärtsilä 20 main engines, two Wärtsilä controllable pitch propellers and shaft lines including Wärtsilä reduction gears, Wärtsilä NOR systems, and a Wärtsilä tunnel thruster.

SCR technology is currently the primary means for NO_X abatement, and the NOR system is available for use with all Wärtsilä medium speed engines. It enables vessels to be compliant with global NO_X emission control area regulations. Furthermore, the overall performance of the engine and exhaust gas cleaning system is optimised in terms of emissions reduction, noise abatement and engine efficiency. Wärtsilä provides IMO and EPA Tier III certificates for its engines combined with its NOR system.

▲ *Piriou-built* **L'Astrolabe** *will supply the Dumont d'Urville Antarctic research station*

Juha Kytölä, vice president, environmental solutions, Wärtsilä Marine Solutions, said: "We have been pleased to deliver this combination of engines and SCR systems in the same scope of supply, and take full responsibility for exhaust gas emissions, performance, documentation, statutory approvals and certification. Such packages are convenient for shipyards and ship operators and, triggered by IMO regulations, are expected to be specified by an increasing number of shipyards and ship owners. The engine needs to be SCR compatible, and the SCR should be fit for purpose. It has been a pleasure to work with Chantiers Piriou."

Piriou CEO Vincent Faujour said: "For this type of vessel operating in the most challenging ice and weather conditions, the engine selection had to be carefully made. We know and respect Wärtsilä's capabilities and technical know-how, and we are confident that we have made the best possible choice for this important vessel."

L'Astrolabe will have accommodation for 60 people, a cargo capacity of 1,420 tonnes, and is fitted with a helideck large enough to accommodate two helicopters.

Robust new propulsor utilises eco-friendly PM motor

A new Steerprop CRP ECO LM propulsor featuring permanent magnet (PM) technology from The Switch has been unveiled. Especially suited to harsh environment operation, the lightweight, compact unit offers vessel owners a combination of efficiency, power, easy installation and maintenance, as well as reduced lifetime costs.

The new propulsor utilises a vertical PM motor, allowing it to sit inside a vessel hull, which simplifies installation and maintenance. When the motor is placed on top of the thruster, the unit size can be more compact, increasing efficiency without compromising on hydrodynamics and lowering ongoing operational costs.

While innovative propulsion units have been developed by Finland-based Steerprop since 2001, fellow Finland-headquartered company The Switch, a leader in advanced drive train solutions, is using its proven technology to enhance performance in marine applications. The PM machine, currently in serial production, has a solid track record of operating in the world's largest wind turbines in rough offshore conditions.

Mika Koli, business development manager of The Switch, said: "The contra-rotating propeller (CRP) units by Steerprop are well known for their excellent hydrodynamic efficiency, in some cases delivering up to 25 per cent less fuel consumption than a single propeller.

"By combining their unit with our PM motor, which gives optimal efficiency throughout the entire speed range, we can take the vessel energy, emissions and cost savings to the next level. We believe the unit sets a new benchmark for efficiency, simplicity, and reliable, predictable marine performance."

The propulsor has received the highest Ice classification. It is robust and, thanks to its lightly loaded CRPs, offers lower noise and vibrations, enhancing levels of comfort for those onboard.

Hannu Jukola, senior sales manager at Steerprop, said: "This is now our third generation of CRP propulsors and an important step forward, both for our business and marine propulsion performance in general. Now vessel designers and builders have a solution that is simple to install, while owners and operators can ensure optimal performance and reduced costs through greater efficiency and simple maintenance. In addition, they can be better global citizens by cutting back on emissions.

"This is a best in class solution that fully capitalises on the potential of two energy-efficient innovations, in one simple, effective and powerful propulsion unit."

New fully electric tow winch enters market

For several decades, Rapp Marine has designed and delivered towing winches for the workboat market. Combining the best ideas from Rapp's past work in the other commercial industries and recommendations from the tugboat operators, the company has developed long lasting and dependable towing winches.

These past towing winches have mainly been powered using hydraulic systems in the North American market. Norway-headquartered Rapp Marine has previously delivered electric winches to commercial vessels in other industries – such as research, oil & gas, and fisheries – for years. It has now developed and built a unique fully electric driven double drum tow winch on a new 110ft x 40ft (33.5m x 12m) tractor tug for Vessel Chartering, a wholly owned division of US West Coast-based Baydelta Navigation.

The tugboat was designed by Jensen Maritime and is being built by JT Marine Shipyard. Driven by a single 100hp motor, the winch can pull over 75 tons at first layer, and utilises pneumatic cylinders in place of hydraulics, keeping fluid off the deck. The sturdy brakes offer a force of 250 tons on the barrel layer. The main drum can store 2,500ft (760m) of 2.5in (63.5mm) steel wire, and the storage drum can store 2,200ft (670m) of 2.25in (57mm) steel wire. Both drums are equipped with level winds, and can spool 90ft (27m) of 3in (76mm) chain on top of the steel wire.

Another feature is an electric 'come home' drive, which will serve as a back-up to the main drive train. The winch's main control station will be situated in the wheel house, with secondary controls located on the winch.

▲ *Rapp Marine's new fully electric-driven double-drum tow winch* *Photo: Rapp Marine*

The main control station will employ Rapp Marine's advanced Pentagon tug control system, which provides more efficient and safer operations for towing vessels. The Pentagon system features a touchscreen with tension and wire length readouts, auto-tension capability, and automated haul-in and pay-out settings, as well as capacity for logging data.

Johann Sigurjonsson, president of Rapp Marine US, said: "We view this project as a big step forward. Working closely with Baydelta has resulted in developing an ideal tow winch for the market."

For the new tugboat, set to be delivered at JT Marine later this year, it will also feature Rapp Marine Twin 14ft (4.2m) tow pins. The pins are designed to withstand up to 225 tons of force from the tow winch's 2.5in steel wire rope. The tow pins are driven by a Rapp Marine-supplied dual 5hp hydraulic power unit.

The company also offers the maritime sector a line of electric and hydraulic driven mooring winches, anchor windlasses, capstans and cranes.

Company provides equipment for innovative new tug

US-based Shaver Transportation of Portland, Oregon, which has been operating vessels within the Columbia River region of the Pacific Northwest for more than 100 years, has selected Rapp Marine as the supplier of two heavy-duty load handling winches on its latest tugboat.

The latest tugboat to join the Shaver fleet has been designed by Jensen Maritime of Seattle, Washington state, and is under construction at Diversified Marine of Portland, Oregon. The tugboat will be equipped with two primary winches, the single drum bow hawser winch and the stern double drum tow winch. The bow hawser winch will be used for ship assist and escorting duty on the Columbia River and out at sea, with the sturdy design capable of full render and recovery up to 100 tonnes. The design is out of necessity in order to operate within Columbia River bar, which is notorious for having some of the roughest sea conditions within US waters.

The winch will be powered by a C32 Caterpillar engine and, during lighter jobs, smaller generator engines.

Two robust multiple motor gearboxes provide the speed and torque necessary for the active render and recovery, and the winch features sturdy band brakes that are designed to hold up to 250 tonnes of tension. The winch also features an electrically-driven level wind that will allow for easy, on-the-fly adjustment of the fairlead during operations.

The double drum tow winch on the aft of the vessel features drums designed to hold either steel wire rope or synthetic rope, depending on the requirement for the application. The winch is designed for a variety of applications, including emergency tow situations and long haul towing.

Each drum is independently driven by separate gearboxes with multiple hydraulic motors that are capable of pulling 74.5 tonnes on the first layer. The sturdy band brakes for each drum will be able to hold up to 165 tonnes on the first layer.

The level winds for each of the drums are underwound for improved stability of the vessel, and are also independently driven by VFD driven electric motors. Both winches' main control stations will be situated in the wheelhouse, with secondary controls located on the winch.

The main control stations, one facing the bow and the other facing aft, will employ Rapp Marine's advanced Pentagon tug control system, which provides more efficient and safer operations for escort and towing missions. The Pentagon system features a touchscreen with tension and wire length readouts, auto-tensioning capability, and automated haul-in and pay-out settings, as well as capacity for logging data that can later be downloaded to analyse line tension during each mission as well as track the overall use of the line.

Johann Sigurjonsson, CEO of Rapp Marine US, said: "This is the biggest set of winches that Rapp Marine has delivered for a US tugboat. We are proud to be working with Shaver Transportation on this cutting edge, innovative new tugboat."

Emergency fibre rope cutter for when a tow goes wrong

Hydraulic cutting tools specialist, Allspeeds, has unveiled its latest safety product: an integrated fibre rope emergency cutter for maritime winches.

In the event the winch gets into difficulties during towing or lifting, the softline cutter provides an instant emergency disconnect to prevent further risk to the vessel.

The Webtool softline cutter is a lightweight, aluminium construction. Mounted on a transverse arm, this allows free movement of the rope through the closed mouth without affecting normal operations.

When the cutter is activated in an emergency, the recessed blade is released and the rope is cut against the tool's anvil. The hydraulic guillotine cut of a 100mm diameter rope is achieved within seconds. To ensure the blade does not cut accidentally, the softline cutter is fitted with replaceable shear pins.

Fibre ropes are an attractive alternative to steel wire in towing, lifting and salvage operations as they are easier to handle, lighter and stronger, allowing ship operators to maximise winch load capacity.

Keith Elliot, engineering director for UK-headquartered Allspeeds, said: "Demand for fibre rope cutters is increasing as companies take advantage of the rope's handling and strength characteristics to meet demanding project requirements. The winch-mounted cutter incorporates key features from our standard softline cutters, and is readily adapted for use on any type of winch."

◄ *Allspeed's Webtool softline fibre rope emergency cutter, designed to be integrated with maritime winches*

President elects to move on following merger completion

The president of deck equipment specialist Palfinger Marine has stood down following the successful integration of Harding Safety into the Salzburg, Austria-headquartered company.

Styrk Bekkenes was previously CEO of Norway-based Harding Safety, becoming president of the enlarged company at the beginning of this year. Between these two roles, he was part of the Palfinger Marine leadership-sharing arrangement following the acquisition of Harding Safety, which was completed in June last year.

In his latest role, Bekkenes oversaw the amalgamation and integration of the company's several recent acquisitions into a single, global player under the Palfinger Marine banner.

He said: "With Palfinger Marine in such a position, I feel that the time is right for me to step down and seek new challenges."

Winches designed and built to cope with Arctic elements

Croatian winch manufacturer Adria Winch is working on two contracts for Russian shipyards that will see its products operating in some of the harshest conditions on the planet.

The company is supplying winches for three icebreakers being built by Vyborg Shipyard on Russia's Baltic coastline near its border with Finland, as well as for a series of four multi-purpose shallow-draft tug salvage vessels (MPSVs) under construction at Nevsky Shipyard in Schlisselburg near St Petersburg.

The three icebreakers were designed by Aker Arctic of Finland and will all feature Adria Winch's double-drum electric aft towing winches in a waterfall design. Each drum has a pulling force of 100 tonnes and in excess of 300 tons of brake pull. Capacity is 700m of steel wire in seven layers.

Materials and components for the winches have been selected for their capability in low-temperature operations as the icebreakers will be operating in Russia's Gulf of Ob within the Arctic zone where winter temperatures can drop below -50 degrees C.

For each of the MPSVs, Adria Winch is providing a double-anchor mooring winch, two hydraulic tugger winches of 100kN pulling force and two hydraulic mooring capstans of 50kN pulling force.

Controls and instrumentation are developed and produced in-house by Adria Winch at its main facility in Split on the Adriatic coast, as are the hydraulic power units which are delivered as part of the system.

Nebojša Galetović, head of design and development, said: "There are some innovations as well – particularly for the independent spooling device, which satisfies all the latest DNV classification rules for emergency situations. We also deliver towing pins of shallow-draft design – which is our unique design."

Two of the icebreakers – named ***Aleksandr Sannikov*** and ***Andrey Vilkitsky*** – are 122m ARC130A designs due for delivery to Gazprom Neft this year. They will operate at the Novy Port oil terminal where the ice can be up to 2m thick. The smaller (90m) ARC124 vessel, ***Ob***, is scheduled to be delivered next year and will be mainly used for assisting LNG carriers in the port of Sabetta.

The first of the four 80m MPSV12s – which also have an icebreaking capacity – currently under construction are due to be delivered next year. Ordered by the Russian Ministry of Transport, they will operate from Russia's major ports in the Arctic as well as the Azov and Caspian seas.

▲ *Adria Winch's products are manufactured and tested at the company's Split facility in Croatia*

Agreement means deck winches are going all-electric

The world's first fully integrated electric deck handling winch is being developed following the announcement of a new partnership agreement between international maritime technology specialist Kongsberg Evotec and electric drivetrain manufacturer Visedo.

The agreement will see Finland-headquartered Visedo develop and produce power solutions for fully-integrated electric deck handling winches to replace traditional hydraulic winches – the first time electric components will be fully integrated on deck into the winch. Visedo's technology will allow Norway-based Kongsberg Evotec to offer a new range of electric winches with full-system integration and system control, while existing product ranges can also be modified.

The agreement was announced at the recent Electric & Hybrid Marine World Expo in Amsterdam. The first two orders have also been secured. Delivery of the first new product – a seismic winch – was scheduled to take place in September, with a second delivery due by the year end.

Visedo CEO Kimmo Rauma said: "We're proud to be offering the marine industry more options to fully electrify their onboard equipment and lessen fuel costs and associated emissions. The revolution to electrify more marine applications rolls on.

"From a company standpoint, it's also fantastic to be collaborating with one of the world's biggest players in the marine industry segment. We know that our technology is market-leading, but it's great to have it recognised by a partner with such market access and influence."

In brief

The fourth and final vessel of ALP Maritime's Future class of AHTS vessels has been christened in Japan. ***ALP Keeper*** is currently being fitted out at MES Tamano shipyard in south-east Japan – where the football-themed naming ceremony was carried out – following hull construction at Niigata Shipyard. ***ALP Striker*** and ***ALP Defender*** have already been delivered and entered service, with ***ALP Sweeper*** nearing completion.

Brazilian operator Bram Offshore has taken delivery of ***Bram Force*** – one of four new AHTSs the Edison Chouest Offshore subsidiary is adding to its fleet – from Estaleiro Navship Shipyard. The 93m, 200-tonne bollard pull vessel was built as part of national oil & gas company Petrobras's fleet renewal strategy, under which Edison Chouest was awarded eight-year firm plus eight-year option contracts for the four newbuild AHTSs.

Ready for industry upturn with bargain-buy AHTS trio

Kim Heng Offshore & Marine is preparing for an upturn in the offshore oil & gas industry by buying three secondhand AHTS vessels at a knockdown price.

The company paid S$13.5m (US$9.6m) in total for the three vessels. The 2009-built tugs, built by China's Fujian Southeast Shipbuilding, had previously been valued at S$46.4m (US$33m) each and had been part of the fleet operated by troubled fellow Singapore-based offshore services company Swiber.

They are Kim Heng's first AHTS ships and the largest vessels in their now 18-strong fleet of tugs and OSVs. ***Swiber Anne-Christine***, ***Swiber Else-Marie*** and ***Swiber Mary-Ann*** are all 70m by 16.8m ABS Class AHTS vessels delivering 10,800bhp and 117 tonnes of bollard pull. The company is initially looking to use them to perform tow services for clients' jack-up rigs and salvage operations while also offering them for long-term charters.

The majority of the money for the purchase came from Kim Heng's 2014 IPO proceeds from which it earmarked a total of S$20m (US$14.2m) to enhance its two shipyards in Singapore as well as expand its fleet of vessels, which also includes 37 barges, as part of the group's effort "to prepare for the eventual expected industry upturn".

Thomas Tan, executive chairman and CEO of Kim Heng, said: "We have good knowledge of the industry and the financial strength to take advantage of the opportunities that present during challenging industry conditions. Against a backdrop of uncertainty, it presents an opportunity for us to capitalise and we are pleased that Kim Heng has been able to successfully purchase these vessels to strengthen our long-term position at a fraction of the cost."

The three AHTS vessels were bought at auction after they had been seized in Singapore at the end of last year by a consortium of banks looking to recover outstanding debts from the vessels' registered owner.

Second Starfish travels from Norway to Australia

The newest anchor handler of Danish offshore vessel provider Maersk Supply Service (MSS) headed for its first job in Australia, straight from the yard where it was built and delivered.

Maersk Mariner, the second in the series of six Starfish AHTS vessels being built by Kleven Verft in Norway, has secured a contract with Australian energy giant Woodside Energy.

◄ Maersk Mariner

The vessel was delivered to MSS in July and immediately set off on its maiden voyage, arriving in Australia later that month to begin work.

First in the series, ***Maersk Master***, was delivered in March and has been working on decommissioning projects for Maersk Oil's Janice and Leadon fields in the UK sector of the North Sea.

The Starfish series are of a Salt 200 AHTS design by Salt Ship Design, all with identical layout and specification. The DP2 vessels measure 95m by 25m and feature a hybrid propulsion system comprising five medium-speed Wärtsilä engines delivering 23,000hp linked to tunnel thrusters and twin controllable pitch main propellers. The result is a top speed of 16 knots and 230 tonnes of bollard pull.

In addition to their anchor-handling role, the vessels have Ice Class 1, Oil Recovery and FiFi1 classification.

Despite the first two Starfish vessels going straight to work, MSS announced in June that it was postponing deliveries of the remaining four in the series until next year and 2019, given the current sluggish offshore support market.

Merged firm's anchor-handlers get to work

Norway's newly-formed OSV provider SolstadFarstad has secured additional work for four of its AHTS vessels, while also confirming the sale of a fifth.

In Australia, the company has landed a new customer in the shape of Cooper Energy, which has awarded SolstadFarstad a contract for AHTS vessels ***Far Statesman*** and ***Far Senator*** to tow its *Ocean Monarch* semi-submersible drilling rig from the North West Shelf off the coast of Western Australia to its new Sole gas project in the Bass Strait between the mainland and Tasmania.

The towing operation is expected to be carried out late this year or early next year, after which both vessels will continue with rig support duties for a firm period of 120 days with two optional periods of 60 days. ***Far Statesman*** and ***Far Senator*** are Rolls-Royce UT 731 CD designs built in 2013 by Vard. The 87.4m by 21m vessels are powered by two 4,500kW and four 2,230kW main engines giving them a total of 24,370hp and a bollard pull of 258 tonnes.

Elsewhere, Brazilian oil company Petrobras has chartered ***BOS Turquesa*** on a one-year contract, having previously chartered the 2007-built Brazilian-flagged vessel for a year in January 2016. The current contract began in July and has the option for Petrobras to extend it for an additional year. Both companies have declined to reveal any commercial terms of the deal.

BOS Turquesa is a Rolls-Royce UT722L design built at Brazil's Estaleiro Itajaí. It measures 80.4m by 18m and is powered by two 3,800kW and two 2,850kW main engines delivering 18,088hp and a bollard pull of 190 tonnes.

Norwegian oil company Statoil has declared its option to extend its contract for ***Normand Ferking*** for a second year from September. The 2007-built AHTS vessel has been working for Statoil since its delivery. The most recent firm, three-year contract was awarded in 2013 and included three yearly options, of which this latest is the second.

Normand Ferking is a VS-490 design from Wärtsilä. It measures 89.4m by 22m, delivering 239 tonnes of bollard pull, and is powered by four 3,800kW main engines providing 20,700hp.

Meanwhile, SolstadFarstad – formed earlier this year by the merger of Norwegian offshore vessel companies Solstad Offshore, Farstad Shipping and Deep Sea Supply – has confirmed it has completed the sale of ***Far Shogun*** to an unnamed owner, with the vessel subsequently renamed ***Skandi Bergen***.

Management and operation of the 251-tonne bollard pull AHTS vessel is being carried out by DOF, which also has an option to buy the vessel at a price corresponding to the outstanding debt, or approximately 50-60 per cent of historical build costs.

◄ **Normand Ferking** *has been carrying out work for Statoil since its delivery*

Simulator training centre takes a global view

Modal Training opened its doors in February, pledging to set a new standard for marine simulator training. Six months on, the facility on the UK's east coast is attracting both local and international interest

Looking out across the surrounding area from the first floor of Modal Training's premises on the south bank of the Humber, it is abundantly clear why the company chose to locate in this corner of North East Lincolnshire.

On the not very distant horizon loom the oil refineries and biomass silos of the Port of Immingham – the UK's largest port by tonnage, handling around 55 million tonnes a year. Closer neighbours include green energy group Engie and DFDS, Northern Europe's largest shipping and logistics company. Right next door is Iceland-headquartered cargo-handling and logistics specialist, Eimskip.

Modal's director, Sam Whitaker, is brimming with enthusiasm about the positioning and timing of the new facility, opened earlier this year to serve a local and international clientele.

Coming from a background in school buildings provision in London, Whitaker arrived on the ground floor of the Modal enterprise in 2014 and is proud of the company's achievements to date.

With courses offered in road, sea and support services, freight forwarding, offshore and maritime, it is the first training provider in the UK to cover all sectors of logistics, and is also looking at the possibility of working with marine surveyors.

Its impressive suite of Kongsberg marine simulators includes a Class A full bridge K-Sim offshore vessel simulator, with a fore and aft bridge, DP2 dynamic positioning with K-Pos interface, and anchor-handling: one of just three in the world to be configured in this way for offshore training.

In addition, the training centre boasts an engine room sim using actual units, an HV electrical room and a separate control room, from where the trainer can control conditions on the bridges and in the engine room. Dynamic positioning courses were Nautical Institute-accredited in May of this year.

A separate former warehouse building houses dizzyingly realistic crane simulators provided by OSC of Norway, as well as a car simulator that uses a Mini Cooper to teach eco-driving techniques.

▼ *Engine room training combines desktop exercises and simulators controlled from a separate control room*

▲ *Modal's state-of-the-art simulators, supplied by Kongsberg Maritime, are being used by local and overseas trainees*

"Marine simulators are tried and tested in the UK," said Whitaker. "Crane simulators are more common in Scandinavia and car sims are the least used, but there is growing interest. During procurement, we spoke to South Wales Police, who have managed to cut fuel spending, as well as carbon emissions, as a result of the vehicle course."

Whitaker, who sits on the Humber Local Enterprise Partnership's employment and skills board, sees the training offered by Modal as key to the development of maritime industry opportunities in the region.

"Local impact was the most important consideration," he explained. "A large proportion of car imports to the UK now come in via Immingham; the port also used to handle a lot of coal, but that has now been overtaken by biomass. Container handling is increasing – hence the crane simulators – and the Humber is home to the UK's rapidly developing wind energy sector – and recognised as the 'energy estuary'.

"Our aim is to meet the training needs of the many global businesses which are establishing themselves around the Humber, as well as providing a new and valuable opportunity for individuals and existing businesses to train locally.

"The visual surroundings in the bridge simulators were specially commissioned to represent the Humber – although the sim can also access 23 port locations around the world. For local trainees, however, this is site specific. The photography was done in February and March, around the estuary from Spurn Point to Immingham. The way the Humber behaves was also programmed in, and can also be linked to the engine room simulator, so the trainer can replicate an incident in the engine room – including noise and vibration – giving an all-round expereince that is as close to a real life situation as possible."

In brief

Lloyd's Register Foundation and The Nautical Institute have joined together in producing a special limited edition bound set of all 40 issues of the *Alert!* human element bulletin. Enough have been produced for every maritime training college in the world to have a copy, so all will have access to the topics and case studies covered by the project over its 14-year history. The volume acknowledges the 'enduring significance' of these topics and the continued role of the *Alert!* bulletins in helping to improve safety at sea, said Professor Richard Clegg, chief executive of Lloyd's Register Foundation, which has funded the project.

Norsafe, global life-saving marine systems manufacturer, is offering a specialised 'Train the Trainer' course in lifesaving appliances (LSA) aimed at instructors and trainers working in nautical schools and training centres. The course covers operational and maintenance training on freefall lifeboat systems; conventional lifeboats covering davits, winches and hook systems; and rescue boat systems. Training takes place at Norsafe's world-class training facility at Rosendal, Norway, and will include accident evaluation procedures and updates on IMO and EU regulations.

The International Chamber of Shipping (ICS) has published a new edition of its widely used Personal Training and Service Record Book, to help qualified seafarers and their employers maintain a comprehensive record of training and seagoing service. The revision of the ICS book coincides with the end of the transitional period for the 2010 Manila Amendments to the IMO STCW Convention, and takes full account of the latest STCW requirements, as well as developments such as the entry into force of the ILO Maritime Labour Convention.

Norway-based Höegh LNG has agreed with Regional Maritime University (RMU) and Quantum Power of Ghana to train seafarers, tug masters and pilots to operate and manoeuvre gas carriers. The aim is to increase the competence of Ghanaian mariners in safely and efficiently operating and handling the advanced gas carriers that will be unloading cargo at a new offshore terminal.

Docking device aids safety

▲ *The TDD will improve crew safety, as well as enabling transfer and supply vessels to work efficiently in severe weather conditions*

Offshore wind farm crew safety could be radically improved by an innovative locking device that enables safer crew transfers between vessels and wind turbines, whatever the weather.

The Tube Docking Device (TDD), developed by UK-based Offshore Transfer Devices, locks a crew transfer vessel (CTV) to a structure, creating a more stable platform between vessels and offshore structures in adverse sea states, allowing for safer transfers and increased working weather capabilities.

Until now, most transfers have involved CTVs or supply vessels pushing on to wind turbines using a rubber fender as a way of minimising movement between vessel and structure – but this does not stop all movement, especially during altered sea states.

The TDD operates using jaws that take the shape of the cylindrical fender tube. It can deploy on to a tube while the vessel is simultaneously in a roll, pitch and off centre, at the same time addressing all six degrees of freedom: heave, pitch, roll, yaw, sway and surge. Conversely, due to mechanical advantage, a vessel can obtain a higher level of grip with a proportionally reduced amount of propulsion, minimising the pushing force needed to maintain a stable platform against offshore structures.

An additional (but optional) hydraulic assistance mode can be implemented, which operates in a similar mode to applying the brake pedal of a car. This optional ability to add clamping will also allow substitution or minimal propulsion, enabling transfers to light anchored structures, such as anchored barges or jack-up vessels. This optional ability, while using little or no propulsion, also enables transfers in adverse weather conditions to ships under DP (where CTVs and WFSVs are instructed to push on with minimal propulsion as it can upset the mathematical model of the DP vessel).

During the first quarter of 2017, the TDD endured rigorous trials at Eon's *Scroby Sands* offshore wind farm, together with vessel operator Iceni Marine Services. The device was installed on ***Iceni Courage*** by Alicat Workboats in Great Yarmouth, UK.

By the end of stage trials, the TDD had out-performed all expectations. Results from the Carbon Trust Offshore Wind Accelerator (OWA) trials demonstrated that the TDD could hold its pivoting jaws with negligible vertical movement in wave heights of up to 2.7m. Sea states included seas from ahead, astern and abeam. This achievement was deemed 'outstanding' by OWA partners – which reinforces the development team's belief that an innovative access/transfer system can improve and conduct safer transfers at sea, even in challenging conditions, with a CTV as little as 15m in length.

ASD training suite is the real deal

The US Maritime Institute of Technology and Graduate Studies (MITAGS), and the Pacific Maritime Institute (PMI) have expanded their ASD tug simulation facilities. The upgrade project has taken more than three years of research, design and planning.

The Baltimore campus now has the capability of integrating up to four assist tugs, and two full-mission bridges in one exercise.

MITAGS/PMI executive director Glen Paine said: "The ASD tug integrated with the full-mission simulators allow pilots, ship masters and tug operators to train in the same scenario. This greatly enhances the realism and training related to tug placement/control, communications, and operational techniques. The use of two tug bridges, integrated with the full-mission bridge, has become a regular feature of operational research projects."

The Transas NT Pro 5000 has improved hydrodynamic modelling and interaction capabilities for training in tasks including offshore operations, ship assist, high-speed escort work, anchor equipment operation, platform moves, and tug master and pilot training. The Transas NT bridge software is in use at the Baltimore and Seattle campuses.

The two additional tug bridges also support the Navigation Skills Assessment Programme, tanker escorts, tug and barge operations, ARPA and ECDIS training.

Latest courses reflect changing market need

Alphatron Marine has upgraded its ECDIS training facility at its headquarters in Rotterdam, Netherlands. Over the past five years, the company has trained and certified thousands of captains, officers and seafarers on the ECDIS IMO model course and type specific training (TST) of various manufacturers. The updated ECDIS lab will enable Alphatron to respond to changing market requirements.

The new lab can provide up-to-date ECDIS TST on both Transas and JRC equipment and is capable of switching between software and applications on the same classroom navigation simulator. This is especially useful for non-sea-going personnel.

In addition to TST for both manufacturers, the updated facility can fulfil the growing demand for ECDIS and other navigational equipment for responsible staff in offices of crewing agencies, superintendents, shipping companies and harbour authorities.

For sea-going trainees, the workstations provide improved situational awareness as all main sensors relate to the panoramic view. Even the most experienced captains and navigational officers can benefit from this type of training, as differences between brands, products and software cause every device to work differently.

Certified instructors offer trainees the latest tips and tricks on how to use the ECDIS – delivering information that is often difficult to grasp with manuals only.

▲ *Alphatron Marine's upgraded ECDIS training facility offers courses for both onboard and non-sea-going personnel*

The training suite boasts the latest versions of equipment and software such as PL4 (JRC) and MNS34 (Transas), with all options on the ECDIS and the most up-to-date materials, providing a realistic training environment.

As well as TST on Transas and JRC equipment, the facility offers refresher courses in line with IMO and flag state regulations, superintendent training, familiarisation training, tailored customer training, IMO model course 1.27 with adopted Manila Amendments for STCW, and W (Warship)-ECDIS.

In brief

Finnish icebreaker ***MSV Nordic*** arrived in Nuuk, Greenland, on 29 July, setting a new record for the earliest transit of the Northwest Passage. The 24-day journey spanned more than 10,000km (6,214 miles). The once-forbidding route through the Arctic, linking the Pacific and the Atlantic oceans, has been opening up sooner and for a longer period each summer over the past several years.

The IMO has published a second video in a series on the polar environment, taking a closer look at the significant challenges of search and rescue operations in polar regions. The current lack of marine infrastructure, coupled with the vastness and harshness of the environment, makes emergency response significantly more difficult in the Arctic and Antarctica.

One of the biggest icebergs on record has broken away from Antarctica, creating an extra hazard for ships around the continent as it breaks up. The 1tn tonne iceberg, measuring 5,800km^2, calved away from the Larsen C Ice Shelf sometime between 10 and 12 July, according to scientists at the University of Swansea and the British Antarctic Survey.

The stern section of the UK's new polar research ship, ***RRS Sir David Attenborough***, has been transported by barge from Hebburn-based shipyard A&P Tyne (Newcastle) to Cammell Laird's shipyard in Birkenhead, Merseyside. The transportation of the 899-tonne steel block was a major engineering challenge and a significant milestone in the build.

The Ice Class research/survey vessel of Russia's North Territorial Department for Hydrometeorology and Environmental Monitoring (HEMD), ***Mikhail Somov***, has returned to Arkhangelsk after its first voyage this year to supply the Arctic stations with vital cargoes. The 2017 resupply mission included delivery of fuel, food, tools and other supplies to Murmansk and Severnoye.

Eni US will become the first energy company allowed to explore for oil in federal waters off Alaska since 2015, after the Trump administration approved a drilling plan on leases the company has been sitting on for 10 years.

Testing times for lifeboats

▲ *Norsafe carried out extensive lifeboat trials off the Svalbard archipelago earlier this year*

Forecasts indicate that polar shipping will grow and diversify over the coming years and the Polar Code, which entered into force on 1 January, sets out mandatory requirements that cover a wide range of design, construction, equipment, operational, training and environmental protection matters.

It stipulates that the potential risks must be assessed and mitigated to prove compliance with the code for each journey to the polar regions, with requirements covering everything from protective thermal clothing, ice removal equipment and enclosed lifeboats to the ability to ensure visibility in ice, freezing rain and snow conditions.

Norsafe, based in Arendal, Norway, is strongly focused on understanding and solving the issues surrounding the safe operation of life-saving appliances (LSAs) in polar conditions. It has already secured several prestigious orders for specialised polar equipment – the first being to supply Polar Code-compliant LSAs to the British Antarctic Survey research vessel ***RSS Sir David Attenborough***.

The company has carried out a number of full-scale tests and exercises in both simulated and real-life conditions, in co-operation with the Norwegian maritime authorities – most recently in April this year. The knowledge gained from such testing puts Norsafe at the forefront in reaching customers operating in polar environments who require the utmost in reliability and safety.

Talking to *IT&O* at Nor-Shipping 2017 in Oslo, Norsafe senior vice president, sales and marketing, Frode Grøvan, explained: "In April we carried out tests in the polar waters off the Svalbard archipelago, when 24 volunteers spent three days in an enclosed lifeboat, in the closest to actual conditions we could achieve.

"Sleep was difficult, because the boat is in constant motion and movement is very restricted: there certainly isn't a great deal of space to move around in.

"But the main finding to come out of this trial was that air quality remained good, even after three days in an enclosed space, and in these quite cramped conditions.

"We always hope our equipment will never need to be used – that would be the best scenario. But in the event of an accident, we are confident that our life-saving appliances are the best on the market."

Code prompts compliance review

Marine life-saving equipment specialist Viking expects the recent implementation of the IMO Polar Code to prompt yards, owners and operators to re-evaluate how they comply with the new regulations.

The code's aim of enhancing the protection of the environment and the lives of seafarers and passengers in polar regions has resulted in several mandatory measures for companies with an interest in polar class operations, including safety equipment.

At the Nor-Shipping show earlier this year, Viking's display included its latest safety products specially developed for polar applications and which conform to the code.

Company senior vice president Benny Carlsen said: "Viking has decades of experience when it comes to polar safety. Working with all types of clients including special forces, navies, specialised Arctic shipping companies, harsh environment offshore operators and SAR services, we know what it takes to specify efficient safety solutions for polar applications."

As well as its polar range, Viking's Nor-Shipping stand also included examples of its latest range of lifejackets and lifeboat hook system. The company increasingly offers shipowner and offshore safety agreements, which provide procurement, servicing and financing of lifesaving and protection equipment in a fixed-price structure.

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JIP creates a template for oil spill response

James Hall, chair of the executive committee of the Arctic Oil Spill Response Technology JIP, considers the programme's lasting legacy

▲ *Installing an acoustic Doppler current profiler to gather field measurement data as part of a dye release study in Van Mijenfjorden, Svalbard, Norway, in April 2016*
Photo: SINTEF

The energy industry has been producing oil and gas in the Arctic for almost a century. This key region is believed to hold a considerable share of the world's undiscovered hydrocarbon resources. As global production from developed fields declines, responsibly accessing resources in the Arctic could play a key role in meeting the world's growing energy needs.

The industry is focused on developing and deploying the best available technologies to ensure responsible operations in Arctic and other ice prone regions as needed. As we strive to meet our increasing energy needs, safe operations and the prevention of oil spills remain a top priority.

Over the past four decades, the oil & gas industry has developed the capability to prevent, detect, contain and clean up spills and mitigate the residual consequences in many Arctic environments. Many of these advances were achieved through collaborative research programmes, often with a mix of industry, academic, consulting and government partners.

Launched in 2012, the Arctic Oil Spill Response Technology Joint Industry Programme (JIP) set out to leave a lasting legacy by fostering the acceptance of new oil spill response strategies, facilitating the understanding of environmental choices associated with the different response tools and conducting significant new research. The programme's ultimate goal was to build confidence in the already available response tools and to extend their capabilities with new strategies, systems and a better understanding of operating windows.

A collaboration of nine oil & gas companies, the JIP focused on six key areas of oil spill response: dispersants; environmental effects; trajectory modelling; remote sensing; mechanical recovery, and in-situ burning (*IT&O*, July/August 2017, page 74).

The JIP consisted of two phases: the first phase involved technical assessments and state of knowledge reviews, while the second focused on experiments and included laboratory, small and medium scale tank tests and field research experiments. These experiments aimed to further improve Arctic spill response capabilities and to result in better understanding of the environmental issues involved in selecting and implementing the most effective response strategies.

A global network of recognised experts in the different disciplines of oil spill response was contracted to carry out the work. As the largest and most extensive research effort ever undertaken in the field of Arctic spill response, expert technical working groups developed and managed the individual research programmes in the different areas. The research produced new information technology tools, response systems, models and scientific data on important topics, such as effectiveness and applicability of response techniques as well as environmental impacts of oil in the Arctic.

The results of the JIP demonstrate that effective oil spill response in the Arctic is possible. Its diverse suite of results covers all of the different response tools and important support activities that produce an effective integrated response system.

New data on response effectiveness in different conditions will inform decision-making at all levels from planning through to response. Better defined windows of opportunity and new data on expected response effectiveness for strategies involving dispersants, herders and burning will improve contingency planning and enable more realistic training courses, drills and exercises to maintain and develop responder skills.

The compendium of research by the JIP further supports the notion that technology exists to conduct controlled in-situ burning of oil in a wide variety of ice conditions and indicates that in-situ burning is one of the response techniques with the highest potential for oil spill removal in the presence of ice.

In addition, the research demonstrated that dispersants can work under a wide range of conditions in the Arctic and has shown that ice may actually improve the effectiveness of dispersants under certain conditions.

As a direct result of the research and engineering efforts, the JIP has advanced the strategy of herding and burning spilled oil to become an operational tool, and prototyped a new aerial delivery and ignition system for rapid response. The results of the programme have provided a new rapid response capability less dependent on surface support, improved effectiveness in responding to spills in remote areas, and improved confidence in the operational performance and environmental acceptability of herders.

Remote sensing research tested a range of airborne, surface and subsea imaging systems to detect oil on, in and under ice. Its results have shown for the first time that it is possible to detect encapsulated oil from below with sonar – enhancing benefits from the use of autonomous underwater vehicles and/or ROVs.

The JIP's scientists reviewed the extensive literature on Arctic oil spill response and compiled a fully searchable literature database. The environmental effects database and literature navigator will facilitate the use of net environmental benefits analysis by reducing the effort to identify and access information. This will lead to a better understanding of the potential environmental effects of selecting different response strategies.

The sea ice modelling research programme has improved oil spill trajectory models under a range of sea ice conditions, providing a more accurate basis for predicting ice drift rates and directions.

The JIP results will inform the public on many important topics involved in any discussion of Arctic oil spill response. This transfer of information is supported by public availability of reports and on-line access to all material produced by the JIP, including technology reviews, technical reports, peer-reviewed papers, videos and graphics.

MoU supports new education initiative

The Institute of Chartered Shipbrokers and the Malta Maritime Forum (MMF) have signed a memorandum of understanding (MoU) that will support the education of shipping professionals in Malta as part of the island's maritime growth strategy.

The MoU formalises informal co-operation between the MMF and the institute which goes back 40 years and will serve as a vehicle to jointly formulate and develop activities. The MMF will build on this link to provide the local maritime industry with formal education which is recognised internationally.

Michael Callus, chairman of the MMF sub-committee for education, said: "Malta is already well served with courses for engineers, masters and lawyers; where we lack higher professional courses is for ship agency, terminal operators and port authority staff.

"Until now, there has been reliance on on-the-job training but the changing dynamics of logistics means we have to adapt.

"Excellence in multimodal transport and logistics are essential for Malta to remain competitive in attracting investment."

Under the terms of the MoU, the institute will support the MMF in delivering courses and supporting students from September 2017.

Julie Lithgow, director of the institute, added: "As Malta looks to build its market position with new professional qualifications, the Institute is delighted to be supporting the next generation of maritime professionals in their quest for knowledge and education."

Internal comms checks are crucial, says brokers' club

International Transport Intermediaries Club (ITIC) says communication failings within shipbrokers' organisations can result in important instructions from principals being overlooked, leading to potentially costly claims.

In the most recent issue of its *Claims Review*, ITIC cites an incident in which an off-duty member of a tanker broker's operations staff received an individual phone and email message over the weekend from a colleague in a different office, asking for important instructions regarding the amount of cargo to be loaded to be passed on to a tanker owner.

The operations person took no action, having wrongly assumed that the message had also been sent to the company's general operations email address and that it would be dealt with by an on-duty colleague.

The message detailed a request by the charterer to change the discharge port rotation to avoid severe congestion at what was originally scheduled to be the first port of call. This revised rotation required a reduction in the vessel's draft to enable it to discharge at what was now intended to be the first port of call. Because of the failure to pass on the message, however, the wrong quantity of cargo was loaded and there was no option but to remain with the original rotation.

A significant amount of demurrage was subsequently incurred, which was passed on to the broker and ultimately reimbursed by ITIC.

ITIC says a large number of claims caused by messages not being forwarded involve communications between different offices of the same broking company. It urges brokers to ensure that they have systems in place to prevent such errors occurring in their business.

Results pave way for investment

Shipping services group Clarksons has announced interim results for the six months ended 30 June 2017, reporting a strong financial performance compared with the same period last year.

The UK-based group – which has offices in 21 countries on six continents – posted half-year revenues of £156.8m, against £147.2m in the first half of 2016. Profit before taxation was 25 per cent higher than last year, at £21.9m (£17.5m in 2016).

CEO Andi Case said: "We are pleased with our performance so far in 2017, increasing revenue and volumes in difficult shipping and offshore markets.

"As we see signs of a rebalancing across some of the shipping markets, we are optimistic in our ability to capitalise on the upturn in the markets when it occurs, while maintaining the strength of the underlying business. Nevertheless, in the short-term, low activity in the newbuilding market and a predominance of spot over longer-term period business continue to limit forward visibility of revenues.

"Our solid cash position means that irrespective of market conditions, we are able to invest in the business for future growth, deliver increasing returns to shareholders and take advantage of strategic opportunities as they arise.

"We have invested in hiring key people and believe our market-leading technology and best in class client service position us strongly as we enter the second half of the year."

- The company's new Tokyo office, headed by Robert Chie, was expected to have a team of eight brokers and four support staff in place by the beginning of August, just three months after its launch.

Uncertain times prove brokers' worth

As the global downturn in maritime activity continues to bite, the collapse in vessel values has led to unprecedented opportunities for 'bargain basement' purchases, and brought the broker's role into sharp focus, says Steve Dougal, managing director of international tug and offshore brokers Century Marine Services Ltd

◀ *Century Marine MD Steve Dougal says the shipbroker's role is crucial in turbulent times*

Photos: Century Marine

The tug and offshore markets are suffering the deepest depression in a generation, if not ever, and at the time of writing there seems no end in sight. The combination of circumstances that have contributed to this perfect storm are by now well known: the collapse in oil and mineral prices, an over-speculation on new tonnage and a worldwide downturn in maritime activity.

Shipping is, of course, a cyclical business and there will always be times of feast and famine, but this particular cycle has been especially brutal.

One of the main effects of this depression has been the collapse in vessel values, which has resulted in many owners facing severe problems servicing debt and their asset value/debt ratio has become unsustainable. As a broker, it is difficult enough to tell an owner that their vessel value has depreciated by another 20 per cent this year; any explanation of the reasoning is likely to depress the owner even further.

The valuation is, at the end of the day, merely an opinion – but one that is based upon facts. One of these facts is that it is probably the best time in a generation to buy a new vessel as there are so many speculative vessels on the market at bargain prices. Buyers with cash and who are debt free will be in a position to seriously undercut those owners who have expensive vessels and considerable debt.

While sale and purchase activity is at present minimal, there is a divergence between the harbour/terminal tug and offshore markets.

The only real activity in the offshore market is from vessels changing hands at bargain basement prices, and although this is also happening in the harbour tug market, there remains a continued requirement for newbuilding harbour tugs.

The new build activity is necessary as bollard pull requirements continue to rise, with tenders being awarded from a specification that needs a new or relatively modern second-hand vessel. Modern second-hand vessels remain expensive (by virtue of the fact they were ordered or delivered at the top of the cost cycle) so a newbuild is usually the best option.

"... it is probably the best time in a generation to buy a new vessel as there are so many speculative vessels on the market at bargain prices"

As already mentioned, this is the best time in many years to buy a new vessel, especially for those who have cash, and the market remains flush with good quality, low-cost speculative newbuildings. Many new vessel resales can be purchased at low prices because the speculative builders have a business model where cash flow, rather than profit, is king in a market such as this.

Therefore, any buyer with cash is able to strike a hard bargain. Some recent examples have seen new vessels sold at 50 per cent of the price that a sister vessel (with older technology) was sold at five years ago.

In addition to the speculative newbuild bargains, there have also been a large number of distressed sales. These sales occur when the owner has little choice or incentive to keep the vessels any longer. This could be because the owner is getting out of the business altogether, or where the vessel is earning no income and is costing money, or even in situations where the owner desperately needs cash. In other words, better to sell quickly and cut their losses.

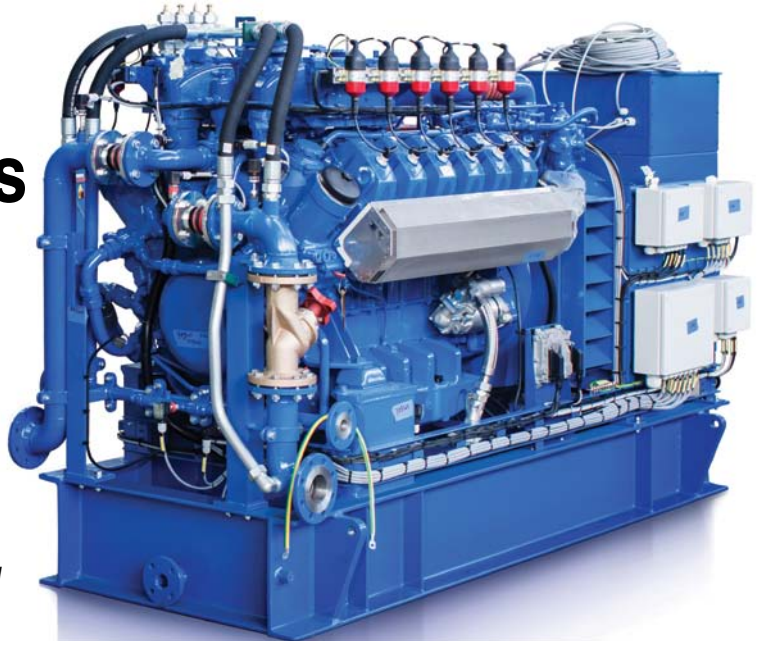
So it is in these turbulent times that the role of the shipbroker becomes more important than ever. Negotiations are taking considerably longer – and the longer a negotiation takes, the more likely it is that a dispute will delay or even wreck a successful outcome. The broker in these cases should be astute enough to spot the signs of a potential problem and be prepared to absorb the venom before the situation gets out of hand. Simple flare-ups in any negotiation can easily lead to a major misunderstanding but especially in times of stress. The shipbroker is there to avoid that.

One consequence of the present market is that there has been an explosion of vessels for sale being circulated. Many have been circulated genuinely at the owners' request and are a necessary part of the broker's duty. Others, however, have not. This is unfortunate, as it gives the impression that the owner is desperate to sell, the broker has done them – and shipbroking – no favours at all. But where the broker really comes into their own is not by selling vessels that are openly on the market and being circulated to all and sundry, but by identifying and offering their clients those deals and opportunities that are not apparent to the market in general.

The shipbroker has always had a lot to offer the market – but it is in uncertain times like these that the broker's skill is needed more than ever.

Eco-friendly gen sets gaining popularity

Engine supplier, MAN Rollo, a pioneer of sustainable propulsion, is providing the crane vessel *Werkendam* with three LNG generator sets. International marine and offshore contractor Van Oord is currently building the ship at Neptune Shipyards in Hardinxveld-Giessendam. It is the first LNG-powered vessel for both the yard and Van Oord.



► *A MAN Rollo LNG generator set. The three installed on* **Werkendam** *will provide 1,425kW of power*

Karel Schuurman, sales manager marine engines at MAN Rollo, said: "We want to make a difference in the market for environmentally-friendly applications.

"Our knowledge and experience in gas engines will certainly contribute to the acceptance of LNG in the maritime industry. Van Oord chose our LNG generator sets for the hybrid propulsion of ***Werkendam***. That is an acknowledgment of our leading role in this area."

Together the three generator sets will provide a power supply of 1,425kW. A 38m^3 LNG storage tank will be placed on the rear deck. This ensures enough fuel to sail and operate for two weeks without stopping to refuel.

Neptune's project manager, Michiel Buné, said: "This new propulsion created new challenges especially in terms of space because of the LNG tank and the additional emergency shutdown system safety features. Together with MAN Rollo we've been able to solve these issues effectively.

"For Van Oord, energy efficiency is one of the spearheads of the company's sustainability agenda. With this investment, Van Oord hopes to gain experience with LNG-powered vessels."

The three generator sets are the company's second LNG order.

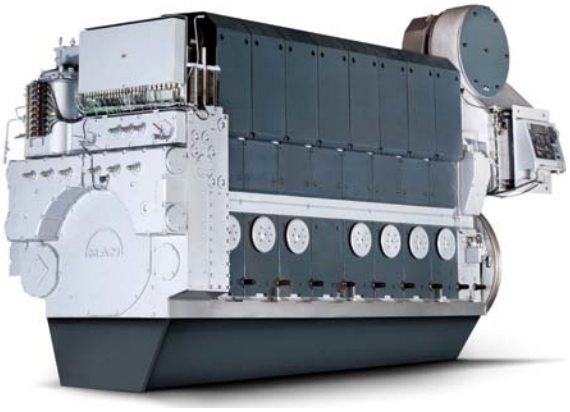
First major deal for partnership

MAN Diesel & Turbo and Aspin Kemp and Associates (AKA) have received an order in connection with the building of a multi-purpose supply vessel for a federal Russian agency.

Delivery is scheduled for March 2018 in St Petersburg and marks the first successful collaboration between the two partners since Germany-headquartered MAN Diesel & Turbo bought a 40 per cent share in Prince Edward Island, Canada-based electric and hybrid systems company AKA in June.

The order is for four MAN 7L21/31 gen sets, including alternators, with AKA's scope of supply for the order covering: complete 690v main switchboard, 690v to 400v transformers, electric motors for main props and thrusters, frequency converters for electric motors, and the drive control and power-management systems.

Wayne Jones, chief sales officer at MAN Diesel & Turbo, said: "This specialist vessel, with its unique operational demands, showcases our competence as a solution provider and the broader capability we now possess with AKA's energy management expertise. It is encouraging for our new partnership that the previous vessel in this series was equipped with an identical propulsion package, but from a different supplier."



▲ *The MAN 21/31 engine*

AKA CEO, Jason Aspin, said: "We are excited to deliver on this first order together with our new partner. Our expertise in energy management and electrical-system integration, combined with MAN's vast experience in power-train solutions, allows us to deliver a completely integrated power and propulsion system for this vessel-making it a win-win-win, between our partnership and this client."

The partnership with AKA represents part of MAN 's strategic development programme launched in 2016, known as 'Basecamp 3000+', when the company announced that it would pursue strategic acquisitions and partnerships to expand its product range with respect to the global trends of decarbonisation and digitisation.

◄ *Sigmar Gabriel, centre, with Andreas Schell, left, and Marcus A Wassenberg*

German minister visits green-focused plant

German minister of foreign affairs, Sigmar Gabriel, visited Rolls-Royce Power Systems in Friedrichshafen to hear about development and production of the very latest environmentally-friendly focused propulsion and drive systems for ships, trains and heavy land vehicles, and for power generation.

CEO Andreas Schell and CFO Marcus A Wassenberg took the minister on a tour of the plant to explain the company's 'green and high-tech' programme.

Schell said: "We launched the programme in 2016. It involves us investing very deliberately in environmentally-friendly solutions of the future which are aimed at fewer pollutant emissions and lower consumption of energy and raw materials."

MTU is to ship the first certified production gas engines for marine applications in 2018.

The minister was also shown diesel engines with newly-developed eco-friendly exhaust after-treatment technology.

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Half of Med coast ships biofouling

A study into the extent to which biofouling on ships' hulls is contributing to the spread of invasive aquatic species in the Mediterranean Sea – a phenomenon commonly associated with ship ballasting operations – has been welcomed by Belgium-based marine coatings supplier Subsea Industries.

According to recent research published by Tel Aviv University's (TAU) school of zoology, half the ships passing along the Mediterranean coast of Israel are carrying invasive ascidians, presenting a threat to ecosystems around the world.

TAU's Dr Noa Shenkar, who led the research, said: "These organisms are passing through the Suez Canal, latching onto ropes and the bottom of the ship.

"They're filter feeders, so they cover and clog every surface they latch onto, creating a lot of drag for the ship and damaging marine biodiversity in their new environments. They're a major threat to our coasts and are very costly to shipowners."

Among the wide occurrence of non-indigenous ascidians (NIA), TAU researchers also discovered a Caribbean species new to the region. The findings, they say, "strongly support the hypothesis that marine vessels constitute a substantial vector for the introduction and dispersal of NIAs".

Subsea Industries' founder and chairman Boud Van Rompay, said: "The NIA threat is increasing because the antifouling systems in use since the ban on the biocide Tributyltin (TBT) have been less effective in eliminating hull fouling. There is currently no miracle cure that will, on its own, prevent the spread of NIAs.

"The only known way of removing the threat is to clean the fouling organisms off mechanically, which is only possible with a hard-type coating. This ensures the underlying protective coating is not damaged. The industry has to consider taking a different approach to hull protection."

The university's *Monitoring the Magnitude of Marine Vessel Infestation by Non-Indigenous Ascidians in the Mediterranean* paper states that "self-polishing hull coatings are ineffective" in controlling biofouling in "hidden and protected" areas.

The research also finds: "The method of rapid high-pressure fresh-water wash fails to provide adequate treatment for removal of invertebrates inhabiting internal hidden areas; especially ascidians, that can survive the dry-docked time outside the water.

► *Subsea Industries founder and chairman Boud Van Rompay*

"Of greater concern is that it allows vessels to continue their regular operations and at maximal speed for longer periods; conducting a thorough maintenance procedure every three to four years rather than every one to two years."

Commenting on the findings, Van Rompay said: "This research substantiates what we said in January this year: that the entry into force of the Ballast Water Convention will not alone prevent the transfer of invasive aquatic species. There has to be mandatory legislation in place to prevent biofouling on ships' hulls. Hopefully this research will generate greater awareness of the problem and result in appropriate action."

Arctic research organisation backs hull hard coating

British Antarctic Survey's (BAS) decision to apply Subsea Industries' Ecospeed hard coating to the hull of its new polar research ship *RRS Sir David Attenborough* has been validated by the recent drydocking of sister vessel *RRS Ernest Shackleton*.

The 80m-long vessel, coated with Ecospeed in 2009, drydocked at the Orskov shipyard, in Frederikshavn, Denmark, where the hull was found to be in "very good condition".

BAS superintendent Andrew Webb, said: "***Shackleton***'s hull condition is the best I have seen after typical ice year operations. We tend to account for touch-up coats every other year to areas impacted by the ice, but this year we needed to repair even less surface area than expected, despite the vessel encountering heavy Antarctic ice."

The Orskov yard had to touch up areas in the bow and rudder areas. A touch-up coat was last applied in 2015. Only remedial coats are required as Ecospeed is a one-coat system and does not need to be removed or reapplied.

The durability of the coating and the ease with which repairs can be effected were the reasons why BAS/NERC selected Ecospeed for the newbuild ***RRS Sir David Attenborough***.

Webb said: "The shipyard initially wanted to apply its preferred supplier's coating system, but based on our experience of this coating on the ***James Clark Ross*** and ***Ernest Shackleton*** we wanted Ecospeed.

"We already had this system on the entire hulls below the water line of both research vessels and found it much easier to repair: it doesn't need to be applied under such strict environmental conditions or require the hire of any specialist application equipment."

During 2013/14 BAS replaced the competitor system with Ecospeed across the entire hull of ***James Clark Ross***.

Subsea Industries' hull protection system will be applied to the hull of ***RRS Sir David Attenborough***, the polar research ship under construction at the Cammell Laird shipyard in Birkenhead, UK. The 15,000gt research vessel, scheduled for operational duties in 2019, will be one of the most advanced polar research vessels in the world.

▲ *Two views of the hull of* **RRS Ernest Shackleton** *in dry dock at Orskov shipyard*

Hybrid system enhances green credentials

ABB will optimise the safety and environmental credentials of a new SOV for French family firm Louis Dreyfus Armateurs by installing Onboard DC Grid power distribution to enable the cost-efficient integration of batteries.

As an integral part of the power system, the power and energy management system (PEMS) will ensure safe and efficient operation of the vessel. The hybrid system enables lean operation with fewer running generators without compromising on safety, meaning less maintenance and better fuel consumption over the long-term.

Juha Koskela, managing director of ABB's marine and ports business, said: "Shipping is waking up to the many advantages of energy storage. With the industry starting to use batteries more and more, and fuel cells becoming a viable option, we fully expect the Onboard DC Grid to gain further traction."

The grid will integrate two sets of batteries used primarily for spinning reserve and peak shaving. Power peaks during operation can be covered by the battery rather than starting another engine. Again, battery power can act as backup for running generators, reducing the need to run spare generator capacity. In addition to ship efficiency gains, the mode of operation has long-term benefits for ship engines, as it increases efficiency through higher engine load and reduces running hours overall. ABB's grid has already been installed on a wide range of vessels including OSVs, a cable layer and ferries.

► *An artist's view of the Louis Dreyfus Armateurs SOV in operation*

John Olav Lindtjørn, global product manager for Onboard DC Grid at ABB Marine & Ports, said: "This project shows how energy storage is a cost-effective solution that maximises energy efficiency and safety. Energy storage can be used for many purposes on board; sometimes it serves as the sole energy source but for this windfarm vessel it is being deployed as an effective supporting element for the main engine."

The whole power system is controlled by integrated PEMS, enabling the generators to run at variable speeds and charge the batteries in the optimal way while at the same time maximising safety and efficiency. This contrasts with traditional AC systems, where generators run at fixed maximum speed irrespective of the power demand on board, leading to excessive engine wear and poor fuel efficiency at lower loads. The ship's crew will also benefit from the reduced vibrations.

The Louis Dreyfus Armateurs SOV will be built by Cemre Shipyard in Turkey. The vessel design is by Salt Ship Design.

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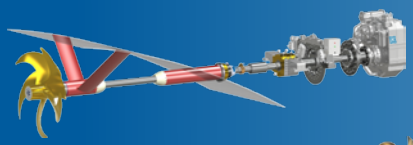

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