

International Tug & OSV

INCORPORATING SALVAGE NEWS

January/February 2018



Still the best contract – why all you need is LOF

Asian Focus – news and views from across the region

Future proof – the world's first remote-controlled tug in action



TUGBOAT With Hydraulic
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LNG Powered TUGBOATS



Remote Operated Commerical Vessel

WORLD Firsts By SANMAR





FRONT COVER

Med Yarmca: Med Marine's new RAmports 2500W series model tug, designed at Robert Allan Ltd of Vancouver, Canada, has been delivered to Turkey's Izmit Bay bringing the total number of Med Marine tugboats operating in Turkey to 20. The 25m-long by 12m-wide vessel has a bollard pull of 73 tonnes and is powered by two CAT 3516C diesel engines. Delivery report, page 42.



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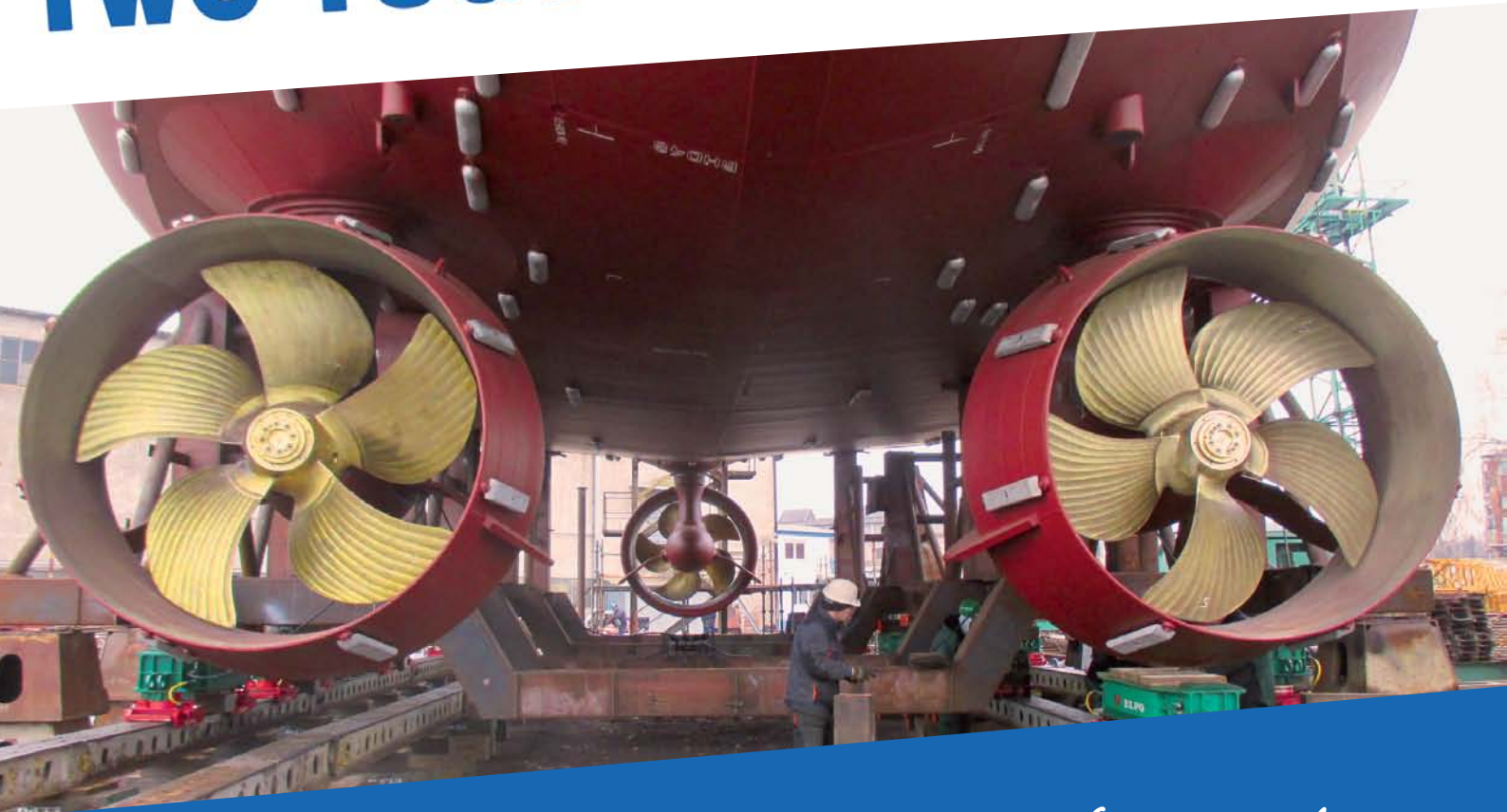


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TWO TUGS FULL CONTROL



By Rotortug.



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Hope and promise ahead

Welcome to our first issue of 2018, a year full of promise and hope as the green shoots of recovery start to show and technology advances at a break-neck speed, but also one tinged with sadness as we mark the death of our founding chairman, Allan Brunton-Reed, who died at his home in Wiltshire, UK, on 2 December surrounded by his loved ones, after a battle with cancer.

Allan was a towering figure at the heart of the tug, salvage and offshore industries that he loved; a walking encyclopaedia of contacts throughout the business, all of whom he counted as personal friends. His knowledge of the sector knew no bounds nor did his determination, bonhomie, warmth and kindness. A loving husband, father and grandfather, he will be sorely missed by everyone who had the pleasure of knowing him. Allan's close family attended a cremation service at the end of last year and a memorial service and celebration of his life will take place in Wiltshire on 15 February. Anyone wishing to attend should contact Melanie Tierney on mel@tugandosv.com for further details. An online JustGiving account in Allan's memory to raise money for the charity Pancreatic Cancer Research Fund has been set up at www.justgiving.com/allanbruntonreed



Our At The Helm feature interviewee this issue is Shipyard De Hoop CEO and sole shareholder Patrick Janssens, who talks to contributing editor John Oliver about his commitment to interesting ships and what gives him grey hair, while in our Salvage section regular columnist Simon Tatham looks at contracts and concludes that 'all you need is LOF' and contributing editor Joceline Bury reports from a recent London seminar on offshore decommissioning – a sector viewed as a lucrative growth area by many a salvage firm executive.

Special features in this issue include a look at the news and views from the Far East in Asian Focus, while in our Fire-fighting & Pollution Control section Tom Guldner of Marine Firefighting Inc looks at how increasingly strict environmental standards mean that dewatering is now a major factor in salvage and fire-fighting operations, and Truls Aannestad, CEO of Fire Fighting Systems, discusses how ongoing technical developments are encouraging manufacturers to offer new solutions for off-ship fire-fighting. In our Deck Machinery section, Ben Bryant, marine market manager at Klüber Lubrication, looks at how to handle today's deck equipment challenges with advanced greases. We also talk to Glenn Armstrong, CEO of Maritime Cook Islands registry about how the market for smaller vessels has grown in recent years, as owners demand a more personal service.

Finally, as you can imagine, we're all rather busy getting ready for the industry-leading and unrivalled International Tug, Salvage and OSV Convention and Exhibition (ITS) which takes place in Marseille from June 25-29, and is marking its 50th anniversary this year. I'm looking forward to seeing many of you there. Early bird discounts are available until 16 February via our website www.tugandosv.com

John McCready, Editor

We deliver!



Entrepreneur who fell in love with tugboats

Kenneth Allan Brunton-Reed
Born 11 November 1946,
Sunderland, Tyne and Wear, UK.
Died 2 December 2017 at home in
Bradford on Avon, Wiltshire, after
a battle with cancer

If there was a degree for optimism Allan would have graduated with a first; indeed, his grandmother said: “If he fell in the sea, he would come out with his pockets full of fish.”

Allan was born just after the end of World War II into a family that had printing ink in its veins, the second of five sons of Kenneth and Dorothy Brunton-Reed. Allan grew up in the north-east of England, attending Tunstall preparatory school and then going on to Durham School, where his father had also studied. After Durham he attended the Newcastle School of Printing and then went to live in Switzerland to complete his training in printing and graphic arts. While there he became a fluent French speaker.

While in Switzerland, Allan first worked for a company in Vevey that produced packaging for the tobacco industry and also had the licence for Tetra Pak® packaging, before moving on to companies in Lausanne and Berne where he learnt publishing industry skills such as making printing inks, book binding and press quality control. His final role in Switzerland was selling advertising space in the Swiss magazine, *Yachting*.

Returning to the UK in 1967, he joined the family business on the publishing side, as



his older brother was already in the printing division. This meant moving to London, which Allan enjoyed to the full.

Allan married the love of his life, Elizabeth Cowie, in July 1972 in Durham School chapel. The couple went on to have two daughters, Nicola and Sally, and a son, Jamie, who sadly died when only 20 years old.

Allan and Liz were later blessed with two supportive sons-in-law and seven grandchildren who were his pride and joy.

When not working, Allan enjoyed playing golf and supporting Bath Rugby. He was also a keen skier, although taking the car on one holiday may not have been the best option. Implicitly trusting the satnav and taking full advantage of the vehicle's off-road capabilities, roads turning into snowy tracks were taken in their stride. It was only when Liz and Allan found themselves driving on to a marked piste, to the amazement of the skiers, that they realised that they had missed a rather vital turning.

Allan's life in the publishing world had started as a junior sales executive, selling advertising and books, both for the world-renowned *Reed's Nautical Almanac* and also *Ship & Boat* magazine, which were

▲ *Allan Brunton-Reed, founder chairman of The ABR Company Ltd*

part of Thomas Reed Publications.

In 1968 he and *Ship & Boat* editor Ken Troup, a qualified naval architect and marine engineer, saw a gap in the market and came up with the idea of holding a gathering of tug industry experts, while having a drink after work in the famous Printer's Pie pub on London's Fleet Street, then the home of the UK's printing and publishing industry.

The first conference was held in October 1969 at the National Physical Laboratory in Teddington, on the outskirts of London, a venue chosen because Allan's father, who held the purse strings, was not convinced of the conference's potential, so wanted to keep the budget to a minimum.

Without the modern-day advantage of email, all potential delegates were contacted by letter or telephone, but the laborious effort soon paid off and people from around the world were registering as delegates. Allan knew that the first conference would break even if it could attract 100 people. In the end they had more than 250 delegates.

The first two conferences were held in London. However, due to the large numbers attending from North America, particularly



◀ *Allan and Liz shared more than 45 years of happy marriage after their wedding in July 1972*

► *Liz would often accompany Allan on his many journeys around the world, for both business and pleasure*



the West Coast, it was decided to hold the third in Vancouver, Canada. Since then, *ITS* conventions and exhibitions have been held in major port cities across the world.

During the intervening years Allan's concept has gone through numerous guises to grow and develop into the biennial *ITS* conventions and exhibitions of today. The alternate years are now taken up with the aptly named *Tugnology*, a smaller event concentrating on the technical side of tug design, construction and operation.

While the conferences were going from strength to strength, Allan's family business, Thomas Reed, was not faring so well during a major recession, and in 1990 went into receivership.

Allan tried to buy back the marine publishing arm, Thomas Reed Publications, from the receiver, but was pipped at the post by a company which offered exactly twice as much as his bid. However, a condition of the deal was that Allan remained at the firm. At the time he had a large mortgage and school fees to pay, so he reluctantly agreed.

Three years on, the company again went into receivership, but this time Allan was able to buy it back and it literally became a one-man business, operating out of the back bedroom of his home.

The company was renamed The ABR Company Ltd and the two-yearly conventions changed their name from *International Tug Conference to International Tug & Salvage (ITS)*, a name that stuck even after Allan bought the rights to the original title.

Allan launched his own magazine 22 years ago to report on and promote the conferences, first as a sophisticated newsletter called *ITS Report*, which eventually became *International Tug & Salvage* and more recently *International Tug & OSV incorporating Salvage News (IT&O)*.

Allan had a wealth of fond memories of *ITS* conventions and the people attending them, but if pressed, said that his favourite of all was the record-breaking tug display in Rotterdam in 2006, an event that made it into *The Guinness Book of Records*.

The forthcoming *ITS* convention in Marseille from 25-29 June this year will mark



50 years since the idea was born, and Allan was devastated when he realised he was not going to be there for the show – for a 'show' is what he prided himself in putting on, with not only intellectually stimulating papers, but a full social programme to enable the world's leading experts, entrepreneurs and top-level executives to meet, talk and do business.

Allan took the news of his diagnosis with amazing courage and fortitude. There was no hint whatsoever of what would be perfectly understandable remorse or self-pity

Despite ever increasing numbers, Allan had a remarkable facility to recall, almost without exception, every delegate's name and background, even those who might be infrequent delegates. They were all Allan's friends and he was theirs.

Allan took the news of his diagnosis with amazing courage and fortitude. There was no hint whatsoever of what would be perfectly understandable remorse or self-pity. He simply got on with the things that needed to be done in the most professional manner, as he had done all his life.

▲ From the left, Allan Brunton-Reed with brothers Nigel and Nick, mother Dorothy, father Kenneth, aunt Marjorie and brother Ian

It is never easy to talk to someone with a terminal illness. What do you say? The usual 'how are you?' sounds so completely inappropriate. Allan made everyone feel at ease and, without dismissing what might lie ahead, he was very happy to talk about the immediate future and was characteristically optimistic to the end.

Allan's immediate family attended a cremation ceremony shortly before Christmas. A public memorial service to celebrate his life will be held on 15 February. Contact Melanie Tierney on mel@tugandosv.com for details.

A JustGiving account has been set up to raise money for the charity Pancreatic Cancer Research Fund in memory of Allan. Go to www.justgiving.com/allanbruntonreed if you would like to make a donation.

▼ Allan and Liz with six of their grandchildren Lana, Leo, Ted, Jonty, Polly and Molly and, below left, with his younger brother Nigel, who took over as chairman of The ABR Company Ltd when Allan stepped down last year



ITS 2018 early bird discounts still available



Registration is now well underway for the eagerly-awaited *International Tug, Salvage and OSV Convention and Exhibition (ITS)* in Marseille, France, from 25-29 June, with early bird discounts still available until 16 February. Further discounts are also available to *ITS Club* members.

Details of prices and how to register to attend are available via our website: www.tugandosv.com

Organised by the ABR Company Ltd, publishers of *IT&O*, the much-anticipated conference and exhibition is firmly established as a must-attend event in the industry's calendar. Celebrating its 50th year this year, *ITS* attracts top-level executives and decision-makers from across the globe, providing a unique opportunity once every two years to meet, learn and do business – a lot of business.

ITS 2018 Marseille will celebrate the innovation, invention and forward-thinking that, even in an uncertain economy (or perhaps because of it), is driving our industry forward along with the traditional values that continue to enrich and sustain it. This *ITS* convention promises to be more relevant and engaging than ever, merging compelling papers with business opportunities and exciting social events, all in a location that continues to play a powerful role in the maritime sector.

The event will be taking place at the Parc Chanot Convention Centre in the heart of Marseille, with the accompanying exhibition running from 26-28 June. At the time of writing, around 90 per cent of exhibition stands had been sold, so companies wishing to showcase their business to the senior executives, technical experts and decision-makers attending the event are advised to do so sooner rather than later. Again, details are available via our website.

As with all previous *ITS* events, the stands



Early bird registration deadline is 16 February, with further discounts available for ITS Club members. Full details and online registration form at www.tugandosv.com

will be sold on a first-come, first-served basis. The three-day conference will take place to the rear of the exhibition hall.

Papers for the conference have now been selected by our paper selection committee and reflect key areas covered by *IT&O*, delving into subjects that are sculpting the offshore industry, hotly-debated salvage issues, tug innovations and more. The unrivalled *ITS* conventions are renowned for

▲ Marseille's picturesque Old Port at night

their ground-breaking papers, high-profile speakers, audience discussions and business opportunities; many a deal has been struck during The ABR Company's events. A synopsis of all the papers being presented at *ITS 2018 Marseille*, including details of those who will be presenting them, is also available on our website: www.tugandosv.com

Organisers are now putting the finishing touches to the event programme and running order, which will also give details of the various social events accompanying the formal business of the conference and exhibition. These will provide numerous opportunities to network and forge new ties at receptions and at the gala dinner.

Garth Manson, managing director of The ABR Company, said: "We're extremely busy putting everything in place to make *ITS 2018 Marseille* the best convention to date. I am delighted with the response so far. This is clearly a must-go-to event for industry leaders in the tug, salvage and offshore sectors.

"I'm really pleased to see that once again we will have an international audience and a large number of delegates signing up who have attended previous *ITS* events. I'm very much looking forward to meeting old friends and making new ones in Marseille."



► *Historic Marseille has been an important port since Roman times*



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Review could see business sold

Rolls-Royce is embarking on an evaluation of strategic options for its commercial marine operation, which supplies equipment and vessel design across the oil & gas, merchant and other commercial markets, including selling it as part of what it calls a further simplification of its worldwide business.

CEO Warren East said: "This is the right time to be evaluating the strategic options for our commercial marine operation. The team there has responded admirably to a significant downturn in the offshore oil & gas market to reduce its cost base.

"At the same time, we have carved out an industry-leading position in ship intelligence and autonomous shipping and it is only right that we consider whether its future may be better served under new ownership."

Since 2015 Rolls-Royce Marine has responded to weak demand for products and services for the offshore oil & gas market, which significantly impacted its profitability. It has divested non-core businesses and reduced the number of sites from 27 to 15 – an overall reduction in footprint of 40 per cent. It has managed a reduction in its workforce by 30 per cent to 4,200,

with the majority now based in the Nordic region. At the same time, the business has been investing in new facilities and new technologies and become an industry leader in the fields of ship intelligence and autonomous vessels, culminating in June last year with the successful demonstration, in Copenhagen harbour, of the world's first remotely operated commercial vessel (see page 30).

Regardless of the outcome of its review, which will take place during 2018, Rolls-Royce will retain the marine operations which supply complex power and propulsion systems to naval customers, including the Royal Navy and US Navy. During the first quarter of 2018, these naval operations will become part of an enlarged defence business named Rolls-Royce Defence, comprising the current defence aerospace business and its nuclear submarines operation. It will also continue to have a successful engine business serving marine customers within its power systems business.

In 2016, Rolls-Royce Marine contributed £1.1bn revenue and generated a loss of £27m. Within this, the commercial marine business accounted for 75 per cent of revenues while



► Warren East

the naval operations accounted for 25 per cent and achieved a small profit. Marine continues to be impacted by weak demand for products and services for the offshore oil & gas market and will continue to pursue cost reduction opportunities.

East said Rolls-Royce would see a reduction from five operating businesses to three core units based around civil aerospace, defence and power systems.

The company plans to consolidate its naval marine and nuclear submarines operations within its existing defence business, and civil nuclear operations within its power systems business. This will facilitate a more fundamental restructuring of support and management functions.

Versatile new harbour tugboat comes with design twin

Naval architect Robert Allan Ltd of Vancouver, Canada, recently put the finishing touches to a versatile new 25m harbour tug design for Sanmar Shipyards of Turkey to add to its ever expanding product portfolio.

The design was developed so that hulls could be outfitted as either a 25m tractor tug with aft working deck or as a 25m Rotor® tug with both fore and aft working decks. The innovative design can have either of two class designations: TRAktor 2500-SX or ART 60-25SX.

Working closely with the Sanmar team, the design was developed with Sanmar's marketing objectives, production efficiencies and standardisation aspirations in mind. Many components are identical to those used by Sanmar on other production models. Also the propulsion equipment selected for the design is the same as fitted in other Sanmar class vessels, allowing equipment orders to be made in bulk, saving cost and enabling flexibility to allocate equipment to the vessel where it is needed most, ensuring the fastest possible delivery to clients.

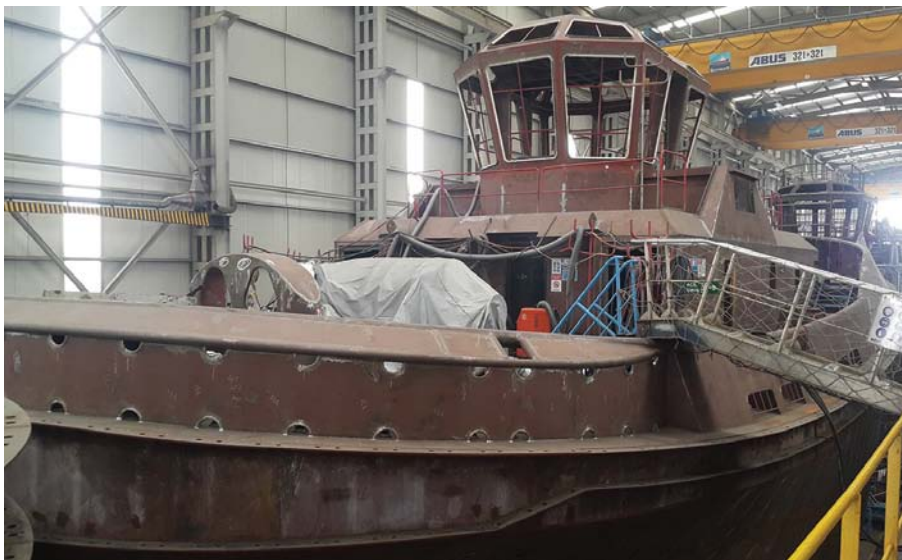
The hull and appendage alternatives were extensively model tested at the Vienna Model Basin and also analysed in-house at Robert Allan Ltd using CFD to obtain an optimal balance between controllability, manoeuvrability, fuel efficiency and roll dampening.

The stern of the hull features the simple, but extremely effective, StRAke stabilisers developed by Voith and Robert Allan Ltd which improve tractor tug directional stability, allowing for a reduced size skeg and thereby improving manoeuvrability and fuel efficiency.

Tractor tug versions of this new design are available with various bollard pulls up to 70 tonnes. Rotortug versions are available with up to 60 tonnes' bollard pull.

After securing an order from the Port of Taranaki last year for the first hull, a 60-tonne tractor version customised to suit the owner's requirements, Sanmar is now building a trio of 70-tonne bollard pull tractor versions of this new series which they will be designating as the Deliçay Series. The vessels will feature Rolls-Royce US 255 drives.

The first of the three is in an advanced stage of construction, with delivery scheduled for February. Rotortug versions of the new design are anticipated in the near future.



◀ A 70-tonne BP TRAktor 2500-SX under production at Sanmar's Tuzla Shipyard

Photo: Sanmar

In brief

Wärtsilä has agreed to retrofit the world's first energy storage solution on board a large OSV. *North Sea Giant* will be fitted with the system that reduces its energy consumption, operating costs and exhaust emissions. Typically, a vessel with dynamic positioning uses two or more engines simultaneously to secure back-up power. This means that the engines' load runs low. By using a hybrid/battery system to provide the back-up power, the operational engine can be used closer to its optimal load.

Solstad Farstad has entered a five-year contract, with a further three-year option, with Bahia Grande for the CSV *Normand Commander* to operate in Argentina. The contract was scheduled to start in February.

The offshore decommissioning market is expected to grow from an estimated US\$5.91bn in 2017 to US\$8.76bn by 2025, according to a report by analysts at research company MarketsandMarkets.

Tug operator plans to use drones to connect towlines



Netherlands-headquartered Kotug has applied for a patent to use drone technology in its tug operations, in its ambition to achieve safer and more efficient working conditions.

The pioneering invention – using a drone to connect the towline to an assisted vessel – will drastically improve the safety margin of tug operations as it will avoid the need for

▲ *An artist's view of the towline drone in action*

manoeuvring in the so-called danger zone.

Kotug will be the first tug operator to use this technology to deliver a messenger line to a predetermined location with object recognition software. Instead of picking up the heaving line of the assisted ship, the messenger line of the tug will be brought to the assisted ship in a more controlled manner. This will allow the tug to safely sail beside the assisted ship instead of in front of it.

Conventionally, tugboat and crew position themselves in front of and close to the assisted vessel in order to grab the heaving line by hand. By doing so, the tug and crew position themselves in the danger zone, close and even under the bow of a vessel. A minor flaw in the operation can result in major injuries to crew and damage to the vessels.

A series of tests is scheduled to be performed for full operational use of this technology for which standard operating procedures will be developed in conjunction with relevant authorities and stakeholders.

Firm wins 15-year terminal deal

Singapore-based Summit Power International (SPI) has awarded a 15-year contract to PSA Marine to provide berthing, mooring, pilot and personnel transfer services to LNG ships calling at its LNG FSRU terminal in Moheshkhali, Bangladesh, with three escort tugboats, a fast crew boat and an OSV.

The award of this contract marks a significant milestone for PSA Marine and

commencement of a long-term partnership with SPI. Operations are targeted to commence in early 2019.

In 2017, Summit LNG received a concession for a storage and regasification unit connected to shore by a 6km subsea pipeline, on a build, own, operate, transfer basis in Moheshkhali, to supply approximately 500m ft³ per day of natural gas to the Bangladesh national grid.

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New engine has big impact on pulling power

Early in 2017 a shipyard in Spain delivered two state-of-the-art water-jet catamaran crew boats. Each boat had 16,000hp derived from four of Cummins' new QSK95 marine diesel engines. Following several years in development, the engine has proven itself in this high-speed application. The QSK95-M is certified to IMO Tier II emission standards.

To round out the offerings, while demonstrating the versatility of the QSK95,

Cummins has contracted naval architect firm Robert Allan Ltd of Vancouver, Canada, to prepare drawings of its proven RAStar 3500 tug design with a pair of the QSK95 engines for power. The design and the engines are a good match.

These high-speed, 1,800 rev/min engines each deliver a remarkable 3,132kW (4,200bhp) while weighing only 13,282kg (29,282lbs). This is the same horsepower range that some recently delivered ocean

towing tugboats have been using.

The RAStar 3500 tug design has earned a respected role in escort and ship handling duties due to its innovative hull design, among other features. Multiple ports in such diverse locations as China's Tianjin Port and Western Australia's Port Hedland have adopted tugs in the RAStar class.

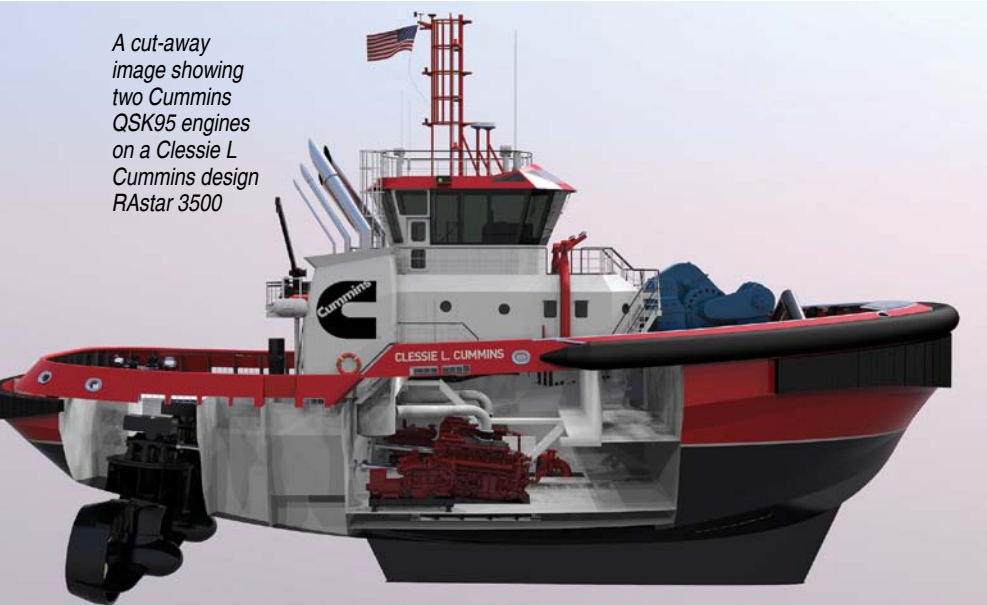
To support the combined 8,400hp of the Tier II compliant QSK95 engines, these are, at 35m by 15m, big tugs. The Cummins engines will turn 3,200mm, four-blade Kaplan azimuthing propellers in 19A type nozzles through a reduction of 8.476:1. With this configuration, in computerised testing carried out by Robert Allan Ltd, this tug design delivered a remarkable 96-tonne bollard pull astern and 102 tonnes ahead. The model also generated an estimated 14.2-knot free running speed with a 4.5m light draft. The tug's normal draft for navigation would be 6.5m.

Using the Robert Allan Ltd designed skeg on the hull and the staple arrangement on deck, as has been demonstrated with similar tugs currently in service, an escort tug powered by a pair of Cummins QSK95 engines has become an attractive option.

As designed, the escort/offshore terminal tug would have two Cummins QSK19 powered generator sets for ship's power and for the 400hp hawser/escort winch on the tug's bow. A single Cummins QSB7 would meet the tug's hotel demands when in port.

For the design and renderings, Cummins executives have chosen the name of the company's founder, Clessie L Cummins, in honour of the QSK95's contribution to the firm's tradition of innovation and meeting new challenges.

A cut-away image showing two Cummins QSK95 engines on a Clessie L Cummins design RAStar 3500



Shipbuilder expanding activities

Following the establishment of a naval shipyard in Nigeria in 2004, then in Vietnam in 2006 and in Algeria in 2013, the Piriou group is continuing its international development by setting up in Senegal and Réunion island in the Indian Ocean.

In Senegal it has partnered with marine equipment and engineering industries group Ngom & Freres, a major player in the Senegalese maritime sector for more than 20 years.

New company Piriou Ngom Senegal offers ship repair and building services, especially in the fields of service vessels, fishing vessels and defence.

This move is part of Piriou's strategy aimed at getting closer to its customers via alliance with a strong local partner using technical and logistic support in France and local staff.

On Reunion, Piriou – in partnership with Laurent Virapoulle of Peche Avenir – has set up Piriou Réunion as a services company for shipowners.

The company will be located in Port Ouest and was due to become operational in February.

Piriou Réunion facilities will feature workshops designed and equipped for mechanical and diesel engineering, piping, boiler making and welding.

In brief

Lloyd's Register Quality Assurance has visited two yards and one sister company from Damen Shiprepair & Conversion's global network to audit their management systems. In the Netherlands, Damen Shiprepair Amsterdam and Niron Staal received ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007 certifications. Damen Shiprepair Curaçao gained ISO 9001:2015 and ISO 14001:2015.

Robert Allan Ltd has been selected to design a dual fuel ship-handling tug for PSA Marine to operate in Singapore. The Canada-based naval architect has previously designed the dual fuel RAStar 4000-DF for Østensjø Rederi, Norway, and RAStar 3800-DF for Ningbo Port, China.

Tugs freed from ice

US Coast Guard's (USCG) 140ft ice-breaking tug *Penobscot Bay* freed commercial tugs *Brooklyn*, pictured right, and *Stephanie Dann*, which had become stuck in ice on the Hudson River.

USCG ice-breaking tugs from Bayonne, New Jersey, and Saugerties, New York, are positioned along the river during winter.





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Acquisition enables expanded product range launch

Sweden-headquartered Dellner Brakes launched an expanded range of power transmission products to the US marine market at the International WorkBoat Show (IWS) in New Orleans, following its acquisition of US brake and clutch specialist Gummi USA.

Since the acquisition in September last year, the enlarged business has already started to work together under one umbrella and the company's US stock and distribution operations have been consolidated to the Dellner Brakes Gummi USA facility in Houston, Texas.

Dellner Brakes CEO Marcus Aberg said: "Our acquisition of Gummi USA is a real milestone for us, as it will enable us to strengthen our distribution in North America, a market where we are very keen to expand. We are also now able to meet our customers'



power transmission needs with a wider range of products."

These products include Gummi USA-branded drum shaft brakes, reduction gear clutches, torsional couplings and rotary unions as well as Dellner Brakes' technologically-advanced braking solutions such as the company's ground-breaking 'stopping, turning, locking' (STL) system.

▲ Dellner brakes and clutches are being targeted at the American marine market

The STL system is an innovative design that has seen continuous development over recent years, to meet the changing needs of the market and customers' specific requirements. For example, Dellner Brakes has recently custom built its largest ever STL system for the UK Royal Navy's new aircraft carriers: the recently-launched *HMS Queen Elizabeth* and the under-construction *HMS Prince of Wales*.

The 65,000-tonne vessels each have two propeller shafts, each fitted with an 11,000kg STL system that allows operators to stop, hold and securely lock each shaft independently, and to individually turn the shafts and giant 33-tonne propellers for maintenance and blade assembly.

Dellner Brakes has also launched the world's first fully automated electrical version of the STL to complement the company's hydraulic systems. This patent pending Dellner electrical STL system is compact and needs no additional piping, making it quick, easy and cost effective to install, especially where space on board is at a premium.

The company says it is simple to use, hard wearing and easy to maintain, and is perfect for applications where a clean environment is paramount, for example for use in green shipping zones or environmentally-sensitive areas.

Speaking to *IT&O* at IWS, company vice president Edgar Roca said: "The acquisition is a meeting of two companies that offer very complementary products. We will be doing our best to expand our foothold in North and South America, which are both areas that Dellner's fairly new to, but Gummi has lots of experience in.

"We will also be looking to expand into Southeast Asia and China, either with bricks and mortar service centres or just local sales representatives. The opportunity for more acquisitions is always something we'll be looking at."

Lubricant analysis service gives operators a competitive edge

Oil giant ExxonMobil has launched Mobil Serv Lubricant Analysis to deliver operators a full spectrum of operational analysis on its branded lubricants and, through this, of individual vessel's engine condition.

The company's US marine chief engineer, JR Hand, said: "It is a programme that is designed to help customers to look at the condition of the lube oil as well as looking at the condition of their equipment.

"What the operator of the vessel does is take an oil sample on a regular basis – based on a quarterly cycle, monthly cycle or the operating hours of the engine. They mail it in to our lube oil analysis lab, which then contacts them by email to report on the condition of their lube oil, as well as the condition of their engine."

The company says that while oil analysis has been around for quite some time, the Mobil Serv programme delivers results 66 per cent faster.

Speaking to *IT&O* at the International WorkBoat Show in New Orleans, Hand continued: "What this does is help operators in a competitive situation, enabling them to extend the life of their lubricant so they're not changing oil quite as often and don't have as much waste oil. The analysis will also reveal the condition

of equipment; for example if we start seeing an increase in wear metals, we know there may be a bearing issue. The programme lets operators know if they need to take immediate action, such as changing oil or fixing a fuel leak, or that no action is necessary. This prevents unnecessary downtime."

The post-analysis email records the past five lab reports, which helps operators comply with regulations such as Subchapter M for which auditors need transparent maintenance records.

ExxonMobil says its close ties with equipment builders and extensive knowledge of international standards help make the data even more valuable.

Meanwhile, the company recently revealed that inspection of a Cummins KTA38 marine diesel engine found minimal wear throughout engine components including piston shifts, wrist pins, crankshaft, camshafts and gears after nearly a decade of operation, or 21,782 running hours, using its Mobil Delvac 1 ESP 5W-40 synthetic oil.

Hand said: "After nine years of operation one would expect to see deposits, scuffing and component wear. However, during this engine overhaul, the cleanliness observed was impressive, and the wear levels were very low."

New tugs expand Brazil operations

Global towage company Svitzer has started operating the first two of four tugs from the INACE shipyard in Fortaleza as it increases its presence in the southeast and south of Brazil. The other two tugs are scheduled to start operating in the first half of the year as part of a plan to have 10 vessels in service in the region.

The new tugs are of Robert Allan Ltd design and 24m long by 11m wide. They are equipped with Caterpillar engines and azimuth thrusters generating a bollard pull of more than 60 tonnes. The combination of compact dimensions and powerful propulsion make them ideal for harbour towage.

Rutger Thulin, managing director for Svitzer in Brazil, said: "With the delivery of *Svitzer Zoe* and *Svitzer Jamil Darian*, we are getting ready for the next phase of our

expansion in the Brazilian market. To meet requests from our clients we entered Latin America's biggest port, Santos, at the end of 2017 and we plan to enter Rio Grande in the state of Rio Grande do Sul in early 2018.

"We are excited to be able to provide safe, reliable and efficient services with these brand-new tugs."

Since arriving in Brazil in 2015, Svitzer has steadily upgraded its fleet. In addition to the delivery of the newbuild tugs from INACE the company expects to grow the fleet further in 2018. Thulin said: "We are supporting our global clients around the world and at the same time expanding our footprint in Brazil to meet their needs. Many clients in Brazil often call at several ports and therefore prefer towage providers that can offer multi-port coverage. By offering high quality, reliable

► Rutger Thulin



and uniform services across a number of ports we can add value to them. We want to attract shipping lines that put reliability, safety and efficiency first."

Svitzer purchased Rio de Janeiro-based Transmar Servicos Maritimos in 2015, marking its entry into Brazil as part of a global strategy of growing its business in emerging markets.

In brief

Classification society DNV GL has commenced the roll-out of IMO-compliant electronic class and statutory certificates across its entire fleet. It says the widespread use of electronic certificates will result in significant efficiency gains for shipowners, charterers, regulators and crew, cutting down administrative burdens, processing time and document handling costs.

A record 403.8m Panama Canal tons of cargo passed through the canal during its 2017 fiscal year, the largest amount of annual tonnage ever transited in its 103-year history. The 22.2 per cent increase from the previous year can be directly attributed to the added capacity provided by the canal expansion.

Classification society ClassNK has released the latest version of *Good Maintenance Onboard Ships*, its comprehensive checklist designed to be used by ship masters, crew, ship owners and other key personnel in order to ensure vessels are safe, well-maintained and comply with latest regulations.

TOS, the international supplier of nautical and technical personnel, which has its headquarters in the Netherlands, has acquired Rotterdam-based Maritime Human Resources (MHR). It says MHR will operate under the new name TOS MHR.

Newly independent firm's orders up



A UK-based workboat manufacturer is reporting a rapidly expanding order book and customer base after becoming a stand-alone business.

Meercat, which employs 16 people in Southampton, now has enough work to last beyond the end of the year.

A management buyout in November secured the future of the firm as a restructured, wholly independent operation. This followed the financial difficulties and subsequent collapse into administration of the firm's former parent company.

Managing director Jason Coltman said: "We have been through a difficult and challenging period, but I can say without doubt that we are swiftly moving ahead with renewed optimism.

"Meercat is now in a position to flourish. We are committed to growing the firm globally, we have an excellent track record and our hard work is paying off in the shape of new orders.

▲ Meercat's workshop and, right, managing director Jason Coltman



"Our customer base is beginning to snowball and we continue to work flat out to complete orders. We are also actively pursuing prospects for new work both locally and further afield as we seek to expand further. Our aim is to continue to develop the great Meercat brand and product range to compete globally with the best vessels in the workboat business."

Confirmed orders include a £500,000 oil spill response vessel for Europe, a 22m landing craft for a Scottish fish farm and an 18m utility vessel for the Shetland Islands.

Recent builds have included the 15m heavy equipment carrying *Spartina*, for Associated British Ports, which can be seen operating in Southampton Water.

In brief

Garmin Ltd has acquired Navionics, a privately-held worldwide provider of electronic navigational charts and mobile applications for the marine industry. Garmin president and CEO Cliff Pemble said: "Navionics has long been known as a leading supplier of highly accurate navigational charts and mobile applications. By combining Navionics' content with Garmin's BlueChart and LakeVü content, we will be able to offer the best available breadth and depth of coverage to our marine customers. Going forward, we plan to retain the Navionics brand and will continue to support Navionics' existing customers."

DONG Energy has completed its move from oil & gas to focus on producing energy from renewable sources, including offshore windfarms. At the end of September, the Danish company announced it had received the necessary regulatory approvals to transfer its oil & gas operations to Switzerland-headquartered chemical and oil company INEOS. Following the move DONG has changed its name to Ørsted.

KLine Offshore's *KL Sandefjord* is the first offshore vessel to receive the DNV GL class notation Shore Power, signifying the design and installation of the vessel's onboard electrical shore connection. When in port, the vessel can shut down its engines and use a shore-based electrical supply while berthing – reducing fuel consumption and associated emissions.

Havila Shipping has sold its HAHTS vessel *Posh Viking* to an unnamed buyer as part of its ongoing financial restructuring. The 8,000hp, 70m vessel was part of the Norway-headquartered company's Asian fleet. Built in 2008 at Yuexin Shipbuilding Company in China, it has a 114 tonne bollard pull and a top speed of 12 knots.

Alphatron Marine France has signed an agreement for the service and distribution of JRC and Alphatron Marine products with five new dealers in France. They are: Robin Marine in Brest, Promat Sécurité in Le Havre and St Nazaire, Kongsberg France in Guilvinec, AGC Marine Telecom at Antibes and Boulogne-based SIECMI.

Rope firm expands in Europe



US West Coast-headquartered Samson, a worldwide leader in high-performance rope and a market leader in workboat applications, has expanded its presence in the European market.

The company has served the workboat industry in tug and river applications since the early 1940s, starting in North America with continued expansion globally, selling high-modulus polyethylene in the industry since the mid-1980s.

Samson's focus has recently been to expand capabilities in Europe, particularly in Germany, the Netherlands and Belgium, working with United Offshore Services (UOS). A leader in the design, production and supply of large diameter, high performance steel-wire and synthetic ropes, hoisting equipment, and associated products intended for the marine, industrial, and offshore markets, UOS has increased stock significantly in the region, including Samson's Saturn-12™ working line and various chafe products.

Edwin Jefferies, commercial manager for Netherlands-based UOS, said: "Synthetic

▲ *United Offshore Services personnel at work*

ropes fill a special need in the market that can't be met with steel-wire rope. Bringing a technology-leading product like Samson's Saturn-12 into our inventory allows us to compete in a sector new to us – tug mainlines and pendants.

"Samson is known for its fibre technology and development, which complements how we approach the market. We have supplied indirectly into the tug market over the past 24 years and it's now time to take a direct approach."

UOS offers full inspection, re-certification, testing and training to its customers, working closely with Samson to provide through-life support.

UOS' presence in Belgium, Germany and the Netherlands complements Samson's partner coverage in the region's tug market, supported by Baitra (Spain, Portugal), Scanunit (Scandinavia) and Mainbrace Marine (UK), among others. Samson ropes can be found on more than 150 tugs currently operating in Europe.

System helps improve efficiency

Canada-based maritime software developer, Helm Operations, assisted Ivy Marine, a two towboat company based in Mobile, Alabama, to obtain its Subchapter M towing safety management system certification to become the third and smallest company in the US to gain the certificate.

Patrick Boles, Ivy Marine's CFO, said: "Before Helm Connect, we used a paper-based system for all of our required forms and reports on the boats.

"Using Helm Connect has allowed us to increase efficiency across the business, streamlining functions such as compliance, inventory management and preventative maintenance.

"An added benefit that was crucial to our success was the user-friendly interface that has made it easy for our crews to adapt to a paperless system.

"Helm Operations' partner, Tug and Barge Solutions (TBS), built and implemented our package, so we were able to convert without any hassle."

Ron deBruyne, CEO and founder of Helm Operations, said: "After careful vetting and review of our products, TBS believes Helm Connect is the only maintenance and compliance software that provides the right mix of functionality, usability and price to help it improve the efficiency of its operations and ensure its clients can successfully comply."

The PALFINGER logo is displayed in a yellow oval with a black border. The word "PALFINGER" is written in bold, black, sans-serif capital letters.

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Superman hard at work on 'vibrant' Humber

SMS Towage has unveiled one of its most powerful tugboats yet. The newly built £5.8m *Superman*, a Robert Allan Ltd-designed RAmport 2400 SX, was officially named at a ceremony at Hull's Albert Dock after being delivered to the UK from Sanmar Shipyards, Turkey.

With twin Caterpillar engines, producing 4,200kW of power and generating 72 tonnes bollard pull, *Superman* will go into service on the south bank of the Humber Estuary to meet growing demand in the tanker and bulk carrier sector.

The Hessle-based firm, which is the UK's largest independent tugboat operator, now has seven Sanmar-built tugs working on the Humber or at other UK ports as part of its 15-strong fleet.

Director Gareth Escreet said the acquisition was in line with the company's invest and renew programme, enabling it to maintain a modern fleet, as well as reflecting the strength of the Humber economy.

He said: "The current outlook is very positive. Business is vibrant for us on the Humber and we see this as an upward trajectory. Since starting out in 2003, we

have aimed to be responsive and cost-effective which has enabled us to grow on the Humber and expand into the Bristol Channel and Belfast Harbour. Our fleet can take on virtually any challenge whether in port or offshore."

Chairman Paul Escreet said: "The previous *Superman* is now with new owners in Murmansk in Russia who were so impressed with her name that they asked if they could retain it.

"The new *Superman* is chunkier, giving extra room on board for the crew and she is very manoeuvrable. She is destined for Immingham and other south bank jetties.

"The first *Superman* to sail on the Humber was in 1923, many years before the comic book hero's arrival on the scene."

The new tug was named by Amanda Pannett, wife of master mariner Phil Pannett, who spent 11 years with ABP Ports on the Humber. The Rev Canon Dr Neal Barnes, vicar of Hull Minster, carried out his fifth blessing of an SMS tug in the past few years.

Meanwhile, Portsmouth International Port has appointed SMS Towage to launch a dedicated towage service for commercial ships. From November last year, the company has had two tugboats on standby at the port that are available to ships sailing in at as little as an hour's notice. The move to a dedicated towage service builds on the strategy of growth and



▲ *Guardsman* is one of two SMS Towage tugs operating at Portsmouth International Port

of attracting new sectors to both Portsmouth International Port and MMD Shipping, its fruit importing and handling business.

Rupert Taylor, Portsmouth International Port's harbour master, said: "We're very pleased that our customers will now have a dedicated towage service when using the port. It enables us to provide greater resources for commercial shipping companies. SMS Towage will be permanently based here so customers can be assured of a reliable and quick operation."

The two tugs operating at the port are *Irishman* and *Guardsman*, both 40-tonne bollard pull ASD vessels.

Gareth Escreet said: "Our expansion on to the south coast is an exciting time for our business. We pride ourselves on providing one of the most responsive services in the business and this has been a key factor in enabling us to grow. We are fully committed to our entry into Portsmouth and are confident that it will prove successful for both our company and the port."



◀ From left, the Rev Canon Dr Neal Barnes, Phil Pannett, Amanda Pannett, Paul Escreet and Gareth Escreet at the *Superman* naming

Launch marks Italian yard's return to tugboat market

Vittoria Shipyard near Venice marks its return to the Italian and international harbour and offshore tugs market with the technical launch of the ASD vessel C869, which was designed and constructed for the harbour authority in Skikda, Algeria.

The tug, designed for third-party towing and escort activities on the coast and in harbours, was launched on to the Canal Bianco at Vittoria's Adria facility, which specialises in designing and building military, paramilitary and commercial vessels.

Final work, sea trials and delivery, which is scheduled for the first quarter of 2018, were due to follow the technical launch which took place at the end of last year.

Luigi Duò, president of Vittoria Shipyard, said: "With the launch of this vessel we

want to earn a chance to become a reference manufacturer in this sector too.

"The Algerian transport ministry, which ordered the vessel in 2016, recognised the capabilities of our company, which won the order by beating very tough international competition from nine other yards, including some of the best-known tug builders. That makes us especially proud and confident that other sector operators, especially the Italian ones, will feel they can look at Vittoria as a favourable option."

C869 has an overall length of 26m, beam of 10m and a draft of just under 4m for around 500 tonnes of full load displacement. The tug will have more than 30-tonnes' bollard pull capacity and is equipped with a pair of azimuth ASD thrusters driven by



▲ ASD tug C869 at Vittoria Shipyard

two medium speed diesel engines producing a total of more than 3,300hp. The vessel has accommodation and services for a crew of seven. Its construction has been monitored and will be classified by Bureau Veritas.

In brief

US-headquartered global salvage and wreck maritime solutions company, Resolve Marine Group, has been using industrial-sized vacuum cleaners to remove billions of nurdles from remote environmentally-sensitive South African beaches. Nurdles are lentil-sized beads used in the production of plastics which are a threat to marine life if they find their way into rivers or seas as they absorb pollutants and are virtually indestructible. Resolve director, Capt Nick Sloane, said the nurdles are thought to have originated in a container that fell overboard from a ship in Durban harbour during a storm.

All 16 crew members of the Indian-registered 2,039gt anchor-handler *SCI Ratna* were rescued when the vessel sank off the coast of Mumbai. The Shipping Corporation of India, which owns the vessel, has launched an investigation with early reports suggesting that the cause of the incident was the ingress of water in the vessel's engine room. The crew were rescued by another vessel about 96 nautical miles off the coast.

Marlink and Radio Holland have concluded a partnership agreement whereby Marlink has acquired Radio Holland's connectivity business. The partnership enables Marlink to further strengthen its global leadership in maritime VSAT. Radio Holland will be the preferred global sales and service partner and offer Marlink's satcom connectivity portfolio with its well-established maritime electronics solutions.

When Danish marine safety equipment provider Daniamant ApS acquired Uni-Safe Electronics A/S in 2012 it was renamed Daniamant Electronics A/S and relocated to Slangerup, north of Copenhagen, where the existing business of its now sister company is located. In December last year the two entities were merged legally and financially as Daniamant A/S. The change does not affect Daniamant Ltd in the UK.

Chairman of the International Chamber of Shipping, Esben Poulsen, has praised the role played by China in supporting the global regulatory framework for merchant shipping provided by the IMO.

Tug will be first vessel with new hybrid power modules

Technology group Wärtsilä will supply two Wärtsilä HY 2 hybrid power modules for a new escort tug being built for the Swedish port of Luleå on the Gulf of Bothnia. The vessel is being built at Gondan Shipbuilders, in Asturias, Spain. When launched in early 2019, the tug will become the first vessel operating with a Wärtsilä HY solution.

The innovative Wärtsilä HY solution will bring notable environmental benefits, as well as operational and flexibility advantages that result in considerable economic gains. It will be capable of operating on electrical battery power when in transit. Although it is configured as a mechanical set-up, the 'hybrid diesel-electric' mode will allow the number of prime movers utilised to be reduced to just one for various operational tasks. These include ship assist with a bollard pull of up to 55 tonnes, or 90 tonnes on two main engines in diesel-mechanical mode. A bollard pull of 100 tonnes will be available when in boost mode.

The vessel will be capable of being completely independent from additional charging facilities, since re-charging of the energy storage system will be automatically managed by the energy management system, the 'brain' of the Wärtsilä HY. In addition, the installed onshore electrical connection will give the tug the flexibility to recharge the energy storage system, even when the tug is berthed at the quay.

The company says its product's operational flexibility will yield significant fuel,

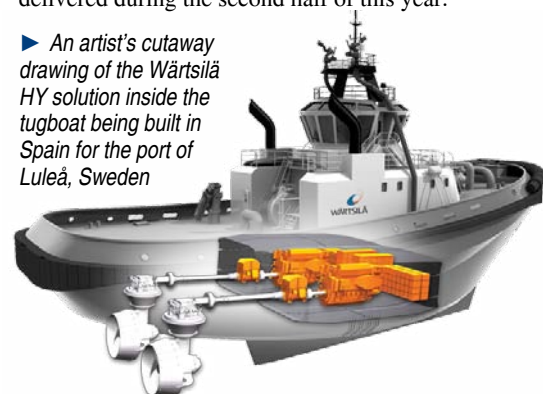
emissions and maintenance cost savings.

Giulio Tirelli, director of marine engineering, at Wärtsilä Marine Solutions, said: "We expect to see the Wärtsilä HY 2 hybrid power module becoming the new technological benchmark for tug propulsion systems given its clear economic, operational, and environmental benefits. The technology opens the door to a new era in shipping."

Henrik Vuorinen, managing director of the Port of Luleå, said: "The integrated hybrid functionality of this vessel will give us a bollard pull of up to 100 tonnes, while saving fuel and maintenance costs and producing emission levels some 20 per cent less than from a conventional vessel of this type and size."

Since the Gulf of Bothnia is typically frozen over in winter, the 36m-long tug will be capable of icebreaking operations and able to handle 1m thick ice at a speed of up to 3 knots. The equipment is scheduled to be delivered during the second half of this year.

► An artist's cutaway drawing of the Wärtsilä HY solution inside the tugboat being built in Spain for the port of Luleå, Sweden



Weld-free fitting system cuts costs

US-based innovative piping solutions company Viega has introduced Viega MegaPress CuNi, a new copper nickel press fitting system designed specifically for applications on workboats, commercial ships, private yachts and offshore rigs.

The company's new expansion to the MegaPress line offers all of the benefits of a copper nickel system without the need for welding. The press fitting system eliminates the need for fire watches and downtime at sea, and also makes it possible for other trades to continue working in the area during on-ship repairs.

The fittings also have low biofouling properties and resist seawater corrosion for reliable performance.

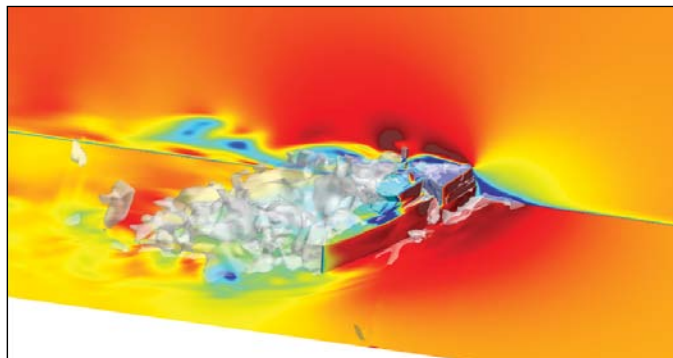
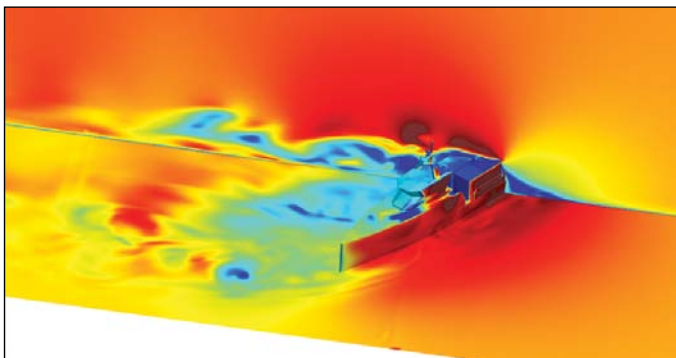
Using a single sealing element and single tool to install, MegaPress CuNi simplifies the installation and repair process and can make connections both wet and dry. The system makes secure press connections in seconds and can reduce installation time by up to 90 per cent when compared to welding.

Demonstrating the system to IT&O at the International WorkBoat Show in New Orleans, Paul Switzer, manager, shipbuilding and offshore, at Viega, said: "MegaPress for copper nickel provides another solution for marine applications that doesn't require welding and saves our customers a ton of time, which translates into other savings."

MegaPress CuNi fittings are constructed from 90/10 copper nickel alloy and are available in a variety of configurations in sizes ½ to 2ins. The company says its patented Smart Connect® feature, available only from Viega, provides installers with added confidence in their ability to ensure the integrity of connections.

The system is suitable for a variety of applications including seawater cooling, fire mains, sprinkler systems, bilge lines, foam systems, ballast systems, compressed air, vacuum lines, hydraulic oils and many others. MegaPress CuNi can be installed in previously welded systems and is compatible with off-the-shelf pipe.

Research into aerodynamic forces on vessel



At a conference hosted by Numeca International, Marco Bovio, senior research hydromechanics engineer at Damen, presented details of an internal research CFD-based project called *Gone With The Wind* (GWTW).

For the past two years Damen has been conducting a review of CFD technology and its applications in the maritime industry, and GWTW has been addressing one specific aspect of this.

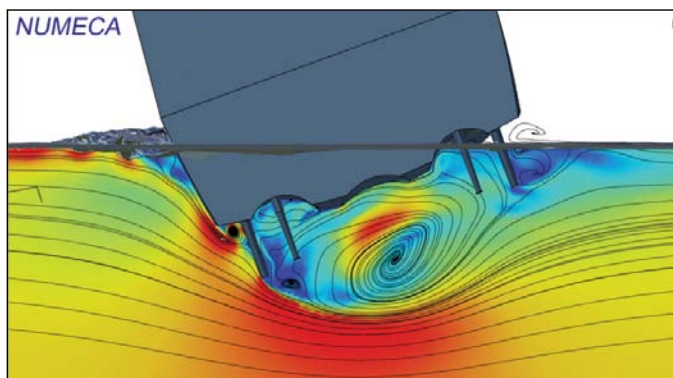
Its purpose was to look at the capability of CFD to accurately model the aerodynamic forces that act upon vessels above the waterline, as a separate analysis to those CFD studies that focus on the interactions that occur below the surface.

The specific issue being addressed has been the challenge of meeting the requirements of the IMO regulation 749.18. Its objective is to ensure that vessels have sufficient transversal stability to resist over-rolling in severe side winds, but the rules generally proposed by the classification societies are conservative so as to cover the full range of vessel designs.

This makes it difficult for long, slender vessels to satisfy the empirical requirements of the rule without undertaking extensive and costly experimentation.

This has a direct impact on both the time needed and the cost of gaining certification

▲ Clockwise from top left, pressure plot on the body and velocity plot on the bottom and vertical planes; separated flow behind the model as in a wind tunnel; velocity plot of the flow beneath the model drifting under a strong wind gust



for vessels such as Damen's monohull fast crew suppliers (FCSs) and their variants.

Typically, data has to be gathered from physical assessments using scale models in towing tanks and wind tunnels. The objective of project GWTW has been to develop a CFD methodology to replace the physical assessments for vessels such as Damen's FCS range that will demonstrate compliance to the satisfaction of the classification societies.

At the same time, for the company and its clients, a successful result must deliver both time and cost savings, so the methodology must also minimise computation costs and the turnaround time. GWTW has two main elements. Damen has been developing

the CFD methodology in partnership with Numeca while at the same time conducting the physical tests that are needed to validate and verify the CFD calculations, using a 1:18 scale model of Damen's FCS 3307.

The model has been evaluated in a wind tunnel using various heading and heeling angles while the computational software has been configured to reproduce the conditions in the wind tunnel to a high degree of accuracy. Simulations using the FCS 3307 were then run using two separate CFD mathematical models, URANS and DES, to determine their efficacy and compare them with the findings of the wind tunnel testing programme.

The CFD model has reproduced the wind tunnel experiment and tunnel apparatus to a high degree of accuracy across a range of simulated conditions and achieved good correlation for forces and moments at various heading and heeling angles.

Work is now underway to adapt this methodology to full-scale prediction, with only minor changes anticipated.

Meanwhile, parallel activities are currently taking place to carry out the CFD validation of the hydrodynamic related part of the study, which will complete the demonstration of how vessels of this type achieve the transversal stability required to resist over-rolling in severe side winds, and so satisfy the demands of the regulation.

The concluding objective of the project will be to present the fully virtualised assessment procedure to classification societies in order to have this generally accepted for compliance purposes.

3D printing used for crane hooks

The world's first 3D printed offshore crane hook, manufactured by worldwide provider of technical solutions Huisman, successfully passed its load test (80 tonnes) and all associated quality control checks according to the strictest criteria. Crane hooks are typically manufactured by casting or forging techniques.

Huisman actively employs the 3D printing technique 'wire and arc additive manufacturing' (WAAM) to produce mid-size to large components with high grade tensile steel, including a large four-prong hook, with an own printed weight close to 1,000kg.

An important benefit for larger crane hooks is the significant reduction in delivery time at a cost that competes with forgings and castings, and a more consistent level of quality.

WAAM can be used for crane hooks, but also allows Huisman to manufacture other components with complex shapes, short delivery times or local alternative material properties, to improve for example wear and corrosion resistance.

The positive WAAM test results enable Huisman to manufacture reliable components that were physically impossible or commercially infeasible to produce before.



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River best way to deliver heavy machinery



Mammoet has successfully delivered the first tunnel boring machine (TBM) to the Thames Tideway Tunnel project in Central London, UK. Named *Rachel*, after Rachel Parsons, an engineer and advocate for women's employment rights, the machine will weigh 1,350 tonnes when fully assembled.

Pictured taking *Rachel* upriver are Livett's sister tugs *Felix* and *Christian*, both with an 18.5m LOA, 6.2m beam and 2.2m draft and capable of 15 tonnes' bollard pull. Driven by two 441kW at 1,800 rev/min Volvo Penta

D16 main engines, the tugs' hydraulic wheel houses make them ideal for work in central London.

Sailing up the Thames to shore at Fulham was the last stage of *Rachel*'s 530-mile (850km) journey from Germany across the North Sea, via Mammoet's European headquarters in Schiedam, the Netherlands.

The 4.3 mile (7km) west section of the tunnelling project that *Rachel* will drive is being delivered by a joint venture for BAM Nuttall, Morgan Sindall and Balfour Beatty Group, and forms a part of the wider project

▲ *Felix* and *Christian* passing Tower Bridge

to build a tunnel to capture the overflow from London's ageing Victorian sewer system.

Matthew Gent, managing director for Mammoet in the UK, said: "Using the River Thames to bring in the machinery was the most efficient solution. The Mammoet engineering team worked closely with the manufacturers, Herrenknecht AG, and Tideway's project managers on site to ensure that the machine was delivered on time with the minimum impact on the local area."

US Navy orders 24 tugs to help support global fleet

The US Navy has some spectacular vessels from submarines to high speed RIBs. It also has dedicated ports and support facilities worldwide. A practical reality of all of this is that the Navy requires efficient and handy boats to support the warhorses.

To meet this requirement, John Myers of the naval architect firm Hockema & Whalen and Associates has developed a 30ft by 15ft (9m by 4.5m) tug with a 5.5ft (1.6m) draft.

Currently the Navy has 24 of these tugs, designated Work Boat Medium, on order from Modutech Marine Inc of Tacoma, Washington. The first was delivered in December with the others to follow in regular deliveries through to the final quarter of 2019.

In order to handle some heavy pushing, the Navy has ordered the vessels to be powered by a pair of Cummins QSL 9 diesels each delivering 285hp continuous duty.

The engines will turn nozzled 39in by 36in propellers through ZF W325 gears with 3:1

reduction. Triple shutter-type rudders are mounted behind each prop. The combined 570hp will give the tugs an 8-tonne bollard pull. Between jobs, the boats will be capable of 9 knot speeds.

Tankage will include a 400 gallon fuel tank. On deck, a 400lb davit can be moved to port or starboard mounts as required. A pair of Bloom deck winches are mounted forward, port and starboard, so as to function with a pair of cheek blocks mounted alongside the pilothouse for making up to a barge with the push knees.

Wide side decks provide a safe work space for the deckhand. A towing bitt is mounted on the after deck. Heavy bollards are mounted on both sides for mooring and for working barges or other equipment on the ship. Lifting pad eyes are built into the tugs' structure.

D-Rubber fendering surrounds the hull, including the chine, and is mounted on the push knees that extend below the waterline. The wheelhouse has overhead windows for working alongside ships. This series of boats has clearly been designed with careful attention to detail and thought to versatility of application and varied roles to which the vessels may be assigned.



◀ The US Navy's tug is the first of 24 ordered from Modutech Marine powered by a pair of Cummins QSL 9 diesels

In brief

Inmarsat, the global mobile satellite communications company, has opened a new office, at the Norwegian Maritime Competence Center (NMCC) based in Ålesund, Norway, to continue to drive the digitalisation of the shipping industry. The opening of the facility, in the heart of Norway's leading-edge maritime community, signals Inmarsat's intention to intensify work with third party innovators and digital disrupters to exploit high-speed broadband via Fleet Xpress through its certified applications provider programme.

With a combined 877 years without an incident, 73 Foss Maritime and subsidiary companies' tugboats and tank barges have been recognised in the Chamber of Shipping of America's 2017 environmental achievement awards. Seattle-based Foss and its sister companies have 39 vessels with 10 or more years without an environmental incident, with 11 of those vessels achieving 20-plus years of environmental excellence. A full list of award-winners is available via the CSA website www.knowships.org

Spanopoulos tugs, the 44m-long, 11m-wide, 545gt *Christos XXII*, built in 1972 and the 28m-long, 8m-wide, 194gt *Christos XL*, built in 1981, laid oil booms around the stranded 2,466gt general cargo vessel *Little Seyma*, grounded on the coast of the Greek island of Mykonos. Commercial divers were hired to remove the cargo ship's fuel.

Acrewless and drifting tug bearing the name *KM Amerika* was spotted by local fishermen some 60 nautical miles off Sungai Liat, Bangka island, Indonesia. There were no signs of disaster or hints as to why or how the crew abandoned vessel, and online searches have found no data about a tug of that name.

Norway-based Eidesvik Offshore has been awarded an 18-month contract, with an option for a further 12 months, by Chevron North Sea for its PSV *Viking Princess*.

The ISU will hold its 2018 AGM in Cape Town, South Africa, on 25 October. It is also planning other events during that week.

Demand for marine technology 'robust'

UK engineering services firm RED Engineering sees 'strong opportunities' in the offshore oil & gas sector for firms with capacity to deliver innovative, fast track projects.

Despite the volatility of oil markets, continuing uncertainty over Brexit (the UK's pending departure from the European Union) and pressure on costs, business development director Toby Bailey predicts that demand for leading-edge offshore and subsea technologies will remain robust over the next 12 months.

He said: "As reserves become more difficult and costly to recover, the opportunity is there for those companies developing innovative engineering solutions, which cut lead times on subsea developments.

"We will see strong opportunities in areas such as offshore and subsea vessels, pipe and cable lay systems, subsea infrastructure and hardware, while other knowledge-intensive services remain strong in the face of a

► Toby Bailey



continued focus on costs."

His view is supported by an economic report which cites technological advancement and the development of new skills as critical to securing the long-term future of the energy sector. Bailey says the so called 'golden triangle' of Latin America, Gulf of Mexico and West Africa will remain the focus for deep water activity, but a declining North Sea sector will also herald additional work.

He said: "We will see over the longer term an increase in the number of North Sea decommissioning projects. These will benefit regional offshore oil & gas service providers possessing the technical expertise and experience to meet operators' shorter lead times."

Autonomous ships: the final frontier

Rolls-Royce and the European Space Agency (ESA) have signed a co-operation agreement aimed at pursuing space activities in support of autonomous, remote controlled shipping and promoting innovation in European digital logistics.

The Memorandum of Intent is focused on developing and validating new solutions for communication between vessel systems and shore-based systems in addition to ship-to-ship communication.

This will enable the operation of commercial remote and autonomous shipping, innovative cargo logistics, small ports and future commercial marine vessels.

The next-generation of 5G communications will rely on seamless integration of telecom networks and services, and ESA's satellite for 5G initiative exists to support the

technical and supply chain progress required, and follow through to support development of the commercial services that this enables.

Karno Tenovuo, Rolls-Royce SVP ship intelligence, said: "The information, software and satellite-based technologies the space industry has developed are wholly relevant to the work Rolls-Royce is doing to make the remote and autonomous ship a reality."

Rolls-Royce and ESA also plan to co-operate in harnessing the power of big data.

Data analytics, machine learning and artificial intelligence (AI) can improve operational efficiency, reliability and safety. Sensor data will inform augmented and virtual realities, or digital twins – an AI copy of a ship, including its systems, that synthesises the information available about the ship in a hologram.

Savvy US investors buying bank sale vessels

US-based companies top the list of ship owners buying distressed tonnage, snapping up vessels sold at bank sales and at auction deals.

Asset values reached a 25-year low for OSVs, bulkers and containers in 2016, according to statistics from market analysts VesselsValue, with a spike in the number of bankruptcies and vessel seizures by banks.

US owners have been buying these vessels sold at auction or at bank sales, spending US\$624m on 52 distressed vessels during 2017. This comes in at just under double what second-placed Greece has spent. In

2016, US companies did not buy any vessels at bank sales or at auction, showing a marked shift in behaviour. Also, the type of vessel they are buying is highly targeted – restricted to bulkers, containers and offshore vessels. These asset types hit 25-year historical lows during 2016, with these values now rebounding.

VesselsValue says that many in the markets are confident that continued scrapping and a reduction in ordering will balance out supply and demand. Savvy investors have been getting involved in the past 12 months in order to capitalise on the asset value increase.

DIARY DATES

Meet us at these global events:

ISU Associate Members' Day
London, UK
14 March 2018
www.marine-salvage.com

Asia Pacific Maritime
Singapore
14-16 March 2018
www.apmaritime.com

Offshore Technology Conference
Houston, USA
30 April-3 May 2018
2018.otcnet.org



25-29 June 2018



25th International Tug, Salvage & OSV Convention and Exhibiton

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Parc Chanot Convention Centre, Marseille, France

Register online at
www.tugandosv.com

Seawork
Southampton, UK
3-5 July 2018
www.seawork.com

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

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

Offshore Energy
Amsterdam, The Netherlands
23-24 October 2018
www.offshore-energy.biz

International Salvage Union AGM
Cape Town, South Africa
23-26 October 2018
www.marine-salvage.com

Maritime Middle East
Dubai, UAE
29-31 October 2018
www.seatrademaritimeevents.com

Anglo-China deal to supply propulsion and gearbox kit

Propeller design and manufacturing company Stone Marine Propulsion has joined forces with NGC Marine of China to create a world leading supplier of propulsion and marine gearbox propulsion equipment.

The new company, Stone Marine Propulsion NGC Ltd, which is a subsidiary of Stone Marine Propulsion and based in the UK, is marketing a range of technologically-advanced propulsion solutions and high quality marine gearboxes.

The company combines the considerable experience of Stone Marine Propulsion in propeller design, hydrodynamics and metallurgy with that of NGC Marine, which is acknowledged as a leading manufacturer of high quality marine propulsion and gearbox equipment and whose products satisfy the requirements of all leading marine classification societies. Units are available

to suit a wide range of vessel types and sizes, including merchant, commercial and offshore.

Already available are controllable pitch propeller (CPP) systems, azimuth and tunnel thrusters of various types, and the company will also be custom-designing and manufacturing propeller, shaft and rudder products built to ensure the best possible performance for the vessel to which they are fitted. An extensive range of marine gearboxes is also already available.

The CPPs are supplied with control systems which optimise pitch settings for economy and speed, and fully feathering versions are available to reduce drag on vessels with multi-screw propulsion.

The company's range of thrusters can be supplied with fixed or controllable pitch propellers with power provided by diesel, electric or hydraulic motors.

Tugs delivered despite storms

Following the award of several licences in Mexico to *Compañía Marítima Mexicana* (CMM), a series of tugs were built by Cheoy Lee Shipyards in Hong Kong and handed to Redwise Maritime Services for maiden delivery voyages.

The first two RA3200-CL tugs, *CMM Jarocho* and *CMM Maguey*, were delivered to Manzanillo on Mexico's west coast under their own power. Each had a full Mexican crew supported by a Redwise master on one of the tugs and chief engineer on the other. CMM chief engineers were also on board in the capacity of second engineer to familiarise themselves with the vessels.

Following the successful trans-Pacific voyage, two similarly-crewed sister vessels, *CMM Cordobés* and *CMM*



Chapulin, pictured above, were taken from Cheoy Lee by Redwise, again under their own power, across the Pacific and through the Panama Canal to Coatzacoalcas. In the initial week *Typhoon Banyan* tracked ahead of the tugs and the vessels later had to deviate to avoid *Hurricane Norma*.

Bearings company halves production time

South Africa-headquartered Vesconite Bearings has brought its production times on extra-large bearings down to 36 hours and was able to complete a simultaneous order for two extra-large marine bearings in 48 hours – cutting the usual time in half.

The quick turnaround order was for two superstave bearings made from the polymer vesconite, which is a self-lubricated, no swell, engineered plastic used widely for rudder bearings and stern tubes. The bearings are made from plates

that are cut and milled.

The company believes that it is now able to compete with any producer of marine bearings globally, in terms of its production time, and that it will become a supplier of choice for many companies, which can incur significant costs if their vessels are in a dry dock waiting for required replacement bearings.

Vesconite is aiming to bring production times down further and to be able to produce extra-large bearings in 24 hours early this year.

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Fleet continuing to expand

US-based Bouchard Transportation is continuing the fleet expansion plan it started in 2012 with the construction of ATB unit *M/V Evening Breeze* and Barge *B No252*.

The tug, being constructed by VT Halter Marine, is the sister vessel to ATB tugs *M/V Denise A Bouchard* and *M/V Evening Star*. The new arrival will be 4,000hp, meet US EPA Tier 4 requirements and be equipped with an Intercon coupler system.

Robert Socha, senior vice president at Mississippi-headquartered VT Halter Marine, said: "We are pleased to have the opportunity to build another quality vessel for Bouchard Transportation. Our companies have repeatedly teamed on projects going back to the 1970s, and we are excited to continue our relationship with the building of this ATB tug at our Pascagoula facility."

The barge, which is being constructed by

another US firm, Louisiana-based Bollinger Shipyards, will have a 55,000bbl capacity, and be used to transport liquid petroleum products throughout the Jones Act market.

Bollinger Shipyard's president and CEO, Ben Bordelon, said: "The Bollinger and Bouchard families have a long tradition of working together, and we appreciate the opportunity to continue this tradition."

Both tug and barge are expected to be delivered in the first quarter of 2019.

During the past five years, Bouchard has made significant advancements to its fleet, including the delivery of two state-of-the-art ATB units – *Kim M Bouchard* with *B No270* and *Donna J Bouchard* with *B No272* – and four ATB tugs: *Evening Star*, *Denise A Bouchard*, *Morton S Bouchard Jr* and *Frederick E Bouchard*. These Jones Act vessels include the newest modifications to the Intercon and pin system, as well as the most technologically advanced equipment in various spaces that are designed to reduce total emissions, ensuring a more eco-friendly fleet.

Company president and CEO Morton S Bouchard III said: "We will continue to lead the market by investing our profits into innovative advancements in order to always operate in the safest and most efficient manner possible."

◀ *ATB tug Evening Star at work*



Tug has extreme fire-fighting ability

Netherlands-based towage and heavy transport specialist Muller Dordrecht has further strengthened its multi-purpose fleet with the addition of the ASD tug *En Avant 30*.

With this tug, the company aims to both serve clients in the offshore market, and operate harbour assistance service in the major ports surrounding the Port of Rotterdam region.

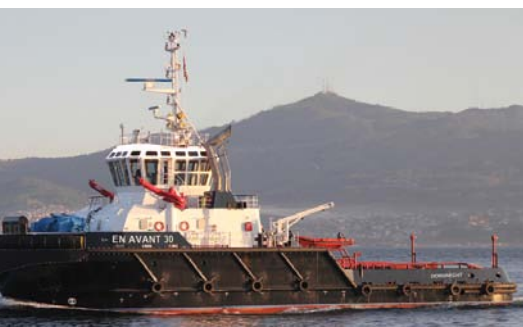
The 110-tonne bollard pull vessel, which was built by the Armon Vigo Shipyard in Spain in 2011, is equipped to undertake a range of services including deep sea towage, escort, anchor-handling, fire-fighting (FiFi2), salvage and harbour assistance. *En Avant 30*

has two Schottel SRP 3030 CPP (controllable pitch propeller) propulsion units and is powered by two MAN 9L 27/38 engines of 3,285kW each. Its 549m³ bunker capacity allows for both coastal open sea towage and, with an LOA of 41m, it can still perform harbour and escort towage operations within the larger port areas.

Deck equipment includes two 110-ton pull, 420-ton brake holding hydraulic driven Rolls-Royce escort winches, a 130-ton SWL escort hook, a 110-ton pull, 250-ton brake holding hydraulic driven Ibercisa waterfall type anchor-handling and towing winch, a 130-ton SWL towing hook, two 10-ton pull, 15-ton brake holding hydraulic driven Ibercisa tugger winches, a Palfinger deck crane, a Karmøy Karmfork and towing pins, and a 250-ton SWL stern roller.

A remarkable feature of this tug is the extreme power of its fire-fighting system from the two Kvaerner pumps, each with a capacity of 3,600m³/hr, and two remote-controlled monitors for water/foam with fog, spray and jet utilisation fully compliant with FiFi2.

◀ *En Avant 30 has strengthened the Muller Dordrecht fleet*



In brief

UK-based offshore energy support vessel operator, Seacat Services, has been recognised as a safety champion by Danish offshore wind project developer, Ørsted. The company has received an award in reflection of the high safety standards set by its crews at the 573MW Race Bank offshore wind farm off the UK's North Sea coast. Seacat Services has been supporting construction and commissioning at the project for 18 months, during which time, catamarans *Seacat Courageous*, *Seacat Magic*, *Seacat Mischief* and *Seacat Volunteer* have safely completed more than 27,000 crew and equipment transfers.

Technology group Wärtsilä has adapted its hybrid tug design to specifically meet the needs of the Chinese market. This version of the Wärtsilä HYTug has received an approval-in-principle recognition by the China Classification Society. The Wärtsilä HYTug design combines engines, an energy storage system using batteries, and power electronics optimised to work together through a newly developed energy management system.

An official autonomous shipping test-bed has been opened in Horten, Norway, the third in the country and the fourth in the world. It is open to both Norwegian and international organisations. Maritime autonomy pioneer Kongsberg has worked closely with the town of Horten, DNV GL, the Norwegian defence research establishment and the University College of South East Norway, to establish the new test-bed, which is adjacent to its Horten facility.

Damen Shipyards Group has entered into a share purchase agreement with Daewoo Shipbuilding & Marine Engineering for the acquisition of its majority share in Daewoo Mangalia Heavy Industries. The Daewoo shipyard in Mangalia, Romania, was established in 1997 as a joint venture between Daewoo and 2 Mai Mangalia Shipyard.

UK ambassador to Egypt, John Casson, has welcomed marine and engineering consultancy LOC Group's opening of a new office in Cairo to increase its presence across North Africa and the Middle East.

People in the news



Norman Finlay

Norman Finlay, a highly respected marine surveyor and the founder of the **National Workboat Association**, has been awarded an MBE for services to UK shipping. After a career at sea and then as superintendent of a dredger fleet, Finlay became one of the main driving forces behind the establishment and development of the UK workboat sector in the 1970s, and was involved in key milestones such as the creation of the original workboat code with the MCA in the early 1990s.

Aat Hoorn has joined **Simwave** as manager, engine room and high voltage simulators. Hoorn, who has a master's degree in education, joins Simwave from Rotterdam-based maritime educational and research institute STC-Group.



Rasmus Nord Jørgensen

BIMCO has appointed Rasmus Nord Jørgensen as its new director of communications to develop the organisation's communication strategy and increase BIMCO's media profile. Jørgensen, an experienced international maritime communications professional, was part of the global communications team at AP Moller-Maersk.

Eric Rose, formerly of Weiler Products and Caterpillar, has joined **Global Diving & Salvage, Inc** as director of business development. He is responsible for the company's long-term revenue generation, and the support of Global's regions and service lines, including marine construction, commercial diving, environmental services and marine casualty response.



Sumeet Malhotra

International law firm **Hill Dickinson** is pleased to announce that partner Sumeet Malhotra has joined its Singapore office. Qualified as an advocate in India and as a solicitor in England and Wales, Malhotra has worked at senior in-house positions at Cargill, and at Noble Group in Singapore, where he has dealt with dry shipping matters, commodity trade disputes and transactional matters involving commodity trading and commodity-backed structured trade finance.



Rollie Webb

Rollie Webb, senior vice president at naval architects **Robert Allan Ltd**, has been presented with the SS Beaver Medal for Maritime Excellence by the Lieutenant Governor of British Columbia, Judith Guichon, on behalf of the Maritime Museum of BC. Webb joined Robert Allan Ltd in 2008 and assumed duties as senior vice president in 2015.

Capt Roland Orange heads **Solis Marine's** new office in Shanghai. Based in China for nearly 10 years, he has extensive experience of conducting investigations into shipping incidents in the region, including numerous salvage and wreck removal cases.

The Swedish Club has announced that Brian Png has been promoted to deputy managing director for The Swedish Club in Hong Kong, as of 1 January 2018. Png is well known to the Asian shipping community.

Radio Holland has appointed Steen Brodsgaard Lund as regional director Asia. He will be responsible for Radio Holland's operations in Asia, with offices in China, Hong Kong, Singapore and Malaysia. Lund, a Danish national, joins Radio Holland from DNV GL, where he was regional manager for South East Asia, Oceania and India.

Mammoet has made a number of changes to its executive board of management. Paul van Gelder has replaced Jan Kleijn as CEO. Kleijn has taken up the role of COO, with Kees Voormolen as CFO. Former CFO Onno den Boer has been appointed to a position at Mammoet's parent company SHV Holdings.

The **Harris Pye Engineering Group** has opened an Oslo office to pursue new business opportunities in Norway, and to support existing clients by providing all Harris Pye products and services to the entire Scandinavian region. Bjarne Eia, former managing director of Teco Solutions, has been appointed technical sales manager, and will be the principal contact at Harris Pye Norway.

LOC Group has announced two senior appointments. On 1 January, Jerome Rutler took over from Andrew Squire as group CEO, with Squire taking on a new role as group deputy chairman. Rutler joined LOC as group COO in March 2016, bringing more than 20 years' experience in the oil & gas, petrochemicals and marine industries. LOC has also appointed Ke Wan to lead its team in China, replacing Donny Ng, who returns to Singapore to become the business development director in Asia Pacific.

ASV Global, a developer of autonomous vessel technology, has named Mark Exeter as the new managing director of its Portchester, UK, office. Exeter's predecessor, Dan Hook, moves into a new role as senior director – business development.



Steen Lund

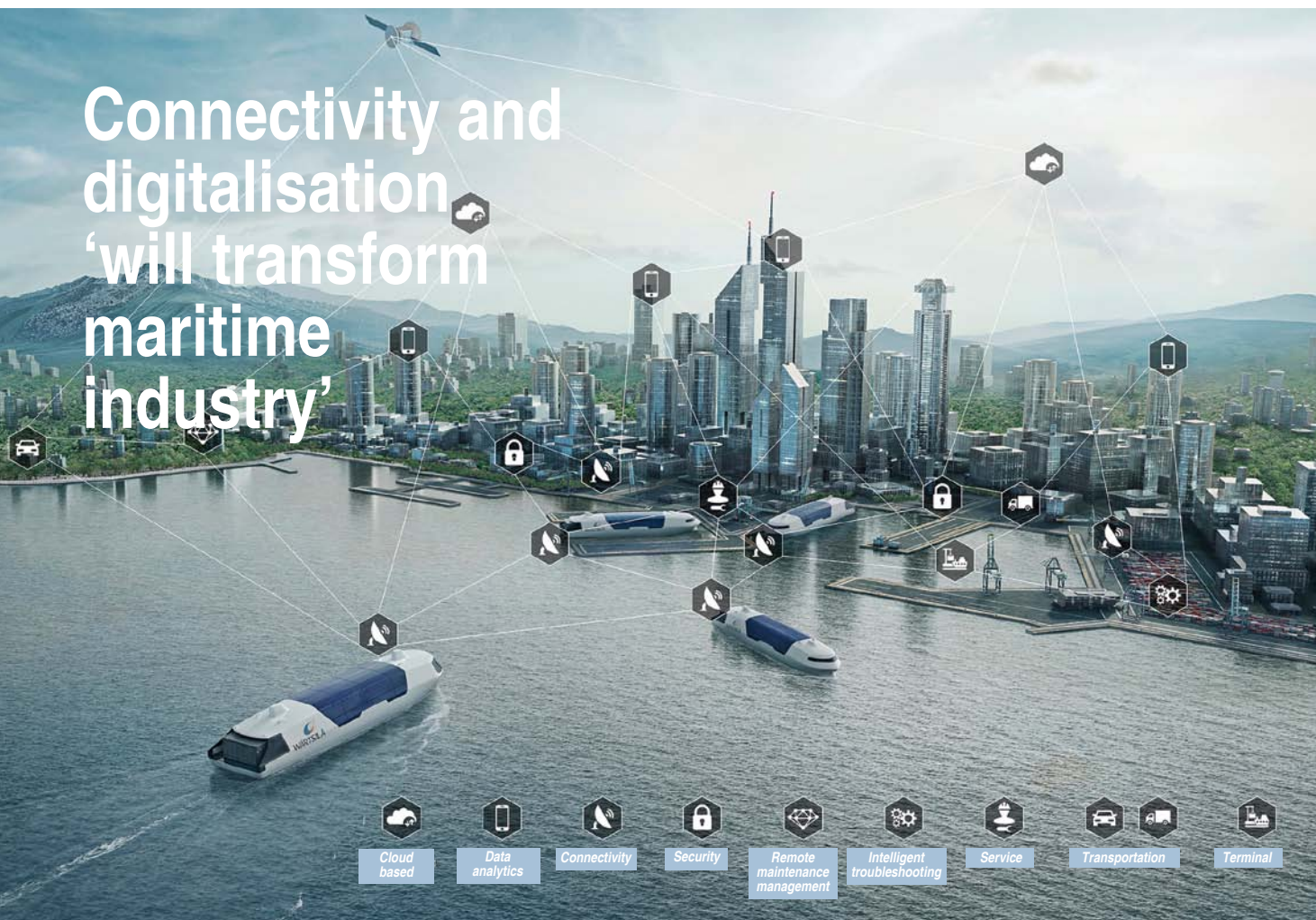


Bjarne Eia



Mark Exeter

Connectivity and digitalisation 'will transform maritime industry'



Through the use of high levels of connectivity and digitalisation, technology group Wärtsilä intends to lead the shipping industry's transformation towards what it calls a smart marine ecosystem.

Roger Holm, president, Wärtsilä marine solutions, said: "The world is moving towards a future that is more and more connected, and nowhere is this more apparent than in the shipping sector. The opportunities offered through smart technology will foster a new era of collaboration and knowledge sharing with customers, suppliers and partners."

Wärtsilä says marine industry players are faced with major sources of inefficiency that impose a significant negative impact on business operations and profitability. These inefficiencies can be considered as 'waste'; the three most notable sources of such waste being overcapacity, inadequate port-to-port fuel efficiency, and time wasted waiting when entering ports and other high traffic areas. Eliminating this waste forms the basis of the group's strategy towards ecosystem thinking.

Wärtsilä sees four primary forces that will reshape the industry. Shared capacity will improve fill rates and reduce unit costs; big data analytics will optimise both operations and energy management; intelligent vessels will enable automated and optimised processes; and smart ports will result in

smoother and faster port operations.

Holm said: "Building on our strong existing portfolio of products, systems and solutions, the broadest in the marine sector, and on our vast installed base and industry knowhow, we shall continue to develop the smart technologies, business models, and competences needed to create a smart marine ecosystem."

Pierpaolo Barbone, president, Wärtsilä services, said: "Servicing our customers means supporting them throughout the lifecycle of their installations. This means that we are looking at the smartest way of operating and maintaining assets, as well as optimising performance in order to have the safest, and most environmentally sound and efficient operating profiles."

"In the future, we shall be looking more holistically at customer business operations. Instead of optimising a single vessel, we may be optimising a fleet, or even the customer's business. In the long term, vessel-as-a-service becomes the ultimate means of providing asset and lifecycle management services."

One of many examples of important steps being made towards the future was taken when Wärtsilä, in collaboration with the vessel owner, successfully tested the remote controlling of a ship's operations by satellite from a distance of 8,000km. The test was carried out using standard

▲ *Wärtsilä's vision of a smart marine ecosystem centred on connectivity and digitalisation*

bandwidth, and no land-based technology was used for communications between the vessel and the remote operator work station. Other notable examples include the Wärtsilä HY, a fully integrated hybrid power module combining engines, an energy storage system, and power electronics optimised to work together through a newly developed energy management system, and the group's wireless charging innovation for battery powered vessels.

Wärtsilä has already opened one digital acceleration centre (DAC), located in Helsinki, to speed up innovation and to co-create with customers a range of new business models and solutions. These include the industry's most advanced intelligent vessel and other ground-breaking projects. A second DAC was scheduled to open in Singapore in December last year, and during 2018 two more will be opened in central Europe and North America.

By applying smart technology to serve customers in a more sophisticated way, Wärtsilä aims to deliver greater efficiencies that lead to increased revenues and profitability for owners and operators around the world. The ultimate goal is to enable sustainable societies with smart technologies.



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Watching the future pass before your eyes



IT&O editor John McCready visited the Rolls-Royce remote operation centre in Copenhagen, Denmark, to witness *Svitzer Hermod*, the world's first remotely controlled tugboat, being operated in the harbour

Anyone used to seeing a training room bridge simulator in action will feel at home in the Rolls-Royce remote operation centre (ROC) housed in Svitzer offices overlooking a quayside in the Port of Copenhagen, Denmark. It is only when you turn around from the screen and look out over the harbour that it does your head in.

We've been writing about the possibility of vessels being driven from land-based control centres for quite some time, but to

see it happening for real is something else. Welcome to the future.

The ROC has been set up as part of a joint remote control tug demonstration project between Rolls-Royce, global tug operator Svitzer and Lloyd's Register classification society, to develop, test and implement the technology needed to make remote-controlled – and later fully autonomous – vessels a reality.

Svitzer Hermod, a 70 tonnes bollard pull, 28m by 16m tug built by Sanmar Shipyards in Turkey and delivered in 2016, has been retrofitted with remote control capability and was first manoeuvred around the port under the control of a qualified tug master in the ROC in July last year. Since then, further trials have seen it successfully berth and unberth and perform various harbour tug duties while under remote control.

At the end of last year potential customers and then the trade media were shown the

world's first remotely operated tug in action. Rolls-Royce is confident that the vessel will be fully operational in remote control mode by the end of the year.

Iiro Lindborg, Rolls-Royce Marine's general manager, remote and autonomous solutions, said: "The technologies developed during the process were connectivity, cyber security, situational awareness, the remote operation station itself and dynamic positioning."

Situational awareness is achieved using 3G or 4G in the harbour and lidar, radar and automatic identification system depending on the vessel's location and whether it is daytime or night.

The only visible external additions to the tug are the ROC-to-tug connectivity devices on its mast, along with cameras and sensors. However, as remote capability was not included in *Svitzer Hermod*'s original spec, the upgrade has seen an additional 7km of





► A close up of **Svitzer Hermod's** mast showing the additional cameras and 3G, 4G, lidar, Radar and AIS communication hardware to enable the vessel to be controlled remotely from the land-based ROC

◀ Left to right, Iiro Lindborg, Rolls-Royce general manager, remote and autonomous solutions, and Oskar Levander, Rolls-Royce senior vice president concepts and innovation

▼ A Rolls-Royce artist's view of an unmanned tug in the not-too-distant future



cabling installed on board.

Lindborg said the additional laser scanning, cameras – including night-vision thermal cameras – satellite communication systems and phone network transceivers, meant that the ROC-based tug master had at least the same, and probably better, situational awareness as a captain on the bridge.

Svitzer says its involvement in the project has been to achieve greater safety and efficiency within its existing fleet and that it is planning to utilise much of the project's technological advances within its traditionally-manned vessels. It sees a future where tugs would use an unmanned bridge during a long mobilisation voyage, enabling the crew to arrive rested.

Lloyd's Register's (LR's) partnership and collaboration with Rolls-Royce and Svitzer has been paramount to the success of the project and its ability to offer technological advances that can be used in real-life commercial operations.

There are currently no prescriptive classification society rules or international standards dealing with this innovative

technology. The speed of advance has also necessitated a move away from the traditional business model of a developer offering up a finished product solution for class approval.

LR has been fully integrated with the designer and operator from the start. Lack of prescriptive rules was no barrier to 'de-risking' the project, and the procedure followed will result in LR rule amendments and support to flag states and subsequently the IMO as required.

The system has passed 61 mandatory cyber security tests and met 42 individual safety requirements with remote control operations overseen by LR. A full crew, with the ability to take back control of the vessel at the flick of a switch if necessary, has remained on board **Svitzer Hermod** during all remotely controlled operations so far.

To test cyber security, the project team brought in a group of 'ethical hackers' who spent two weeks attempting to break into the system – and failed. It has also tested a loss of connectivity scenario during which the tugboat would automatically go to a safe area avoiding hazards and other vessels.

Oskar Levander, senior vice president for concepts and innovation at Rolls-Royce Marine, who is the first to admit that he was greeted with more than his fair share of cynicism when he first started talking about remote control and autonomous vessels in 2013, said: "This is no longer evolution, this is revolution."

He predicted that the first crewless tugboats would be operational in the early 2020s, offering owners major savings, despite initial capital expenditure, not least through their ability to operate up to 24 hours a day.

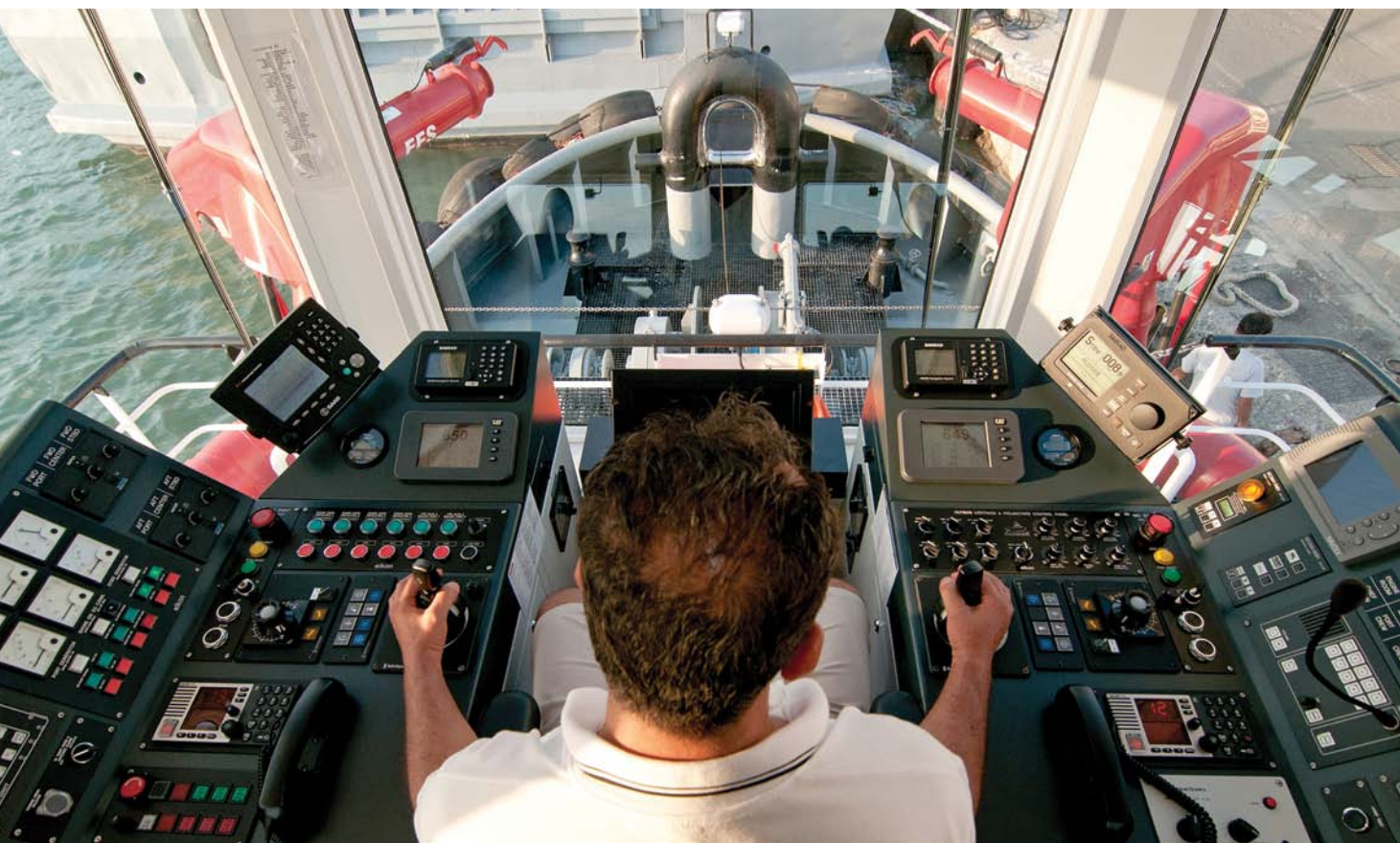
Comparing a manned fleet of three flexi-crewed tugs operating 14 hours a day and one double-crewed tug operating 24 hours a day, with three unmanned tugs each operating 24 hours a day, Levander calculated a significant increase of 9 per cent in revenue hours per year and a significant decrease in costs of 30 per cent a year.

▼ Four pictures showing **Svitzer Hermod** travelling through the Port of Copenhagen and manoeuvring to push another vessel while under remote control from the land-based ROC

All photos: Rolls-Royce



Tug will have hydraulic hybrid propulsion



Caterpillar Marine is collaborating with Sanmar Shipyards in Turkey to build an innovative tugboat with a hydraulic hybrid propulsion system. The Cat Marine advanced variable drive (AVD) is a patented system leveraging Caterpillar's extensive experience with integrated power systems technology.

The Sanmar hydraulic hybrid tug will be a Robert Allan Ltd-designed RAmports 2400SX harbour tug – Sanmar's popular Bogaçay series – incorporating an integrated Caterpillar AVD system.

This provides significant improvements in both fuel efficiency and vessel performance through a fully integrated hydro-mechanical propulsion system.

Nathan Kelly, Caterpillar Marine product definition engineer, said: "Different from a typical power take in (PTI) solution, the AVD incorporates a planetary gear set allowing seamless clutch engagement of main engines, auxiliary engines, or both, to provide a scalable power installation to meet any customer need in terms of maximum vessel speed, power, or bollard pull.

"This also allows propeller speed independent of engine speed so optimal engine efficiency can be achieved leading to fuel savings of 15 to 20 per cent. Basically, all the benefits of a variable speed diesel electric propulsion (DEP) system at a fraction of the cost and size. The AVD system can accommodate multiple configurations.

Auxiliary engines can be utilised to accommodate low load or transit operations, greatly extending time to overhaul and reducing service costs on main engines. Electric motors can be used instead of hydraulics if required. Diesel engines can be substituted by natural gas engines as the AVD system provides superior vessel performance regardless of engine load acceptance.

▲ Operating a Sanmar Bogaçay series tug

Main engines can also be downsized with supplemental power provided via auxiliary engines or generators if electric motors are used.

Ali Gürün, director of projects at Sanmar Shipyards, said: "This strategic development between Sanmar and Caterpillar will provide a highly optimised, lower cost alternative to conventional electric hybrid systems with similar benefits regarding improved performance, lower noise and lower emissions."

Caterpillar, Sanmar and Robert Allan Ltd executives signed a contract for the project at the International WorkBoat Show in New Orleans at the end of last year.

The Sanmar hydraulic hybrid tug will incorporate an integrated Caterpillar AVD system of 3512 main engines, a C32 auxiliary engine, Caterpillar MTA 627 fixed pitch tug thrusters and bridge controls. It will carry FiFi1 designation with 70 tonnes bollard pull and will be supported by Turkish Caterpillar dealer Borusan Makina.

The AVD system will also include a fully integrated controls system with customisable operating modes and display panels at the bridge. Compared to a conventional tug with equivalent bollard pull, the payback period is estimated at three years or less, based on projected fuel and operating cost savings.



◀ The Caterpillar, Sanmar, Robert Allan Ltd contract signing ceremony in New Orleans

THE LANKO®NECT TRANSFORMS TOWING

The new Lanko®nect from Lankhorst Ropes is set to transform towing operations and safety.

"In the short time that we have been using the Lanko®nect, the benefits are clearly visible to us. The ease of use and thus indirectly the safety for the crew is striking."

Jan Busscher, Group Procurement Manager, Smit Lamnalco

"With this solution, we simply earn money. In the past, we connected the main line and the forerunner with a lashing. To replace one of these ropes we had to cut the lashing. With the Lanko®nect this is not necessary anymore."

Andries Looijen, Superintendent, Multraship



During development, the Lanko®nect was subjected to rigorous internal testing and field trials. Renowned companies in the towing industry such as Multraship and Smit Lamnalco participated in the field trials. They were impressed with the field trial results and are now using the Lanko®nect in their daily activities. The Lanko®nect gives them the operational and safety advantages they were looking for in their towing activities.

Find out how the Lanko®nect can transform your towing operations, call +31 (0)515 487643 or email tugandtowing@lankhorstropes.com

The Lanko®nect enables a new approach to making up the tow line to give an end-to-end, synthetic soft rope solution. It connects a main towing line with a forerunner. The Lanko®nect benefits include:

- quick and easy (dis)connection
- variable calculated breaking force
- cost savings
- connection to a wide range of synthetic ropes
- smoother line movement and easier handling because of the small knot.

THE LANKO®NECT – SOFT ROPE CONNECTION

Made from lightweight, high strength Dyneema®, the Lanko®nect installation is quick and easy - no heavy hardware is needed. This enhances towing operations and increases crew safety. The smaller Lanko®nect knot is easy to handle and disconnect, allowing it to be used again later, whether or not in the same configuration.

For almost every tugboat, there is a solution with the Lanko®nect. The connection allows a variable calculated breaking force to be set for the tow line. The Lanko®nect can be either the strongest connection or a calculated weak link in a towing configuration. Changing from a 3-loop version to a 2-loop version, and vice versa, allows different calculated breaking forces to be set.

The Lanko®nect also provides additional cost savings. If the connection is set as the weakest link in the tow line configuration, the risk of a break in the costly main line and the forerunner is minimised. Rather than replace the mainline or forerunner, the Lanko®nect can easily be disconnected without being sacrificed. With the Lanko®nect there is a minimal chance of damage to other components such as the hardware on board the tug boat or the ship and, of course, the other lines in the towing configuration. The Lanko®nect soft rope connection reduces the risk of damage to towing lines, compared to using heavy hardware.

The Lanko®nect concept works with a wide range of synthetic materials including Dyneema® (Lanko®force) and polyester (Strongline), providing a greater range of connection options than for traditional tow lines. In line with industry safety procedures, Lankhorst strongly recommends protection for the rope eye where necessary.

The small Lanko®nect knot allows smoother line movement, as well as easier handling, compared to a conventional and large bulky knot.

www.lankhorstropes.com



Contract won to design a multi-purpose workboat

Macduff Ship Design, based in Aberdeenshire, Scotland, has recently signed a contract with Cheoy Lee Shipyard of Hong Kong to develop the innovative concept of a 14m multi-purpose workboat capable of line handling and harbour tug duties.

The design is targeted at multi-disciplines within the same design envelope to allow variation in production to suit individual owner specification.

Macduff has been busy over the past six months or so with the delivery of a number of new vessels while work continued on existing contracts and several new design contracts were won. The company has also seen the continuation of its naval architectural consultancy work and the steady expansion of Macduff Marine Surveyors.

Multi-purpose vessels have been a feature of many Macduff designs. Following successful trials it recently delivered a 12.75m multi-role pilot vessel to Associated British Ports Ltd, Ayr, Scotland.

The vessel was ordered as a design/build contract with Macduff Shipyards winning the competitive tender to produce the vessel design and steel kit to the owner's strict requirements.

Stuart Cresswell, ABP Ayr and Troon port manager, said: "We are pleased to take delivery of this brand new vessel, which has been specifically designed to undertake a dual-purpose role of delivering pilotage services and assisting the berthing of larger vessels in poor weather conditions.

"With the trend towards ever bigger ships, its arrival will help cement both Ayr and Troon's status as primary hubs for trade in the



west of Scotland, and Troon's long-standing reputation as a port of refuge for all shipping during bad weather."

The vessel was designed as the primary vessel for the port of Ayr and as such it was important that it not only performed full pilot duties, but also had capability to assist vessels entering the port. With these varying requirements the vessel needed to be suitably robust for general harbour duties while maintaining strict weight management. At 12.75m LOA, with a beam of 4.5m and design draft of 1.2m, the vessel is designed to carry two crew and two pilots and is classed to MCA workboat code regulations and surveyed by SCMS.

The propulsion machinery includes two John Deere 6068SFM85 engines rated 321hp at 2,600 rev/min coupled to a ZF 305-3A gearbox with 2.423:1 ratio, all supplied by EP Barrus. The vessel carries 4,000 ltrs of oil fuel and 210 ltrs of fresh water.

▲ The Macduff-designed multi-purpose pilot boat operating in the Port of Ayr in Scotland

The hull form was based on a previous successful semi-displacement hull form developed by Macduff designers for use in similar operations. This was tailored in the final design stages and to optimise performance and seakeeping while maintaining its workboat capabilities.

Macduff Ship Design provided full construction and outfitting drawings to Macduff Shipyards, which completed the vessel on schedule with delivery to the port of Ayr slightly ahead of contract.

During sea trials, the vessel performed admirably, exceeding all expectations. The trials gave an improvement on both the predicted speed, reaching 12.2 knots at 100 per cent maximum continuous rating, and bollard pull, achieving 5.2 tonnes.

Deal means workboats will have autonomous option

Sea Machines Robotics of Boston has announced a collaboration with Tuco Marine of Denmark to offer remote and autonomous control products as factory options in its line of ProZero workboats. Tuco Marine group manufactures a range of modern, efficient workboats at its Faaborg, Denmark, location and is specialised in the production of carbon fibre hulls.

The companies successfully demonstrated the remote command capability of Sea Machines 300 technology at the Danish Maritime Authority's *Zooming into Marine Autonomy Conference*, where they impressed

attendees by giving live remote command of the water craft to Danish Minister of Industry, Brian Mikkelsen.

Tuco CEO Jonas Pederson said: "Sea Machines provides technology that enables new methods of optimised operation of our workboats. We see immediate market opportunities for remote and autonomous operation in offshore surveying, security, dredging and more. In the spirit of innovation on which we founded Tuco, our collaboration with a cutting-edge technology leader such as Sea Machines positions our company for the future state of the industry."

Sea Machines CEO, Michael Johnson,

said: "A production boat builder offering Sea Machines products is a major step in making remote command and autonomous vessel technology available to commercial operators. We are taking the mystery out of marine autonomy by putting the technology forward as a tangible product that is ready to use, and we are pleased to partner with a visionary company such as Tuco in our first original equipment manufacturer partnership."

The Sea Machines 300 is an industrial-grade autonomous command and dynamic vessel management system that interfaces with primary and auxiliary vessel systems.

Deals result in order for four new tugboats

Towage and marine services company Smit Lamnalco has ordered four Damen ASD 3212 tugs – all for delivery this year.

Making the announcement at the Europort Exhibition in Rotterdam, Smit Lamnalco CEO, Mauro Fernando Sales, said: “We decided to invest in four new Damen ASD tugs following the recent award of two important contracts – one in Australia and the other in Oman.

“The move to acquire more Damen vessels is in line with our mission to standardise our fleet and to provide high quality, reliable vessels, which is particularly important given the challenging environments our vessels often operate in.”

Smit Lamnalco has been a long-standing client of Damen Shipyards and has 55 Damen vessels in its fleet.

Two of the new Damen ASD 3212 tugs will head for the mining town of Weipa in Queensland, Australia, in the third quarter of this year, where they will be deployed on a Rio Tinto project.

Jeroen van Woerkum, sales manager Benelux at Damen Shipyards, said: “Smit Lamnalco has been a customer of Damen for



many years, appreciating the experience and quality offered by the company. Additionally, in this particular case, the end-customer Rio Tinto had a strong preference for Damen ASD tugs for its project in Weipa. It was vital that we could deliver these vessels quickly from stock.”

Smit Lamnalco is also very familiar with

▲ **Luisa Neri**, operated by Fratelli Neri, similar to the four off-the-shelf Damen ASD 3212 tugs ordered by Smit Lamnalco

Damen’s service hub in Brisbane, which is for the benefit of Damen customers operating in the region.

In Oman, the two Damen ASD 3212 tugs will work at a terminal operated by the Oman India Fertiliser Company in the port of Sur. These tugs are due to be delivered in June this year and will be operated by the joint venture Bahwan Lamnalco Company.

The 33m-long, 13m wide Damen ASD 3212 is a powerful, sturdy and highly manoeuvrable tug, with a bollard pull of 80 tonnes and capable of achieving a speed of 14.3 knots. As part of the Damen portfolio, the vessel is series-built for stock, ensuring rapid delivery of proven technology.

MoU to build Dutch design tugs



Seattle-headquartered Foss Maritime and the Netherlands-based Damen have signed a memorandum of understanding to produce and market the Damen ASD 2813 tug in the US.

The tug design has been modified to meet the unique demands of the US tug assist and escort market. The first four of a series of at least 10 tugs will be constructed at the Foss Rainier, Oregon, shipyard, with delivery planned for 2019.

While Foss will construct the tugs to supplement and enhance its fleet, tugs of this build series will be available for purchase by other US tug operators.

Foss president and CEO, John Parrott,

▲ **Damen’s ASD 2813 tug design** has been modified for the US market

said: “This partnership supports our shared goals. It means we can strengthen our fleet while meeting the demands of our customers, and at the same time Damen has the opportunity to market its innovative tug designs in the US.”

Jan van Hogerwou, Damen’s vice president of new construction North America, said: “Working with Foss will enable us to strengthen our relationship while serving the North American market with state-of-the-art, cost-effective and dependable vessels.”

Eco-tug deal signed for new port facility

Wärtsilä has signed a memorandum of understanding with Petrocity, the parent company of the new port facility being built in the Brazilian city of São Mateus-ES, to develop a harbour tug design.

The prime consideration is to maximise the ecological operational sustainability of the vessel since the environmental demands of the new port are among the most stringent in the world. For this reason, the design will be based on the recently launched Wärtsilä HYTug, which features hybrid propulsion and energy storage using batteries.

The Wärtsilä HYTug emphasises environmental sustainability, operational efficiency, and lower fuel consumption than is possible with conventional tug designs. The fully integrated hybrid power module combines engines, the energy storage system, and power electronics optimised to work together through a newly developed energy management system.

Two tug deal marks debut on Black Sea

Svitzer has signed an agreement with APM Terminals for towage operations at the Black Sea port of Poti in Georgia. Vessel operators will now benefit from significantly improved port access during bad weather conditions thanks to Svitzer's specialised ASD tugs, which have the power and manoeuvrability to serve all types of vessels calling at the port in adverse weather conditions.

The terminal will now be served by a fleet of three tugs – two ASDs from Svitzer's existing fleet in Europe, supplemented by a tug from APM Terminals Poti's current fleet.

Strategically located as a gateway port to the Black Sea, Mediterranean and central Asian trade, APM Terminals Poti is the largest port in Georgia, handling liquid and dry bulk, ferries and containers. It has 15 berths, with total berth length of 2,900m and

more than 20 quay cranes.

Managing director of Svitzer Europe, Kasper Friis Nilas, said: "By introducing modern equipment with strong propulsion power and exceptional manoeuvrability, we will support APM Terminals' efforts to increase the efficiency of the Poti terminal by reducing weather-related downtime. By bringing Svitzer into Poti, the port's customers will benefit from our renowned operational and safety standards assisting vessels in a safer and more efficient manner."

The deal marks Svitzer's first move into the Black Sea.

APM Terminals Poti managing director, Klaus Holm Laursen, said, "We are excited to strengthen our vessel handling capabilities with the addition of these Svitzer ASD tugs. We chose Svitzer for its safety performance, technology, and expertise. This allows us to

offer our vessel customers more night time navigation and improved vessel turning performance in our port entrance channel. This translates into more berthing windows for vessels and faster, safer turn times.

The Svitzer tugs are time chartered by APM Terminals Poti.

SOV tower delivery contract signed

Netherlands-based offshore equipment designer and builder, SMST, has been awarded a contract for the delivery of an access and cargo tower to Spanish shipyard Zamakona in Bilbao.

The tower, that combines a gangway and elevator for the handling of personnel and cargo from the vessel's warehouse to the wind turbine, will be installed on Esvagt's new SOV that will perform offshore maintenance work at the Deutsche Bucht North Sea wind farm for MHI Vestas.

The SMST equipment enables safe and step-less transfer of personnel and cargo from vessel to the wind turbine up to a significant wave height of 3m.

The landing height adjustment system of the tower travels to platform heights up to 23m. Together with the access system, SMST's remote-controlled cargo transporters are supplied to transport cargo of 400kg from below deck, via different deck levels, to the offshore structures. Furthermore a 3-ton active heave compensated offshore knuckleboom crane is installed on top of the tower for the handling of heavier parts towards wind turbines or for deck and harbour handling.

The SOV, being built by Astilleros Zamakona, is designed and engineered by Havyard Design & Solutions in close co-operation with Esvagt. It is due to be delivered in August 2019.

◀ An artist's impression of the SMST access and cargo tower on Esvagt's new SOV



Vessels upgraded for specialised terminal work

Multiship and Damen have signed a contract for the build and delivery of two Damen Stan Launch 804s. The new launches will be operated by Multiship subsidiaries Montis Mooring Boat Service and Verenigde Bootlieden.

The subsidiaries provide boatmen and other specialist marine services in the port of Terneuzen in the Netherlands. The new acquisitions will provide, among other things, line handling services.

The 8.6m Stan Launch 804s are specially modified versions of the class. Integrated into the design are upgrades to maximise their capabilities in the specialised terminal

environment, based on their operators' long experience. With an emphasis on manoeuvrability and power, the changes include increasing the standard bollard pull from 1.4 tonnes to 3.2 tonnes, adding an 11kW bow thruster, a 900mm diameter nozzle propeller and more than doubling the installed power to 182kW.

Other features include Mampaey quick-release towing hooks, capstans with a pull force of 750kg to manage heavy mooring ropes, and anti-slip wooden decks.

The launches will be built at Damen Maaskant Shipyards, Stellendam, for delivery this year.

Unique operating model will ensure long-term services



▲ A Robert Allan Ltd-designed ART 85-32

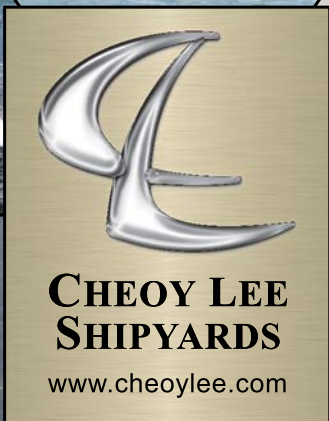
Kotug Australia has won the contract to operate the tugboat fleet for Fortescue Metals Group in Port Hedland, the world's largest bulk export port on Australia's west coast. The fleet consists of six Fortescue-owned ART 85-32W tugs, and three Kotug-owned tugs, which will be chartered directly to Fortescue.

In May 2016, Fortescue was awarded a second towage licence for Port Hedland and the new ART 85-32W Rotor® tugs will enable it to offer long-term services.

Kotug has appointed Westug Ltd – an Australian port operations provider with bases throughout Australia including Pilbara, Whyalla, and Melbourne – to manage the local Pilbara operations.

Under the operating model, Westug has delegated authority from Kotug to manage its fleet and crew operations to the satisfaction of Pilbara Marine.

Kotug CEO, Ard-Jan Kooren, said: "Kotug believes that this unique combination of local Australian knowledge and worldwide operational experience is not only vital to providing a reliable, safe and long-term solution to Fortescue's and Port Hedland's terminal service vessel requirements, but will be a resource to Fortescue's terminals, in any marine endeavour that it chooses to embark on in the future."



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Spanish shipyard Nodosa has built and delivered a sixth tug for near neighbour Amare Marin, which provides mooring and harbour towage services at Puerta de Marin – where Nodosa is based – and Ria de Pontevedra on Spain's northwest coast.

Named *A Alonso*, the multi-purpose tug boasts a bollard pull in excess of 75 tonnes for deep sea towage as well as harbour manoeuvres for docking and undocking. Additionally, an aft deck free of obstacles means it can operate as a supply vessel and can also take on a fire-fighting role.

A Alonso was designed by Nodosa's in-house technical office with significant input from the customer, resulting in a tug combining proven performance alongside tailor-made solutions for Amare Marin's own requirements.

The steel-hulled vessel is 348 gross tonnes and has a 30.25m LOA with a beam of 11m and depth of 5.1m. Draft is given as 4.1m. The propulsion package comprises two Caterpillar 3516C main engines each

Customised design leads to versatile, multi-purpose tug

generating 2,350kW at 1,800 rev/min and driving a Schottel SRP 1515FP propeller. This gives *A Alonso* a free-running speed of 12.5 knots. Auxiliary engine power is also from Caterpillar in the form of a single C18, generating 492kW at 1,500 rev/min, and a C9 rated at 214kW at 1,500 rev/min.

Deck machinery is an all-Spanish affair from companies based, like Nodosa, in the Galicia region on the Atlantic coast. Ibercisa supplied the main towing winches: forward is a combined anchor and towing winch, with a towing winch aft. Two auxiliary winches are from J&L Carral. Towing hook and tow pins are from Ferri, while the single crane is by Guerra and a rescue and salvage inflatable is provided by Narwhal.

A Jason fire-fighting system is made up of

a single pump, two water monitors, an ejector foam mixer and a self-protection water spray curtain. Tank capacities are 54m³ of fresh water, 9m³ of lube oil, 6m³ of hydraulic oil, 195m³ of MDO and 8.5m³ of foam.

A Alonso, which has accommodation for a crew of six, has been built according to RINA Rules C #HULL #MACH, TUG, FIF11, WATER SPRAYING, UNRESTRICTED NAVIGATION.

Established in the mid-1970s, Nodosa has gained a reputation for building custom-designed vessels in its 40,000m² shipyard facility in the port zone of Marin, Pontevedra – where the group also carries out ship repairs, dry docking and maintenance as well as having its head office and design team.

John Oliver



Arctic class tug is serving Russian gas field

A new-build tug *Yuribey*, built at the Craneship shipyard (part of the Transship family of companies) situated on the shore of the Sea of Azov at Temryuk, Russia, for FSUE Atomflot, successfully completed its first voyage, travelling more than 5,000 miles to arrive at its base port of Murmansk during November.

The new tug will become part of the port fleet of the Sabetta seaport, in accordance with the programme for creating the port transport infrastructure. This is the third vessel built and handed over to the customer by Craneship for Yamal LNG, part of the integrated development for the production, liquefaction and supply of natural gas, as well as the building of a LNG plant with a capacity of about 16.5 million tons per year as the resource base of the Yuzhno-Tambeyskoy field.

Designed by the Marine Engineering Bureau (Transship Design) and built under RMRS (Russian Maritime Register of Shipping) supervision, *Yuribey* has class notation which includes FiFi3 and oil recovery.

In accordance with the specifics of the forthcoming work, the tug is designed for a wide range of operations: ice works in the port and approach channel; escort of LNG carriers; towing of non-propelled vessels and floating structures; pilotage of vessels and mooring to berths; escort operations at speeds up to 10 knots; fighting fires on ships and port facilities; participation in rescue operations; participation in oil spill cleaning operations; collection of spills of petroleum products with a flashpoint above 60 degrees C from the sea surface and transferring them to shore structures; transportation of deck cargo, including three 20ft containers.

According to the RMRS classification, the tug – which measures 39.54m in length with a breadth of 14m and a draft (including skeg) of 7.1m – has an Arctic Ice cClass Arc6. The rules allow the tug to proceed through one-year-old ice up to 1.5m in thickness. During the development of the tug project, ice qualities of the ship model in the ice trial



tank were studied at the experimental base of the Krylov State Research Centre, one of the world's largest research centres in the field of shipbuilding and design.

The transverse watertight bulkheads divide the vessel into seven compartments, providing a one-compartment unsinkability, and double sides and a double bottom along the overall length of the ship.

The tug motion and its operation in the ice are provided by two propulsion arrangements involving ABB Azipod ICE1400P-12400H2 units with fixed-pitch stainless steel propellers with a diameter of 3,500mm, each with an electric drive. The total power on the propellers is 7MW, which allows the attainment of 97 tonnes of bollard pull ahead. The work of the propulsion systems is provided by four main diesel-generators powered by Caterpillar 3516C-HD DITA engines with a total capacity of 8MW. A free-running speed of 14.4 knots was also recorded on trials.

In addition to three Caterpillar C7.1 150kW auxiliary engines, there is a dedicated engine from the same manufacturer driving an FFS supplied fire pump feeding two FFS monitors and a comprehensive waterspray system

Yuribey is designed for operation at temperatures as low as -50 degrees C thanks

to a range of innovative build techniques: fore and aft towing complexes are located in enclosed spaces; doors, covers, air heads, fittings, handrails, communication and navigation antennas and other devices are electrically heated; the air taken into the engine room and living spaces passes through the heaters, which ensure its preheating. To ensure comfortable temperatures on board, two boilers (one as standby) operating on a thermal liquid are installed, which provide heating of incoming air to the ship, heating of the vessel spaces and tanks.

Comfortable conditions are created for the crew of 12 accommodated in four single cabins and four twin-berth cabins. All are equipped with en suite bathrooms, internet and IP telephony. There is a spacious crew mess, gym and sauna to occupy the crew in their spare time.

The tug is provided with communication facilities for the sea area A1+A2+A3+A4. Additionally, there is a satellite communication system providing high-speed internet access, telephone communication, email, access to corporate networks, and the possibility of video conferences. Navigation systems correspond to the Polar Code and the symbol of the Class OMBO. In addition, ice radar is installed, which allows continuous



monitoring of the state of the ice fields in the area of the ship's operation. Sailor provided two VHF DSC sets, two MF/HF systems and a 6110 GMDSS system. Transas supplied both the S and X-band Navi-Radars and the ice radar is a Sigma S6. Two ECDIS sets are also by Transas as is the AIS transponder. The gyro is from Sperry.

Two Rolls-Royce winches are carried on board the vessel. Forward is a TW

3000/800/AW 34U3 unit with 200m of 64mm Lancforce rope, a 12-strand braided rope, made of Dyneema® yarns, whilst aft is a TWH2100/400 winch fitted with 700m of 56mm steel rope. The towing hook is a Mampaey DCX 70/100 and there are two DMT aft capstans. A Heila deck crane with the capacity to lift 18 tonnes at 75m is also fitted.

The rescue boat is a Hatecke RB400 which

is launched and recovered by a Vestdavit PLR-3600.

Yuribey is protected by a comprehensive selection of products from International Paints and a system of W and O type fendering from Trelleborg.

The vessel has tanks to accommodate 170 tonnes of fuel oil and 20 tonnes of fresh water.

Andy Smith

ATB combo couples tug to largest hopper dredge built in US

Eastern Shipbuilding Group has delivered a dual mode articulated tug/barge (ATB) trailing suction hopper dredger to Great Lakes Dredge & Dock Company (GLDD). With the tug part of the arrangement named *Douglas B Mackie*, it honours GLDD's former CEO and chairman of the board, while the hopper dredger barge is named *Ellis Island* after New York's famous entry point.

The tug was designed and engineered by Ship's Architect, Inc, while the barge was detail designed by Bay Engineering. Both vessels are based on concept designs by Ocean Tug & Barge Engineering.

Brian D'Isernia, CEO of Eastern Shipbuilding Group, said: "We are particularly proud of constructing this ATB dual mode trailing suction hopper dredger for Great Lakes Dredge & Dock Company, LLC as it is the largest hopper dredger built in the United States to date."

David Simonelli, president, dredging division at GLDD, said: "We are excited to take delivery of this advanced vessel which improves the competitiveness of our hopper group and represents a substantial reinvestment in our fleet."

Even to those inexperienced in ATB concept or with hopper dredger barges, this new combination offers some obvious advantages. The barge itself measures 433ft x 92ft x 36ft (132m x 28m x 11m) and has a capacity of 15,000 cubic yards (11,500m³) using a dredge system powered by a pair of EMD engines each developing 5,000hp. The barge has two Schottel fixed pitch electric tunnel thrusters at the bow.

The tug, *Douglas B Mackie*, has overall dimensions of 158.3ft x 52ft x 32.75ft (48.26m x 15.85m x 9.98m), and employs a propulsion system comprising a pair of MaK 12m32C-T3 main engines each developing 7,831hp. The vessel has two 2,500kW shaft generators backed by an auxiliary generator comprising a Caterpillar C32-T3 of 730kW and an emergency set, a Caterpillar C18, of 550kW.

The tug and barge are united by means



of two Articouple coupler systems from Taisei Engineering.

Up to 26 people can be accommodated in 18 single cabins and four twin berth units. Common spaces include a lounge, well equipped exercise room, stainless steel galley and mess. The boat will carry a full-time chef.

The tug's wheelhouse contains a comprehensive array of marine electronics including two Furuno radars (X and S-band) alongside an AIS and electronic chart display from the same manufacturer. In addition, it has a Beier Radio single station DP system and a Simrad AP70 autopilot. Furuno also figures in the communications fit-out with an FM radio and Satellite compass while Sailor provided the internet systems.

In announcing the delivery of the new combination in November, Eastern said:

"Eastern is proud to assist Great Lakes in delivering this investment in the maritime future of America, constructing these two state-of-the-art Jones Act vessels to meet the country's growing needs."

The Great Lakes ATB hopper dredger will be a key tool in performing the restoration of the eroded land mass in the Gulf Coast states. Additionally, the vessel's ability to cost-effectively deepen and maintain navigable waterways will bolster the US' competitive position in world trade, as the nation's ports move forward with deepening plans to accommodate the larger vessels, which will sail through the expanded Panama Canal.

Great Lakes Dredge & Dock Corporation is the largest provider of dredging services in the US and the only US dredging company with significant international operations. Great Lakes Dredge also owns and operates the largest and most diverse fleet in the national dredging industry, comprising some 200 specialised vessels. AS

Triple-screw configuration for lower cost manoeuvring

Rodriguez Ship Building in Bayou La Batre, Alabama, US, has recently delivered towboat *Daisy Mae* to its happy owner.

"It is the closest you can get to Z-drive manoeuvrability, without the cost of Z-drive," maintains yard owner, Joseph Rodriguez.

Rodriguez has designed and built a lot of tugs over the years and does not make this claim lightly. The new beamy 82ft by 32ft (25m x 9.75m) tug was delivered to Coeymans Marine Towing, one of the Carver group companies, based at the port of Coeymans located some 110 miles up the Hudson River from New York.

The triple-engine boat is powered by port and starboard Tier 3 compliant Cummins QSK38 engines, each delivering 1,300hp at 1,800 rev/min, and a centre-line, Tier 3 compliant Cummins QSK19 to give an additional 750hp at 1,800 rev/min. The two outside engines turn Kahlenberg stainless steel four-blade Kaplan style 75.25in (1,910mm) diameter propellers through Twin Disc gear boxes, while the centre-line engine is fitted with a 65.25in (1,660mm) propeller with a similar configuration.

Shaft brakes have been installed on all three shafts to allow rapid shifting fore and aft. All the propellers are fitted with Kort nozzles to enhance their thrust to give a maximum bollard pull of 43 tonnes – around



30 per cent more than open propellers.

With a maximum draft of only 10ft (3m), *Daisy Mae* will work comfortably along the Hudson River. The vessel is claimed to have better sea keeping abilities than a conventional riverboat while maintaining riverboat manoeuvrability with flanking rudders on both the two outside propellers. The combination of powerful port and starboard engines with Kort nozzles on a beamy hull, together with the shaft brakes, foil-shaped steering rudders, and towboat style flanking rudders will give the operator of the new tug a lot of options for manoeuvring in the river currents or tight harbours when towing, pushing or on the hip of barges.

For pushing, the tug is equipped with a second, elevated aluminium pilothouse. A pair of Patterson 40-ton deck winches is mounted aft for making up to push.

Although built in Alabama, the vessel has been constructed for the north with heavy ice strengthened frames and plating forward. As an ABS load line vessel, it has been stability tested and is Subchapter M compliant including all required fire suppression systems.

Accommodation is provided for a crew of five: captain, mate, engineer, and two deckhands. An extensive suite of wheelhouse electronics includes two Halo 4-pulse compression radars, a 16in touch-screen chart display, satellite compass, AIS, autopilot, depth sounder, and weather station – all manufactured by Simrad. There are also three radiophones, a sat phone, and a bridge monitoring system. Electrical power is provided by two Cummins QSB7-DM powered 60kW generator sets. AS

Home fleet extended with increased power



Med Marine AŞ is a Turkish marine company which has been providing a broad range of services in towage, pilotage and mooring in the busy ports of İzmit and İskenderun Bay for more than 20 years. İzmit Bay hosts 36 separate terminals where 13 tugboats belonging to Med Marine are operating. İskenderun Bay also hosts 11 separate terminals varying from dry cargo to oil terminal facilities where the company stations a further six tugboats. It has recently added the 20th tug to its national fleet with the arrival in İzmit Bay of *Med Yarmca*.

Med Marine had the new vessel built at Ereğli Shipyard, one of the largest shipyards in Turkey, on the Black Sea coast, thus maintaining a long-standing and fruitful commercial relationship: it builds tugboats and chemical tankers here either for its own main operations, or for global clients' needs. Indeed, Med Marine has



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successfully completed the construction and delivery of over 100 projects including tugboats, tankers, mooring and pilot boats.

As the latest arrival, *Med Yarımca* is a RAmports 2500W series model designed by Robert Allan Ltd but modified with extra power to give an increased bollard pull. It is of typical ASD configuration with azimuthing thrusters at the stern.

To avoid confusion the new version has been designated the RAmports 2570 indicating the bollard pull now attained is in excess of 70 tonnes. With a length of 25.2m, a beam of 12m and a depth of 4.6m, the vessel is powered by a pair of Caterpillar

3516C diesel engines developing a total output of 4,200kW (5,600bhp) with a free running speed of 12 knots and bollard pull of 73 tonnes. Two Caterpillar C4.4 ship service generator sets provide a total of 172kW of electrical power for vessel services, including the deck machinery.

The main engines drive Schottel SRP1515 azimuthing thrusters with controllable pitch propellers of 2,600mm diameter. The fire-fighting system to the requirements of RINA's FiFi1 notation has been supplied by FFS and delivers 2,600m³/hr to two electrically-controlled monitors. THR Marine (previously SEC Groningen) supplied

an electric frequency controlled double drum anchor and towing winch and an electric frequency controlled aft towing winch with one towing drum.

The RAmports 2500W's MLC-compliant high-quality and comfortable accommodation is climate-controlled and includes a captain's cabin, an officer cabin and two double crew cabins in addition to the normal galley, mess and sanitary arrangements.

The vessel has tanks to accommodate 96m³ of fuel oil, 11m³ of fresh water and 5m³ of foam and dispersant. An identical sister, currently named *Eregli 52*, has just been completed. **AS**



Workboat supports port mining operations

***CP Sandpiper*, a brand-new EuroCarrier 2495, has been recently delivered to its new owner, Cape Preston Port Company in Western Australia. The new arrival adds to the growing fleet of Neptune 2495 EuroCarriers worldwide. Cape Preston port specialises in the export of iron ore.**

Neptune managed to deliver the new vessel within a short lead time. This has been achieved through the use of a partially built standard vessel. However all demands of Cape Preston Port Company have been fitted to the vessel, which makes this EuroCarrier perfectly suited for the customer's operations. Moreover, the EuroCarrier 2495 has been delivered in compliance with Australian legislation.

CP Sandpiper was transported to Australia on board a heavy lift carrier. Upon arrival the vessel was set to work by its owners assisting the Sino Iron Project, the largest magnetite mining and processing operation in Australia with a mine life of more than 25 years. The multi-purpose workboat will be used to

perform daily maintenance operations on the site of this prestigious project, carried out by Citic Pacific Mining.

This impressive new workhorse measures 24.45m x 9.54m and has a draft of 2.1m. Built to Bureau Veritas Classification requirements for Unrestricted Navigation, the vessel is powered by a pair of Caterpillar C32 main engines, each developing 716kW at 1,800 rev/min. These turn 1,500mm diameter propellers inside Kort nozzles. There are two generator sets, both type C6.6 units of 121kW output by Caterpillar, one radiator cooled, the other box cooled. The vessel has a maximum speed of 10 knots and attains a static bollard pull of 22 tonnes.

The deck machinery includes a split drum anchor-handling/towing winch, a Mampaey quick release towing hook and a set of hydraulic towing pins. Forward is a Heila deck crane.

Below main deck the accommodation includes single cabins for captain and chief engineer plus two twin-berth crew cabins.

Each cabin is fitted with a wash basin and there are separate communal shower and toilet facilities.

The deck house is offset to port allowing the split drum winch to be centrally located across the beam and leaving a broad area of uncluttered deck space which is covered in azobe wood flooring. The deck house contains the combined galley and mess, more toilet facilities and stairways. Tanks are provided for 69m³ of fuel oil and 55m³ of fresh water.

Based in Aalst, the Netherlands, Neptune Shipyards is a maritime service provider, specialising in working vessels for the offshore and dredging markets. The service consists of newbuilding, repair, refit, maintenance and charter. Quality, flexibility, short delivery times and innovation are terms that describe the company. It offers a broad range of products and services in the shipbuilding sector. This includes tugboats, workboats, multipurpose pusher tugs, crew and pilot vessels and pontoons. **AS**

Deliveries in brief

The final AHTS/standby vessel in a series of six has been delivered to China Oilfield Services Ltd (COSL) by the **Shanghai Zhenhua Shipyard**. Like its predecessors, **Hai Yang Shi You 635** has 68.8m LOA with breadth of 14.8m and depth of 6.9m.

Main engine power comes from two MAN 7L27/38s each delivering 2,555kW and driving 2,900mm diameter controlled pitch propellers. Three tunnel thrusters comprise two at the bow and one at the stern. This combination gives the vessel a maximum speed of 14.5 knots and economic speed of 13.7 knots, with a bollard pull of 80 tonnes.

Gen sets comprise two 310kW auxiliary generators, two 1,000kW shaft generators and a single 193kW emergency generator.

A 460m² deck area can take 10 tonnes/m² up to a maximum deck cargo of 600 tonnes. There is onboard accommodation for 18 crew and 12 passengers.

The **Hai Yang Shi You** series has Class notation for a variety of roles including Offshore Tug/Supply Ship, Oil Recovery Ship, Standby Ship, Ice Class B and FiFi1.



Spanish operator Boluda Towage and Salvage has added its latest next-generation tug to its fleet, serving the country's southern port of Bahia de Algeciras in the Bay of Gibraltar.

VB JuanGonzalez is the third of 10 Advanced Voith Tractor (AVT) tugs designed by Canadian naval architects Robert Allan Ltd and being built at **Zamakona Shipyard** in Pasajes on Spain's Atlantic coast in the north.

The latest arrival is 31.6m long with a moulded breadth of 12.8m and a navigational draft of 6.5m. Power comes from twin MaK main engines, each developing 2,800kW at 750 rev/min. These drive forward-mounted Voith type 32R5/265-2 cycloidal propulsors in water tractor configuration, resulting in a bollard pull of 80 tonnes and a maximum speed of 13.5 knots.

Designed to be highly manoeuvrable in port and at sea, the AVTs also have a FiFi1 fire-fighting and oil-recovery capability.

Accommodation for a crew of eight



comprises single cabins at the forward end of the deckhouse on the main deck for the captain and chief engineer and three twin-bunk cabins along the starboard side – all with en suite facilities. All the crew quarters – which also include a combined mess and lounge and a separate galley – benefit from reduced noise and vibrations thanks to the latest available materials.

VB JuanGonzalez is named in honour of the former Boluda Towage and Salvage president from 2006 to 2016. Merchant navy captain Juan Gonzalez was also a vice-president of Anare – National Association of Tugboats of Spain – before his death in August 2016.

Mississippi River operator Bisso Towboat Company has received the third of three new ship assist tugs in the latest phase of its fleet renewal programme that maintains its status as owner of the largest fleet of ASD tugs on the Mighty Muddy.

Liz Healy is a 4,480hp ASD tug built by **Main Iron Works** in Houma, Louisiana. Like its predecessors, the vessel measures 100ft x 38ft x 13.5ft (30.5m x 11.6m x 4.1m) and is powered by two Caterpillar 3516C main engines, each generating 2,240hp at 1,600 rev/min. These drive two Rolls-Royce US205FP Z-drives featuring 90.6in (2,300mm) diameter stainless steel propellers set in stainless steel nozzles. Resulting bollard pull is given as 60 tonnes.

Two gen sets are a combination of John



Deere 4045AFM85 engines powering 99kW Marathon generators. Deck equipment includes a JonRie Series 230 hydraulic bow winch carrying 500ft (154m) of 8in (203mm) circumference Amsteel Blue steel wire.

Liz Healy is the seventh ASD tug built for Bisso by Main Iron Works and the 11th new tug in a partnership dating back 25 years. Bisso is based in Luling, just outside New Orleans in Louisiana, and the company's operations stretch from state capital Baton Rouge to the Gulf of Mexico.



Damen has delivered two fast crew supplier (FCS) vessels to new customer, Marine Core & Charter (MC2), for the long-distance delivery of crew and equipment for an oil & gas major operating in the Arabian Gulf.

Ampi and **Amia** are the first examples of the Netherlands-headquartered shipyard group's FCS 4008 class. The 40m-long vessels – introduced to fill the gap between the 53m FCS 5009 and the 33m FCS 3307 – have seating for 90 personnel, a top speed of 25 knots and a range of 1,200 nautical miles. There is also 140m² of deck space, while both vessels feature Damen's 'axe-bow' design for excellent seakeeping in a wide range of weather conditions.

While designed and built for carrying passengers and cargo, the adaptable FCS 4008 can also be fitted out for fire-fighting, oil recovery, safety standby, towing and security duties.

With its headquarters in Dubai, MC2 provides chartering, ship management, towage and transportation, and offshore services. It operates a diverse fleet of vessels from jack-up rigs and accommodation barges to tugs and multi-cats. The acquisition of *Ampi* and *Amia* is part of its strategy to build on its focus on chartering and increase its role in marine contracting using its own fleet.



Six years after being the launch customer for the RAmports 3200 CL tug developed by Robert Allan Ltd exclusively for **Cheoy Lee Shipyards**, Indian owner and operator Ocean Sparkle has taken delivery of two more of the type.

Ocean Leader and *Ocean Legacy* went from Hong Kong to their new home in Mumbai, where they have been deployed at an LNG terminal. Both 32m x 12.4m x 5.4m vessels boast an all-Niigata propulsion system comprising two 6L28HX diesel engines – each rated at 1,838kW at 750 rev/min – driving ZP-41 fixed pitch propellers with high grade nozzle Z-drive unit, in ASD configuration. The combination gives the tugs a free running speed ahead of 13 knots and a bollard pull of 72 tonnes.

The two new tugs have been designed and constructed to Lloyd's Register requirements; accommodation, deck machinery and safety equipment are all laid out to the operator's specific needs.

Ocean Sparkle is India's largest tug owning and operating company, with a fleet of more than 80 tugboats, including the first two of the 3200 CL series, *Ocean Pioneer* and *Ocean Perfect*. Since those in 2011, a further 33 of the series have been built by Cheoy Lee for clients around the world.

The latest example of **Sanmar's** relatively new Sirapinar-class tug has arrived in Naples, Italy, to enter service with Rimorchiatori Napoletani. *Marechiaro*, the fifth of the type, is a 22m



ASD with a 50-tonne bollard pull and free-running speed of 12.6 knots. It is designed to be able to run astern at high speeds while maintaining good control and directional stability in all directions.

With a beam of 10.8m and a maximum draft of 4.7m, *Marechiaro* – and a twin sister vessel due for delivery shortly – is built to RINA class and Italian flag requirements. The tug is powered by two 1,500kW Caterpillar engines turning Schottel azimuthing Rudderpropellers.

The Sirapinar series has been designed exclusively for Sanmar by Robert Allan Ltd and is based on the slightly larger, highly successful Bogaçay series – a RAmports 2400SX – almost 40 of which have been built by Sanmar with bollard pulls ranging from 60 to 75 tonnes depending on installed horsepower.

In addition to the two Sirapinar vessels for Rimorchiatori Napoletani, Sanmar is about to deliver another of the type to a port in Spain.



Built and launched in just five months, *Svitzer Merlin* is a multi-purpose harbour workboat now operating for Svitzer as part of the marine giant's fleet at Milford Haven in south-west Wales, UK.

Designed by Argyll Maritime Design Services and built by **Southampton Marine Services**, the vessel is a twin-screw, pontoon style, shallow draft work boat. The 20.45m long Bulldog 20 design has a small superstructure and wheelhouse on the portside aft, with a large deck space across the bow able to accommodate 12 waste skips and several pallets for its role of general port collection work and recycling waste from ships visiting Milford Haven.

Svitzer Merlin, a sister vessel of Middlesbrough-based *Svitzer Leven*, is powered by twin Doosan MD196TI diesel main engines each developing 320bhp at 2,000 rev/min and driving two conventional contra-rotating propellers via KGDMT 170H gearboxes at 3.42:1 reduction. Auxiliary power comes from John Deere generators with a capacity of 60kVA.

On deck is a TMC BS300 M4 knuckleboom crane, with a lifting capacity of 2,152kg at a radius of 12m, as well as a 5-tonne tugger winch.

Abu Dhabi Ports has taken delivery of a Yenicaay-class tug from Turkish shipyard **Sanmar**, just two months after signing



the contract. *Yenicaay VI* is an 18.7m by 9.2m ASD tug operated by Abu Dhabi Ports subsidiary, Safeen, and is serving the emirate's Musaffah and Zayed Ports.

The new vessel has joined an existing Safeen Yenicaay-class tug, while a third – *Yenicaay VII* – is due to arrive early in 2018.

The latest two arrivals both utilise twin Caterpillar C32 main engines which each develop 969kW at 1,800 rev/min and drive Veth VZ-900 azimuthing stern thrusters. This arrangement gives the tugs a bollard pull of 33.7 tonnes and a speed ahead of around 12 knots.

The Yenicaay class of compact tugs has been specifically designed to provide high performance line and ship handling capabilities typically required in smaller ports and harbours. In addition, the vessels have upgraded seawater cooling and HVAC to ensure reliability and crew comfort for the extremely high ambient air and seawater conditions faced in the Middle East.

A second fast personnel and supply vessel (FPSV) has joined the fleet of Saudi Arabia-headquartered Jana Marine Services following its completion in Vietnam by **Piriou**. *Jana 18* can carry up to 80 personnel at a speed of 25 knots, while deck space of 103m² can accommodate 50 tonnes of cargo.

The versatile, aluminium vessel – which can also offer infield support – is 41m long, 8.2m wide with a maximum draft of 1.95m, and has a crew of 10. Power comes from three engines – each delivering 1,342kW – coupled to fixed pitch propellers. A fuel capacity of 80m³ gives *Jana 18* a 21-day endurance capability.

Jana Marine provides integrated marine services to offshore oil & gas operators throughout the Arabian Gulf.

Piriou, which has its headquarters in the Breton port of Concarneau in France, delivered sister vessel *Jana 17* in the first half of last year.

John Oliver



Salvors see gross revenues halved

The salvage industry experienced a major drop in gross revenues in 2016, according to statistics from the ISU. Its members' income from emergency response and wreck removal was US\$380m, down 50 per cent on the previous year. It will be several months before the figures for 2017 are collected.

However, ISU president Charo Coll said: "Despite this difficult picture, we think that the salvage sector is resilient and is still a vibrant industry ready to offer vital services to ship owners."

Speaking at the ISU's annual marine journalists' lunch and delivering the keynote address at the Salvage & Wreck Removal conference in London, Coll also commented on the continuing decline in the number of LOF salvage contracts.

She said: "The number of LOF cases that realised revenue for ISU members in 2016 was just 34, its lowest for many years, and produced an average reward for each case of about US\$2m. The number for last year may be more than 50, but we all know that the days of more than 100 LOFs each year have gone."

"However, ISU still considers LOF to be the best contract in many emergency response situations. It has such great benefits including speed and the key fact, often overlooked, that the salvor carries all the financial risk and the owner and insurer pay nothing until the job is successfully done."

Given its potential costliness for insurers, it is perhaps unsurprising that the picture of LOF's future which emerged during the insurers' roundtable and contracting panel sessions later in the day at the conference was less optimistic. Martin Hall, head of marine casualty at Clyde & Co, pointed to the fact that many of the LOF contracts used over the past year have been capped due to pressure from insurers. His prediction that the "use of hybrid LOFs or commercial salvage terms will increase" was supported by Per Åge Nygard of the Norwegian Hull Club, who warned that salvors' commitment to LOF should not prevent them from evaluating each case on its own merit, and by Skuld's Andreas Øgrey, who believes that the kind of emergency situations for which LOF is best suited are reducing in frequency.

In a separate presentation, Simon Tatham, a

partner at Tatham Macinnes LLP and regular *IT&O* columnist (see page 50) defended LOF, saying it provided tried and tested processes, certainty, structure, accountability and predictable outcomes.

Meanwhile, the conference saw signs that insurers and salvors, despite their differences in opinion, are both beginning to recognise the benefits that can come from a closer and more co-operative relationship. Dieter Berg, president of the International Union of Marine Insurance, reassured attendees that insurers understand the extent of their dependence on the salvage sector. He said: "For us it's very much about client services and risk mitigation. This is where the salvage industry comes into play, because we have to provide solutions...the way forward is working in close, transparent co-operation."

Berg also warned of some of the new threats that are facing the shipping sector, in particular from cyber crime. "There is no global kill switch," he cautioned, and "many members of the industry don't realise the risk that is out there."

But cyber crime is only one of a new range of challenges facing the sector. Peter Townsend, of AmTrust Underwriting, voiced the main source of concern for many industry members when he explained some of the technical difficulties that would be involved in responding to the casualty of a ship of 20,000TEU or more.

Not least of these challenges, he pointed out, would be the difficulty of extinguishing a fire on a vessel of that size: with the largest boxships often carrying containers stacked 20 rows high, it may not be possible for first responders to pump water high enough to reach the flames. Townsend fears that the will to anticipate and prepare for such contingencies before they arise has yet to materialise. "I think we're going to have to have a big loss before people focus their minds on it," he said. "It's when, not if."

Another potential threat discussed at the conference was the possibility of a casualty involving an LNG-fuelled vessel. SMIT Salvage's Jan Willem Duit explained to attendees that with LNG-fuelled vessels making up only 0.1 per cent of the world fleet, there is little incentive for salvors to invest in the equipment or training needed to deal with a casualty situation involving one.

When a casualty eventually takes place, Duit fears that the salvors tasked with managing it will be insufficiently equipped – and perhaps worse, unaware of the sources or degrees of risk involved. It is not yet understood how LNG tanks will respond to full or partial submergence, how they will be affected by depth, or what timelines salvors can expect to abide by.

Salvage & Wreck also examined some of the new opportunities available to the sector. Speaking on the shift towards

► ISU president
Charo Coll



decommissioning contracts undertaken by some salvors, HFW's Tom Walters said that the tone of the discussion had moved from the theoretical to the practical: "The big difference this year was hearing some of the bigger players talking about how they've actually carried out these projects."

With an estimated 8m tonnes of steelwork and infrastructure currently installed in the North Sea alone, and regulators in Oslo keen to see it all removed once operational life cycles come to an end, it is clear that there is no shortage of demand for some of the skills that salvors and decommissioning specialists share. "There is considerable interest within the offshore oil & gas industry about engaging with this community," Walter's colleague Nigel James assured the audience.

Meanwhile, the conference paid tribute to outgoing SOSREP with the UK Maritime & Coastguard Agency, Hugh Shaw, who was presented with a lifetime achievement award.

In brief

Port of Calais, France, tugs **Chambon Noroit** and **Chambon Suroit** were mobilised to pull passenger ferry **Pride of Kent** free after it struck a jetty and ran aground on a sandbank near the port during a storm. The 30m by 11m, 409gt fire-fighting sister tugs, built by Uzmar in 2007, worked in 75mph winds. A total of 316 crew and passengers were on board the ferry.

A robust salvage team comprising contractors and experts from Resolve Marine Group, Global Diving and Salvage, the Pacific Environmental Corporation and the US Coast Guard salvage engineering response team successfully refloated the 79ft (24m) fishing vessel **Pacific Paradise** which ran aground on a reef off Kaimana Beach, Hawaii.

Two people were missing after the tug **Ricky Robinson**, owned by Wepfer Marine, sank in 65ft of water on a dangerous stretch of the Mississippi River near Memphis, Tennessee, US.



◄ Outgoing
MCA SOSREP
Hugh Shaw

Growing sector offers range of opportunity

As offshore oil & gas fields worldwide come to the end of their productive lives, the decommissioning sector is poised for take-off

The world's first oilfield decommissioning simulator opened in December at Aberdeen's Robert Gordon University (RGU). Designed to support well plugging and abandonment (P&A) operations in the UK and worldwide, it stands as one of the latest indications of the growth in the decommissioning sector, as more oil & gas fields mature.

"The simulator can support both oil & gas operators and service companies with the planning and preparation for well P&A," RGU said, adding that it sees the simulator bringing safety and cost benefits to oil & gas companies and service companies in their decommissioning activities.

A couple of months earlier, Andrew Jones, Exchequer Secretary to the UK Treasury, said the UK – whose offshore waters hold some of the most mature oil & gas fields – now has the chance to become a pioneer in oil decommissioning, and should develop the expertise and sell it globally.

And according to a report from Westwood Global Energy Group: "Decommissioning is a quickly growing sector with more and more oil fields coming to the end of their life span. Over the next 10 years it is expected that more than 100 platforms will be removed, making the scale of decommissioning enormous."

At a recent London seminar on Offshore Decommissioning Contracts and Operations – organised by networking and knowledge-sharing specialist KNet365 under the aegis of Lloyd's Maritime Academy – more than a dozen experts gave presentations on aspects of the fast-growing sector.

Speakers included Ben Wilby, of



▲ The decommissioning business is set to grow over the next few years, as oil & gas fields mature

Westwood Global Energy Group, with an overview of the decommissioning process; Craig Nicol, of Veolia/Petersen, on safe and cost-effective disposal of assets; and Simon Burnay of the Waves Group, on the role of a marine warranty surveyor.

Sarah Wallace of the Standard P&I Club talked about insuring decommissioning risk. "There are a lot of unknowns when it comes to decommissioning, and you cannot just pick off the shelf in this new area of insurance," she said. "This is a very different contracting environment, with deviations from knock-for-knock allocation of liability."

"All this is creating challenges for the insurance industry – but the offshore industry is always pushing boundaries."

A salvor's view of upcoming opportunities was offered by Dick Lagerweij, general manager, decommissioning, for Boskalis' offshore energy division. He explained that Boskalis subsidiary Smit Salvage is already experienced in the decommissioning sector, including oil & gas installations, subsea

pipelines and seabed infrastructure, and has recently tendered for a contract to disconnect rig apparatus and peripherals.

"Wreck removal – which is essentially what decommissioning is – is very different," said Lagerweij. "It is much more planned, but, essentially, a man-made asset exists and needs to be removed. Decommissioning presents the possibility of planning very well in advance, whereas with a salvage operation, time is of the essence. A salvage master could be a perfect project manager for a decom job, and the same assets – sheerlegs, tugs, and so on – could be used. But at present there is no standard – and we should be trying to put a standard agreement in place."

Looking to the future, the decommissioning of North Sea oil platforms is likely to offer increasing opportunities for operators and salvors alike. Marine insurance companies, too, are seeing the market as a potentially valuable, if challenging, new area of business.

● KNet365 is organising a three-day Offshore Decommissioning Congress in Rotterdam on 25-27 June; full details at <https://energy.knet365.com/offshore-decommissioning-congress/>

Among the 350 guests attending the Tsavlis Salvage Christmas reception at the Royal Thames Yacht Club in London in December were: Greek ambassador to the UK Dimitris Caramitsos-Tziras, Cdr Theofilis Mozas of the Greek Embassy and Archbishop Gregorios of Thyateira and Great Britain, along with Professor Costas Grammenos, outgoing UK SOSREP Hugh Shaw, Mark Jackson from Baltic Exchange, John C Vanezos from IACS permanent secretariat and Tom Boardley of Lloyd's Register.

The Greek government has ordered the raising of the 22,400gt sunken cruise

News In brief

ship *Sea Diamond* that was wrecked off the tourist island of Santorini 10 years ago. Some 1,600 passengers and crew were safely evacuated but two passengers are presumed to have lost their lives, though their bodies were never found.

Global salvage firm Ardent refloated three vessels in and around a shipyard off Ninh Phuoc, Vietnam, after *Typhoon Damrey* struck the coast with winds of more than 135km/h. Its teams from Singapore and South Korea were deployed and the

first two vessels were quickly refloated with local tugs. The third vessel was more challenging, but it was refloated after the company mobilised additional resources from Singapore and the Netherlands.

The Spanopoulos Group was appointed as main contractor to deal with the pollution caused by the sinking of the tanker *Agia Zoni II*. The laden tanker sank off Piraeus, Greece.

The ISU will be holding its popular annual associate members' day conference on 14 March at the Merchant Taylors' Hall in the City of London.

Salvors right: all you need is LOF

Regular columnist Simon Tatham takes a look at Lloyd's Open Form (LOF) salvage contracts and the problems created by the use of amendments and side letters



► Simon Tatham

Attending the annual Salvage & Wreck Removal conference each December in London is always a pleasure. Reports are that wreck removal income for the sector has fallen, as there have been fewer total loss cases, but there is some light on the horizon for salvors as the number of LOF 'no cure, no pay' contracts has bounced back this year from recent lows.

Under LOF the reward is not a fixed percentage but depends upon a list of factors enshrined in international law, unchanged now for many years and currently set out in Art13 of the Salvage Convention 1989. Thus in two superficially similar cases, the same work might be done to assist a ship, but a different award realised.

One obvious factor that differs from case to case is the value of the property, what we lawyers call the salvaged fund, and there are some well established guidelines for calculating that. In cases however where the ship value is very high there can be apprehension on the part of owners and underwriters that the award will correspondingly be sky high.

For sure, if the fund is ample, a more generous award will be made, but case law guiding the arbitrators ensures that this shall never be disproportionate to the job done. Thus, if a reward works out at 10 per cent on a fund of say US\$15m for what is a relatively straightforward refloating operation, it does not follow, if the fund is US\$150m, that 10 per cent of that value will be awarded for much the same job. The arbitrator, taking into account the value of property at risk and saved from peril, might take the view that US\$3m is more than enough in the circumstances.

Nonetheless this apprehension and a willingness on the part of salvors to compete in the brief interval between a distress call

and signing of the LOF has led in recent years to side agreements capping the award at a certain figure.

Who can blame hull underwriters for not discouraging this if they can limit their exposure because they are insuring high values at historically low premium rates?

This issue of side agreements and capped rewards was therefore a subject of some debate at the conference. The principal concerns are as follows.

First, a LOF salvage contract can be agreed over the VHF, or else put in place within minutes. The parties, on the other hand, may still be seeking to agree the content of a side letter days after the operation is finished.

Secondly, the signing of a LOF, when a vessel is in danger, is binding upon cargo (likewise time charterers if they happen to own the bunkers) who must contribute their pro-rata share. A side agreement may not be binding on cargo, and will certainly not be binding if it seeks to impose an artificially low contribution towards any award.

Thirdly, it might fall foul of clause L of LOF 2011 which reads: "Inducements prohibited: No person signing this agreement or any party on whose behalf it is signed shall at any time or in any manner whatsoever offer provide make give or promise to provide or demand or take any form of inducement for entering into this agreement." Take for example a secret agreement under which owners might be promised that if their share of the award exceeds a certain figure, the excess will be refunded.

Fourthly, if SCOPIC is invoked there is a risk that P&I insurers will be prejudiced because SCOPIC is only payable to the extent it exceeds the Art13 award and, if the latter is artificially low, it may inflate the amount payable under SCOPIC to their

detriment. In this connection SCOPIC has for some time contained a provision intended to protect P&I clubs in circumstances where the level of an Art13 settlement falls short of what might be a proper award. However, no owner would wish to jeopardise his insurance cover. The same would apply if, for example, the side agreement provided not for a capped reward for hull interests, but a capped ship value intended to limit a ship's pro-rata contribution.

Finally, the wording is likely to be tricky giving rise (as apparently now is the case) to novel issues and unwelcome disputes.

The ISU's position is simple: it endorses the use of clean LOFs without amendments or side letters. Evidently the clubs generally are up in arms over side letters and quite rightly so in the opinion of many at the conference and others who may disapprove either on principled grounds or for the reasons such as those above.

What is then to be the solution where economic pressures lead to tinkering with a LOF in this way? It makes sense therefore that if a side letter is indeed to be proposed and accepted, that it should fall by the wayside, becoming null and void, if SCOPIC is invoked. Secondly, there should be full disclosure without delay not only to the club concerned, but also as soon as practicable to any cargo interests. For my part, I hope it's a passing phase. Whoever said that the world of legal practice in salvage law was dull?

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

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The 25th International Tug, Salvage and OSV Convention and Exhibition

25–29 June 2018

Parc Chanot Convention Centre, Marseille, France

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The 25th International Tug, Salvage and OSV Convention and Exhibition

MARSEILLE

25-29 JUNE 2018

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Welcome

As the saying goes, time flies when you're having fun, but it is still hard to believe that the hugely successful *International Tug, Salvage & OSV Convention and Exhibition (ITS)* is now in its 50th year! We are delighted to be celebrating this landmark event in 2018, by holding our 25th *ITS* convention in France for the first time, in the beautiful southern port city of Marseille.

The second largest city in France after Paris, Marseille has been a crossroads of migration and trade since its founding by the Greeks circa 600 BC. At its heart is the Vieux-Port (Old Port), which was the most important trading centre in the region and the main commercial port of the French Empire. In fact, Marseille is still France's largest port for commerce, freight and cruise ships, with more than 890,000 visitors arriving by cruise ship each year. Fishmongers still sell their catch along the boat-lined quay, and with its beaches, history, architecture and culture (there are 24 museums and 42 theatres) and its wonderful Mediterranean climate, Marseille is one of the most visited cities in France.

ITS is a much-anticipated conference and exhibition, firmly established as a must-attend event in the industry's calendar. It attracts top level executives and decision-makers from across the globe, providing a unique opportunity once every two years to meet, learn and do business – a lot of business. To this end, we go to great lengths to ensure that delegates and exhibitors have every available opportunity to network and forge new ties. Coffee and tea breaks take place in the exhibition area, and exhibitors can take lunch with the delegates, providing ample opportunity for discussion.

ITS 2018 Marseille will celebrate the innovation, invention and forward-thinking that, even in an uncertain economy (or perhaps because of it), is driving our industry forward, along with the traditional values

that continue to enrich and sustain it. This *ITS* convention promises to be more relevant and engaging than ever, merging compelling papers with business opportunities and exciting social events, all in a location which continues to play a powerful role in the maritime sector.

The venue

ITS 2018 Marseille will take place at Parc Chanot Convention Centre, conveniently located in central Marseille and just 4.5km from the port. The convention centre is easy to access – it is just five metro stops on a direct line from Saint Charles TGV station, and Marseille Provence international airport is only 30 minutes away with links to more than 100 destinations, 38 of which are on direct routes. The versatile layout of the convention centre provides excellent space for the *ITS* conference and exhibition, and visitors and participants alike will find it easy to access and navigate.



The exhibition

Since it first began, the exhibition has grown enormously, with an anticipated 100+ exhibitors expected in Marseille. Those exhibitors who wish to register for the conference are offered a substantial discount on the registration fee (only one discounted registration per stand and no other discounts are applicable to this fee). In addition, the usual Early Bird, *ITS Club* and multiple delegate registration discounts are available for additional registrations. Stands vary in size and price, but each includes a hard-wall shell scheme, carpeting, an electrical socket, lighting, furniture (table and chairs), a name sign, a set of lunch, tea and coffee vouchers, one Gala Dinner ticket (or two for larger stands) and invitations to the various social networking events which will take place throughout the week.

The spouses' programme

A special selection of tours is being organised for spouses and partners. This programme has yet to be finalised, but will include many of the most popular attractions Marseille has to offer. Details will be made available closer to the event. Spouses/partners are invited to the Welcome Cocktail Party on Monday 25 June, spectacular Gala Dinner on Thursday 28 June (ticket purchase required) and the Friday social programme.



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CONFERENCE PROGRAMME

The conference programme reflects the key areas covered by *International Tug and OSV* magazine, with papers delving into subjects which are sculpting the offshore industry, hotly-debated salvage issues, tug innovations and more. *ITS* conventions are renowned for their groundbreaking papers, high-profile speakers, audience discussions, and business opportunities. Synopses of the papers below can be found at www.tugandosv.com.

Best Practice Recommendations for Ocean Towing of MODUs

BARTLEY ECKHARDT, President and CEO, Robson Forensic Inc, USA and

CAPT ERIC JOHANSSON, Professor of Marine Transportation, Maritime College, State University of New York, USA

Smart Thinking, Smartlinking

MARINUS JANSEN, Technical Innovations Manager, Rotortug BV, The Netherlands and

BARRY A GRIFFIN, President, BA Griffin Associates Inc, USA

Ship's Deck Fittings Utilised for Towage

CAPT ARIE NYGH, Managing Director, SeaWays Consultants Pty Ltd, Australia

LNG - Safety and Fire-fighting

THOMAS GULDNER, President, Marine Firefighting Inc, USA

A Holistic Approach to the Optimised Design of Marine Hybrid Power Solutions for Workboat Applications

MARK WATSON, Sales & Sales Support Engineer, MAN Diesel & Turbo SE, Germany and

JAN GLAS, Team Manager Application & Engineering Support, Schottel GmbH, Germany and

JASON ASPIN, Chief Executive Officer, Aspin Kemp & Associates, Canada

An Approach to Escort Performance Particulars by Semi-Empirical Formulation

AINARA MARTIN, Assistant Technical Manager, Cintraval Ship Design, Spain

The Carrousel Rave Tug: Meeting Global Shipping Challenges by Eliminating Specific Tug Stability Risks

JULIAN OGGEL, Counsellor, Novatug BV, The Netherlands

Quantum Physics Says There's Life After Marseille

BALDO DIELEN, Partner, EDDY Tug, Brazil

The Role of Effective Stakeholder Engagement in the Management of Major Marine Incidents

JAMES HERBERT, Managing Director and ISU Communications Adviser, Gem Communications Limited, UK

Improving Safety and Reliability with Holistic Towline System Design

BERNABE GALLARDO, Application Engineer, Samson Rope Technologies, USA

World Port Tug Market - The Current View from Marseille

ALEC LAING, Managing Director, ACL Shipbrokers Ltd, UK

Preventive and Predictive Maintenance Methods for Azimuthing Thrusters in Tugs

MICHAEL SABEL, Team Manager Mechanical Service Support, Schottel GmbH, Germany

Case Study - The Assessment of Salvage Awards

SIMON TATHAM, Partner, TugAdvise/Tatham Macinnes, UK

Tug Design Through *ITS* Eyes

ROBERT ALLAN, Executive Chairman, Robert Allan Ltd, Canada

Considerations of Hybrid Technology & Associated Machinery

Paolo Scialla, Electrotechnical Team Leader, Lloyd's Register Group Limited, UK

The Application of Salvor-Tude (Salvors' Problem-Solving Attitude) to Innovation in the Oil & Gas Sector

MOYA CRAWFORD, Managing Director, Deep Tek Ltd, UK

Collaborative Effort Yields Innovative RAstar 4000DF Dual-fuel Escort Tug Design for Challenging Charterer Requirements

TODD BARBER, Senior Naval Architect, Robert Allan Ltd, Canada and

ALLAN TURNER, Mechanical Engineer, Robert Allan Ltd, Canada

The Digital Transformation of Tugs

DIRK DEGROOTE, Product Manager - Tugs, Damen Shipyards, The Netherlands and

ROBERT VAN KOPPEREN, Development Team Leader Tugs, Damen Shipyards, The Netherlands

Hronn: An Automated, Unmanned OSV - Update on Design, Construction and Classification

BRETT PHANEUF, Managing Director, Automated Ships Limited, UK

CAT Advanced Variable Drive Marine Propulsion System

IGOR STRASHNY, Engineering Manager - Advanced Marine Propulsion, Caterpillar Inc, USA

The Wärtsilä HYTug Concept

AY HWA NGOH, Sales Manager/Naval Architect, Wärtsilä Singapore Pte Ltd, Singapore and

JOOST VAN EIJNATTEN, Manager Application Engineering, Wärtsilä Netherlands BV, The Netherlands

Regulatory Developments to Support Innovation in the Towing Industry

EVA PENO, Global Market Leader, OSVs & Tugs, Bureau Veritas Marine & Offshore, France

Automation - What will be the Impact on the Insurance Sector?

BEN HARRIS, Head of Claims - London Branch, The Shipowners' Protection Limited, UK

An Assessment of the Current State of the Marine Salvage Industry

CHARO COLL, President, International Salvage Union, UK

P&I Clubs - Towage, Salvage and Wreck Removal

MATTHEW MOORE, Director (Claims), The North of England P&I Association Ltd, UK

Delegate feedback from previous conventions:

"Very good papers and presentations. Good networking opportunities"

Nicolás Solano

Panama Canal Authority

"Great event, wonderful networking opportunities and very worthwhile speakers"

Michael Thomas

Seabulk Towing

"The papers were really good, with an emphasis on safety... this set the scene perfectly"

Tom Woolley

Targe Towing Ltd

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ABOUT THE AREA

Delegate feedback from previous conventions:

"Fantastic networking opportunities. Very good diverse group of technical displays"

Mark Houghton
Ledcor Group of Companies

"Great networking as always. Considering the depressed market, support from exhibitors/sponsors was exemplary"

Simon Swallow
The Shipowners' Protection Limited

"As usual, well organised and managed. Great social interaction."

Capt Ken Edgar
Marine Response Consultants

There are many reasons, besides business, for visiting the city of Marseille, where style and history meet in perfect harmony. The city has been a crossroads of immigration and trade since its founding by the Greeks circa 600 BC. Known to the ancient Greeks and Romans as "Massalia" Marseille was the most important trading centre in the region and the main commercial port of the French Republic.



The Bay of Marseille, flanked by Fort Saint-Nicolas and Fort Saint-Jean, shelters the Château d'If, made famous by Dumas' novel *The Count of Monte Cristo*. Watched over by the basilica Notre-Dame-de-la-Garde, a Roman Catholic basilica with an unmissable gold statue of the Madonna and Child, the city's historical sites mix with pedestrian zones and shopping areas, including the colourful French-African quarter. The city's main thoroughfare, a wide boulevard called the Canebière, stretches eastward from the Old Port (Vieux-Port) to the Réformés quarter and the main shopping mall, the Centre Bourse. Marseille is a regional centre for entertainment in the south of France, with a high concentration of museums, cinemas, theatres, clubs, bars, restaurants, shops, hotels and art galleries.

The Old Port, the thriving heart of Marseille, is the prettiest part of town and a must-see for all visitors. Why not make use of the free ferry to cross the harbour, book a boat tour, or just sit back and soak up the atmosphere? If you would like to enjoy a wonderful view of the harbour from higher up, then catch the train up the hill to the beautiful Cathédrale de la Major, one of the best sightseeing spots in the city. Also not to be missed is the Palais Longchamp, a grand monument housing the French Natural History Museum and the Musée d'Beaux-arts.



To the east of Marseille is the Calanques, a rugged coastal area interspersed with small fjord-like inlets; to the north, beyond the low Garlaban and Étoile mountain ranges, is the 1,011m Mont Sainte-Victoire; to the west is the former artists' colony of l'Estaque, and further west the Côte Bleue, Gulf of Lion and the Camargue region.

While we cannot guarantee the weather, Marseille is officially the sunniest place in France, where June temperatures average a very pleasant mid-20 degrees C.



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HOTELS

Due to the style and layout of Marseille, it is not possible on this occasion to accommodate all delegates, exhibitors and visitors to *ITS 2018* in just one hotel. However, we have been able to source an excellent selection of desirable hotels, offering rooms and apartments that should suit everyone's budgets and requirements. With a mixture of three, four and five-star hotels, the majority are just a short walk from Parc Chanot Convention Centre, but for some of the hotels we will also be arranging transport to and from the convention centre each morning and evening.

Information on how to book your hotel accommodation is available from our website, www.tugandosv.com, where you will find a dedicated link to our booking agents.

Due to the high number of delegates and exhibitors expected to attend *ITS 2018* and the fact that June is the beginning of peak season, it is highly recommended that you make your room reservations as soon as possible.

Hotel Ibis Budget Marseille Prado Parc des Expositions ***

Located just a short walk (approx. 7 minutes) from the Parc Chanot Convention Centre. The rooms are comfortable and compact, and the hotel offers 24-hour front desk service and a terrace to catch some fresh air.

Hotel Ibis Marseille Centre Prado Vélodrome ***

Located in the heart of the city and a 15 minute walk from the convention centre. The hotel offers a French restaurant and bar, and neat breakfast area. The rooms have a fresh and modern design and offer all the comfort you need.

Citadines Castellane Marseille ***

A modern apart-hotel offering self-catered apartments, with the option to order breakfast and enjoy it on the terraces. All the rooms offer an equipped kitchen, free wifi, and a lounge area. Approx. 15 minutes by public transport from the convention centre.

Citadines Prado Chanot Marseille ***

A self-catering apart-hotel with a private garden and the option to order breakfast. The studios and apartments are equipped with a kitchenette and free wifi, and are just a 10 minute walk from the convention centre.

Residhotel Le Grand Prado Marseille ***

Centrally located and offering furnished apartments and studios with a kitchenette. The famous Vieux Port is just a short walk away and the convention centre is approx. 17 minutes by foot or 10 minutes by public transport. This apart-hotel also offers a buffet breakfast in the lunch room.

Holiday Inn Express Marseille – Saint Charles ***

Ideally located opposite the train station, and only a 10 minute walk from the famous Vieux Port. The rooms have a modern and light design, and breakfast can be served on the quiet terrace. Approx. 17 minutes by public transport from the convention centre.

Mercure Marseille Centre Prado Hotel Vélodrome ****

A four-star hotel with a contemporary feel, offering a comfortable terrace and lounge area. Located in the centre of Marseille, within a short walking distance from the convention centre (approx. 12 minutes).

Hotel Novotel Marseille Centre Prado Vélodrome ****

Located in the business district of Marseille, this four-star hotel offers an atmospheric restaurant and modern designed rooms with all the comforts you could wish for. Approx. 18 minutes by foot or 9 minutes by public transport from the convention centre.

AC Hotel by Marriott Marseille Vélodrome ****

This four-star hotel is located in the Prado area, within a short walking distance (approx. 10 minutes) from the convention centre. The rooms are stylish with a contemporary design and offer great comfort and multiple facilities. The hotel also offers an inviting lounge area and extensive breakfast buffet.

Hotel Sofitel Marseille Vieux Port *****

If five-star accommodation is your preference, then Hotel Sofitel Marseille Vieux Port is located in the centre of Marseille, offering great views over the harbour. The rooms are classic and very comfortable. The hotel offers a fitness centre, spa and three terraces overlooking the Old Port. Approx. 30 minutes by public transport from the convention centre.



Delegate feedback from previous conventions:

"I have been to many ITS Conventions, the first being Southampton 1994. It is difficult to keep getting better but the high standards have been maintained and it is still the premier show for the industry"
Mark Hoddinott
International Salvage Union

"Interesting and thought-provoking selection of papers"
Capt Gary Dockerty
Sanmar Shipyards

"I felt that there were many opportunities for networking at both the classroom sessions and the outside events"
Thomas Guldner
Marine Firefighting Inc

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REGISTRATION TERMS AND CONDITIONS

Delegate feedback from previous conventions:

"I could meet many key customers as well as ship designers, suppliers, etc. This was very helpful in concentration on market strategy"

Stefan Buch
Schottel

"It was a good opportunity to understand trends and concerns in the industry and to network with many key players"

Corey Parker
Caterpillar Marine

"As always, smoothly organised and focussed on the key tug-industry drivers. Not to miss!"

Baldo Dielen
EDDY Tug

The ITS 2018 Conference qualifies for 5 CPD credits



The delegate registration fee is €2,800

The fee includes coffee, lunch and tea for three days, admittance to all conference sessions, exhibition, Gala Dinner, social and extra-mural activities and conference pre-prints, which will be made available approximately three weeks prior to the convention. The fee does not include hotel accommodation. Additional tickets for the Gala Dinner for spouses/partners are available at €150 each and include a drinks reception and four-course dinner with wine and cabaret.

Please note that your registration is not confirmed and final until all monies due, relating to the registration, are paid in full.

Any registrations made after 15 May 2018 must be accompanied by valid credit card details. Cancellations must be received in writing before 15 May 2018, before which date, the fees will be refunded in full less an administration charge of €150. Due to the organisers' commitments to the hotel, conference centre, caterers, etc, no refunds will be made after 15 May 2018. However, delegates may be substituted.

Delegates accept sole responsibility for ensuring that they have adequate health and travel insurance in place to cover the event of such delegate(s) not being able to attend the convention or of the convention not taking place due to events beyond the control of The ABR Company Ltd.

If for any reason beyond the control of, and not resulting from any act or default of, The ABR Company Ltd, it shall become impossible or impractical to hold the Convention or necessary to interrupt it or close it permanently, the delegates shall not be entitled to any compensation or to the return of monies paid or deposited. These terms and conditions are subject to English Law.

Discounts

To work out your fee(s) please make your calculation in the following order:

- First deduct 5 per cent from the standard fee if you are an *ITS Club* member (discount applicable to fully paid members only).
- Next, deduct 10 per cent if you are registering and paying before **16 February 2018**.
- Next, deduct a further 10 per cent if two to four delegates are registering from the same company **OR** deduct 12.5 per cent if five or more delegates are registering from the same company.
- Finally, to that total add €100 (plus p&p) if you require a *Book of Papers* and/or €150 per ticket for any additional Gala Dinner tickets required.

Exchange rates

At the time of going to press with this brochure (January 2018) the approximate exchange rates were:

EUR 1.00 = GBP 0.87

EUR 1.00 = USD 1.20 (for indication purposes only)

Fees may be paid with the following credit cards only: American Express, Mastercard and VISA.

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Account No: 97.28.97.259

IBAN: NL33 ABNA 0972897259

BIC or SWIFTBIC: ABNANL2A

Account Name: The ABR Company Ltd

ITS Club – discount for club members

If you are planning on attending as a delegate and are not already a member you should seriously consider joining the *ITS Club*. As a member you will qualify for 5 per cent discount on the delegate registration fee – nearly the same as a one-year membership of the *ITS Club*, so effectively you are getting your money back. In addition you will receive the following benefits:

- Priority subscription to *IT&O* magazine.
- Complimentary copy of the *Tug & OSV Review* (normally £30), published annually in January.
- Discount on a wide range of tug, salvage & OSV titles.
- Discount on advertising in *IT&O* magazine.
- Discounts for two and three-year memberships.
- A personal online directory of members (available to members only).
- Membership certificate and membership card.
- A smart but discreet club tie for men, silk scarf for women.

To join simply add this option to your registration online at www.tugandosv.com

ITS 2018 Book of Papers

Pre-prints of the majority of the papers will be made available via our website to registered delegates approximately three weeks prior to the convention. However, the complete proceedings, including discussions and names of all participants, will be available as a hardback book three months after the event. If you order and pay for the book when you register as a delegate you qualify for the discounted price of €100 (plus p&p) as opposed to the £125 published price.





DELEGATE REGISTRATION FORM

One form per delegate (See terms and conditions of registration, a copy of which should be kept for your own records)

Name (as you would like it to appear on your name badge)

(Mr / Mrs / Ms / Capt / Other)

Position/Job Title

Company

Address

Postcode

Country

Website

Tel

Mobile

Email

Date

Signature

VAT Number (European Union Only)

ITS Club number (if applicable)

(tick box as necessary)

☐ **Please charge my credit card the sum of Euros €** _____

Name of Cardholder as it appears on the card _____

Card number

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Security code on back of card:

Last 3 numbers on Visa and Mastercard and last 4 numbers of American Express.

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Expiry Date:

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☐ **or bank transfer of Euros €** _____

Please answer all the following questions (tick ✓ boxes as necessary)

Yes No

Will you be accompanied by your spouse/partner/guest?

--	--

Name of spouse/partner/guest _____

Would you like an extra ticket for the Gala Dinner for above spouse/partner/guest? (€150)

--	--

Would you like to go on the Friday social programme?

--	--

Would your spouse/partner/guest like to join you on Friday?

--	--

*Do you require a copy of the *Book of Papers*?

--	--

Do you require display space in the exhibition?

--	--

Would you like to join the *ITS Club*?

--	--

Are you interested in advertising in the Convention Handbook?

--	--

Are other representatives from your company attending?

--	--

If so, what are their names _____

*Copies of the *ITS 2018* bound volume of papers (published approximately three months after the event), which will contain the names of all participants, as well as the discussions, are available to registered delegates at the special price of €100 plus €15 p&p (normally £125 plus p&p) if ordered and paid for prior to the Convention. This will be charged with your registration fee.

ITS 2018

(For office use only)

**COMPLETED
REGISTRATION FORMS
SHOULD BE SENT BY
POST OR EMAIL TO:**

ITS 2018 Secretariat
The ABR Company Ltd
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Trowbridge, Wiltshire
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EXHIBITOR LIST

50 successful years!

2018 Marseille
2016 Boston
2014 Hamburg
2012 Barcelona
2010 Vancouver
2008 Singapore
2006 Rotterdam
2004 Miami
2002 Bilbao
2000 Jersey
1998 Cape Town
1996 Seattle
1994 Southampton
1992 Genoa
1990 Halifax NS
1988 Sydney
1986 London
1984 Singapore
1982 London
1979 Hamburg
1977 Rotterdam
1975 New Orleans
1973 Vancouver
1971 London
1969 London

ITS 2018 is organised and promoted by
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 also publishes
**International
 Tug & OSV**
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Tug & OSV Review



Confirmed exhibitors as of January 2018

Aksis Yangin Sondurme Sistemleri Ltd., Turkey
 Alphon Marine BV, The Netherlands
 Alu Design & Services AS, Norway
 Anglo Belgian Corporation NV, Belgium
 Armon Shipyards, Spain
 Astilleros Francisco Cardama SA, Spain
 Astilleros Gondan SA, Spain
 Azcue Pumps, Spain
 Bexco NV, Belgium
 Bogazici Denizcilik AS, Turkey
 Brusselle Carral Marine NV, Belgium
 Caterpillar Propulsion Production AB, Sweden
 CC Jensen AS, Denmark
 Cheoy Lee Shipyards Ltd, Hong Kong - China
 Cintranaval Ship Design, Spain
 Cortland Company, USA
 CounterFire Ltd, UK
 C-Sense Fleet Management, France
 Cummins Inc, UK
 Damen Shipyards, The Netherlands
 Data Hidrolik AS, Turkey
 Deno Compressors BV, The Netherlands
 DMT Marine Equipment Romania, Romania
 EDDY Tug BV, The Netherlands
 Fire Fighting Systems AS, Norway
 Force Technology Division for Maritime Industry, Denmark
 Foro Maritimo Vasco, Spain
 Fuji Kaiji Company Ltd, Japan
 Gleistein Ropes, Germany
 Grandweld Shipyards, United Arab Emirates
 Heila Cranes SpA, Italy
 Ibercisa Deck Machinery, Spain
 Industrias Ferri SA, Spain
 International Maritime Services, Australia
 Jason Engineering AS, Norway
 JBR Strategy, The Netherlands
 JonRie InterTech LLC, USA
 Karmøy Winch AS, Norway
 Kohler Power Systems, France
 Kraaijeveld Winches, The Netherlands
 Kumera AS, Norway
 Lankhorst Ropes, The Netherlands
 Lion Rubber Industries Pvt Ltd, India
 Logan Clutch Corporation, USA
 Logic Vision, The Netherlands
 MacGregor Pte Ltd, Singapore
 Maintenance Application Projets, France
 Mampaey Offshore Industries BV, The Netherlands
 MAN Diesel & Turbo SE, Germany

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 MTU Friedrichshafen GmbH, Germany
 Nautican Research & Development Ltd, USA
 Neptune Shipyards BV, The Netherlands
 Niigata Power Systems Company Ltd, Japan
 Nodosa Shipyard, Spain
 Novatug BV, The Netherlands
 NRG Marine Ltd, UK
 Offshore Ship Designers BV, The Netherlands
 On Site Alignment BV, The Netherlands
 Ortlinghaus, France
 Piriou, France
 Radio Holland France, France
 Rapp Marine US Inc, USA
 Redwise Maritime Services BV, The Netherlands
 Reintjes GmbH, Germany
 Robert Allan Ltd, Canada
 Rosetti Marino SpA, Italy
 Rotortug BV, The Netherlands
 Royston Ltd, UK
 RW Fernstrum & Company Inc, USA
 Samson Rope Technologies, USA
 Sanmar AS, Turkey
 Scheepswerf Gebroeders Kooiman BV, The Netherlands
 Schottel GmbH, Germany
 Seatrade UBM (UK) Ltd, UK
 SeaWays Global, UK
 Shandong Nanhai Airbag Engineering Co Ltd, China
 Simwave, The Netherlands
 Stichting Lekko Foundation, The Netherlands
 Stone Marine Propulsion NGC Ltd, UK
 Straightpoint Ltd, UK
 The Grab Specialist BV, The Netherlands
 THR Marine, The Netherlands
 TOS Netherlands BV, The Netherlands
 Twin Disc International SA, Belgium
 Uzmar Workboat and Tug Factory, Turkey
 Veth Propulsion, The Netherlands
 Voith Turbo GmbH & Co. KG, Germany
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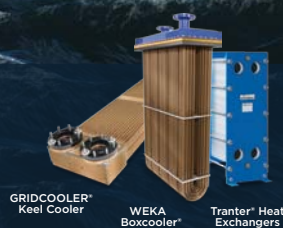
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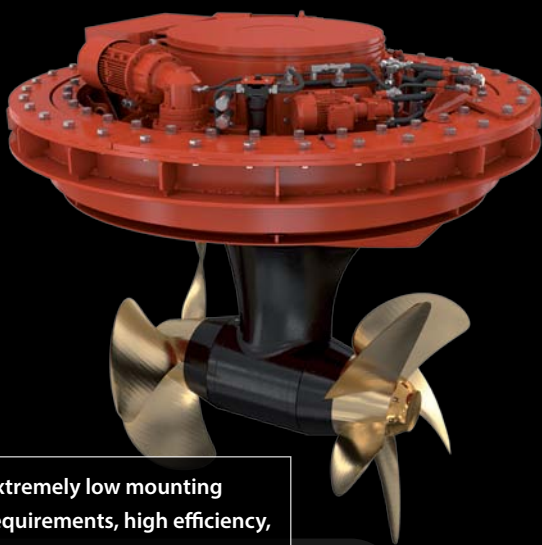
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Tackling fires at sea – without the pollution

In today's world of strict environmental standards, dewatering is now a major factor in salvage and fire-fighting operations, writes Tom Guldner of Marine Firefighting Inc

I have written many articles dealing with marine fires, and dewatering on ships and workboats of all sizes. In this article, I have been asked to address the problem of marine pollution as it relates to a fire.

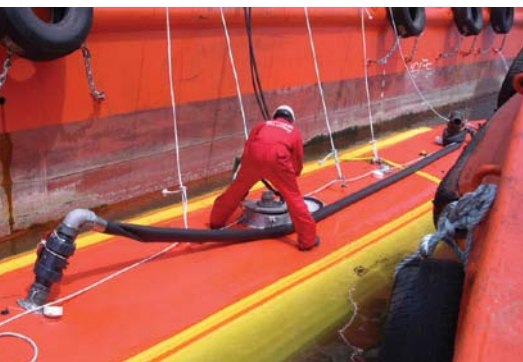
The international salvage industry has been involved in both marine fire-fighting and salvage for many years. In the distant past, the pollution aspect of a fire/salvage operation was not as big a concern as it is today. We have all seen news: photos and videos of oil-soaked beaches and sea birds. Because of some of the horrific oil spill incidents of the past, such as *Exxon Valdez*, governments have enacted much stricter regulations concerning any form of marine pollution.

Copious amounts of water and fire-fighting chemicals are often needed to bring these fires under control. A crucial aspect of marine fire-fighting is vessel stability. If we extinguish the fire but sink the ship in the process, the vessel owner and the environment will both be severely impacted. In the past, the fire-fighting water that might be creating the stability issues was merely pumped overboard along with the fire-fighting chemicals, as well as all the other pollutants that may have mixed into the water after application.

When I teach marine fire-fighting to mariners or land-based fire-fighters, I stress the need to keep the vessel stable. Dewatering pumps must be considered as soon as you start applying fire-fighting water.

In today's world, the indiscriminate dumping of fire-fighting water is frowned upon, and often illegal. Salvage companies and municipal marine fire-fighters must now figure out some other way of dealing with this oily mixture. On larger ships, if the water cannot be pumped off the vessel, it might be pumped to the lowest part of that vessel. The weight of the water is much more detrimental the higher it is located. In fact, the lower weight may actually aid the vessel's stability – up to a limited amount.

▼ A Canflex Sea Slug bladder being used



► Tom Guldner, and, left, a US coastguard deploying a dewatering pump



ashore for treatment or pumped aboard a tank vessel which would bring the oil to a land-based facility.

One of the rules dealing with marine pollution in the USA – which came about after the *Exxon Valdez* spill – is the Oil Pollution Act of 1990 (OPA 90). It requires most ships visiting US ports to have a fire-fighting and oil response plan. Most of these ships comply by entering into contracts with verified fire-fighting, salvage, and oil spill clean-up companies who will assist in writing the vessel's fire and clean-up plan, and then provide a response service. These companies must demonstrate their ability to respond to and control a fire or emergency on that vessel in a timely manner.

Internationally, the IMO has written requirements for fire safety and pollution – SOLAS regulations address many marine fire and salvage requirements, while the MARPOL regulations address pollution requirements.

The marine salvage community is aware of these new and existing regulations, and has incorporated safeguards into its standard operating procedures. Workboat crews should also be aware of the technology and procedures involved in protecting the environment during vessel fires, because, with the newer external fire-fighting equipped workboats, they may be involved in the incident also.

Firm's responsibility is rewarded

Global marine, offshore and fire safety equipment and servicing provider Viking Life-Saving Equipment has announced it is now a preferred supplier under the IMPA ACT programme.

IMPA ACT is an initiative of the International Marine Purchasing Association (IMPA) that commits its member shipowners, ship operators, and ship suppliers to demonstrate responsible supply chain management (RSCM) and corporate social responsibility (CSR).

Viking CEO Henrik Uhd Christensen sees responsibility toward the wider community as a core element of the company: "We work hard to ensure that

achieving and maintaining world-class safety compliance is as easy as possible for shipowners and other maritime decision-makers. And we have made great progress in the area, particularly with our Shipowner Agreements that pull equipment and servicing together in a much more manageable way than the administratively heavy practices of the past.

"Of course, Viking has long worked with its own code of conduct toward its suppliers. The IMPA ACT Supplier Code of Conduct further strengthens our ability to address vital issues in relation to our operations around the globe."

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Staying one step ahead of the game

Ongoing technical developments are encouraging manufacturers to offer new solutions for off-ship fire-fighting, writes Truls Aannestad, CEO of Fire Fighting Systems



The legislation for off-ship fire-fighting systems is well known: the FiFi rules implemented by all class societies that cover the complete system from sea chest to monitor nozzle.

These basic rules are common across almost all classification societies (except Russian): FiFi1 dictates a capacity of 2,400m³/hr at a distance of 120m, while FiFi2 mandates 7,200m³/hr at 180m distance using two 3,600m³/hr monitors, or only 150m with three 2,400m³/hr monitors. The FiFi3 standard is only implemented rarely due to its very high capacity requirement of 10,000m³/hr at a distance of 150m.

The FiFi1 system has become the normal system for tugs, as it fits well to the ship size and engine power. FiFi2 systems are mostly deployed on OSVs due to the higher need for power, though a few tugs have installed FiFi2 due to charters with special requirements.

A state-of-the-art system must fit into an increasing number of dedicated ship designs in the most economical and effective way. The system must be compact, lightweight, easy to install, operated easily and remotely, not demanding any maintenance, and expected to work fast without problems even when routine testing is seldom or never done. There is never enough budget for secondary systems, as the real selling price for fi-fi systems has been constant or dropping year-on-year, forcing makers to develop ever more cost-effective solutions in a challenging environment.

A new trend is the requirement for more fi-fi capability for fast-going and smaller vessels. This demand seems to have increased, and has forced makers to develop dedicated compact and lightweight solutions. Due to new material technology becoming



▲ The FiFi 1 system is the normal one for tugs, fitting well to ship size and engine power

affordable, this market will certainly see several new developments in the years ahead. Already some owners are asking for composite-based systems. The class societies are currently working to catch up with this trend, and will issue certification or approvals for smaller and specialist systems on demand.

FFS has taken the challenge by focusing on the total lifetime cost for fi-fi systems, while implementing new dedicated designs to comply with new requirements for newbuilds. Reliability is the keyword in fire-fighting: the system must always work when needed.

The most cost-effective fi-fi system is still driven off the front end PTO of the main engine (or gen set in case of electric propulsion). This is a well-proven system, and the most common. By integrating the

pump and step up gearbox into one unit with a remote operated clutch, the solution is easy to install with limited need for maintenance, and saves space and weight. FFS's XP range ranges from a capacity of 300m³/hr up to the biggest at 4,500m³/hr.

However, we've seen an increasing number of inquiries for electric drives for the fi-fi pumps, driven by the increased focus on more economical and environmentally friendly operation. This is quite common for the OSV market, but we see also tug projects investigating this option. The advantage is, of course, that it gives freedom for the location of the pump and corresponding sea chest, but the cost increases due to need for a switchboard and starter.

FFS has also developed a range of smart and compact solutions for using dedicated diesel engines as a pump driver. Integrating the cooling of the diesel engine with the pump, employing compact assembly with integrated bellhousing and replacing the traditional skid with pump feet and a dedicated engine support have saved weight, space and cost.

All engine or gearbox-driven packages are tested at full-scale and approved ready for installation onboard when leaving the factory. This is in line with the trend we've seen for yards to give more responsibility to the vendors in order to reduce their scope of work.

This streamlining of shipbuilding has been going on for a while. To meet demand, FFS offers system responsibility based on in-house engineering with a performance guarantee at one fixed price, a move that has been welcomed by almost all customers.

Milestone for fire systems firm

Turkey-headquartered Aksis Fire is celebrating reaching the milestone of delivering its 1,000th fire protection system, with its marine products having been installed on 475 vessels since the company was founded in 1994.

The company designs and supplies water, foam, dry chemicals and clean gas-based fire extinguishing systems for ships' internal and external fire protection systems, as well as fire detection and alarm systems using highest quality components.

Its products can be found in vessels built by leading shipyards such as Sanmar, Tersan, Cemre, Besiktas, Uzmar, RMK,

Selah, DDW, Baku Shipyard and Detroit Chile and operated by major firms such as Svitser, Seaspan, Esvagt, Tidewater, NSK, Gefo, Volstad, Østensjø, P&O, Smit Lamnalco and Buksér og Berging.

Company founder and managing director, Bener Baş, said: "As one of the first local fire-fighting systems designer and suppliers in Turkey's shipbuilding industry, we have maintained strong and reliable partnerships with our customers, serving both national and international shipbuilding markets. Our after-sales teams have been starting up, testing and trouble-shooting our systems worldwide."

Keeping the systems of defence intact

Ensuring that extinguishing installations are always ready for action is critical in preventing tragedies at sea, says Carl Hunter, CEO and managing director at Coltraco Ultrasonics



▲ The Portalevel MAX Marine tests fire suppression units for leaks

Fires on board ships can be devastating, to crew, vessel and cargo. Fire safety standards on board cannot afford to slip. Part of this issue is to do with the maintenance of gaseous fire extinguishing installations, which may be a result of the holes in the regulations. With the recent difficulties that the shipping industry is facing, there is a need for practical, cost efficient solutions to safety issues. However, maintaining high standards of fire safety practice does not have to be expensive or time consuming.

The danger is shown in the statistics. A study published by the Finnish Transport Safety Agency showed that almost 800 fires happened in European waters between 2004 and 2014; 10 per cent of these were classed as serious. Further to this, around 200 of these incidents required external support to deal with the fire. In some of these cases, the fire suppression installations may not have been at their full capacity, which led to the uncontrollable fires.

A clear example of this is *MSC Flaminia*. In July 2012, the container ship was exposed to an uncontrollable fire which tragically led to three fatalities and two severely injured crew members, as well as major damage to the ship structure and its cargo. In this example, the CO₂ system failed when it actuated without instruction in the engine room – although the discharge was intended for cargo hold 4 – which turned off the auxiliary boiler and auxiliary fan for the main engine. This led to an out of control fire which required three salvage tugs to deal with it.

The extent of the fire meant that the salvage teams could not enter the vessel for four days. Cargo areas 3-7 in the ship were significantly damaged, and the ship's structure was weakened, requiring replacement. Under the pressures, the hatch covers lost their integrity and bulkheads were severely damaged, which led to water ingress in all the cargo.

Chances must not be taken when lives are at risk – and when a vessel is at sea, this is all the time. We call this the 'ungoverned space' – the area where either the regulations or the protecting systems of the critical infrastructure are not effectively providing consistent and reliable safety.

Gaseous extinguishing installations are difficult systems. There are few who understand them in all their complexity, although they are an essential defence against the risk of fire at sea. The main factor that needs to be understood is that the system must be able to actuate (release its gas) in the event of a fire. This may seem like an obvious point, but what if the extinguishing installation cannot actuate fully because there isn't enough gas within the cylinder? Gaseous extinguishing systems are highly pressurised, and the risk of leaking and discharging is accepted as part of their use.

The SOLAS FFS code specifically states that the crew must test extinguishing installations in between periodic inspection, maintenance and certification. Having the annual inspection by accredited marine servicing companies is not enough – the crew must take responsibility for their own fire protection. However, they are often not trained or certified to shut-down, dismantle, weigh and re-install the gaseous cylinders.

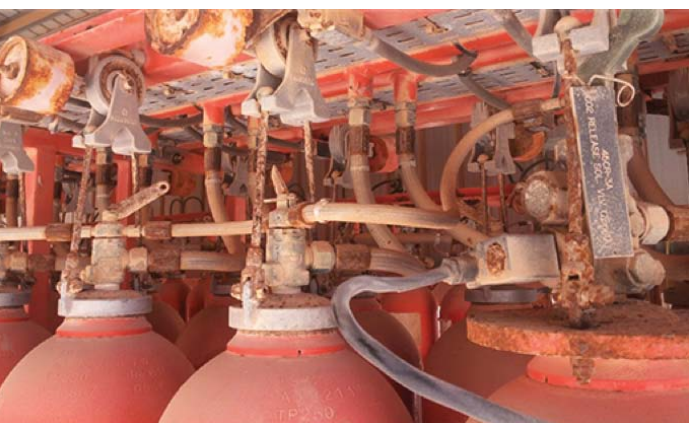
ISO 14520-1 states: "If a container shows a loss of agent quantity or a loss of pressure (adjusted for temperature) of more than 5 per cent, it shall be refilled

or replaced." Given that the gaseous systems are designed specifically for the individual needs of the vessel, a 5 per cent loss of agent may mean that the cylinders would not fully extinguish a fire. The only way to determine if a cylinder is free from leakage is to check its contents. But if the crew cannot weigh their own cylinders, because they are not certified to do so, then how is it possible?

The Portalevel® MAX Marine from Coltraco Ultrasonics tests the CO₂ fire installations onboard for leaks. The system is designed primarily for the vessels' crew to inspect large fire suppression systems of up to 600 cylinders. The ease of operation in comparison to weighing enables more regular and frequent checks, improving fire safety management onboard. The innovative method of inspecting leaking cylinders with ultrasonics enables identification in under 30 seconds with one person, instead of the traditional 15 minutes with two people laboriously weighing.

Using ultrasonic technology to pinpoint the liquid level of suppressant agent in the cylinders of the extinguishing system testing is quicker and easier. The Portasteele® Calculator is an advanced application that converts the liquid level height of CO₂, NOVEC™ 1230 and FM-200® liquefied gaseous extinguishant agent readings taken on an ultrasonic non-destructive liquid level indicator device into the agent weight/mass. Furthermore, the device can convert an expected agent weight back to the required liquid level, allowing users to anticipate where the level should be. The tool has widely been recognised by awards, as a finalist in the Safety at Sea Awards 2017 and the Tanker & Trade Awards 2016.

Maintenance of installations must be a priority. It need not be expensive nor time consuming, and tragic case studies of incidents such as *MSC Flaminia* prove that fire safety onboard can never be ignored.



◀ Corroded or damaged cylinders can prevent fire suppression systems from actuating when needed



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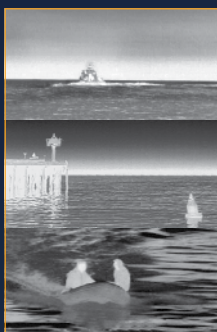
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‘Prepare for a ride – it will be adventurous’

Shipyard De Hoop CEO and sole shareholder Patrick Janssens talks to contributing editor John Oliver about the commitment to interesting ships, what gives him grey hair and seeing flying tugboats from his office window

As a child, Patrick Janssens remembers many hours making and sailing self-build boats on one of the Netherlands’ myriad inland waterways. Additionally, growing up in a home that was his father’s ongoing DIY project meant he learned the basics of carpentry, construction and even welding. So it is perhaps surprising that his initial career was as a management consultant.

Not that he wasn’t successful: with a bachelor’s degree from Eindhoven and an MBA in international business from the UK, Janssens initially specialised in quality assurance and management information systems before setting up his own consultancy company with two partners. With a broader spectrum of services, clients were initially among the top 500 companies in the Netherlands, but they slowly started to focus increasingly on the maritime sector.

“Working in many different companies gives you the opportunity to learn a lot when you can peek behind the curtains,” is how Janssens sums up his early working life and the experience he gained from it.

The business, by then comprising two consultancy firms, was sold in the early 2000s and at the age of just 32, Janssens joined the board of historic Shipyard de Hoop in 2004. The yard’s main facility at Lobith, near Arnhem, has been on the bank of the Rhine since 1889.

His arrival saw the business develop a more focused, strategic approach: additional shipyards in the Netherlands and Louisiana in the US, purchased either side of the Millennium, were sold although the combined shipbuilding and design knowledge were regrouped as a comprehensive engineering department. This allowed the business to concentrate on more innovative shipbuilding,

► Patrick Janssens joined Shipyard De Hoop in 2004, becoming CEO three years later
Photo: Ingmar Timmer



as well as making it financially stronger, in turn ensuring its independence.

In 2007, as the perennial economic cycle of shipbuilding turned upwards, De Hoop expanded again by buying a second yard in the north of the Netherlands at Foxhol, near Groningen. The same year saw Janssens lead a management buy-out of the company, becoming CEO and sole shareholder as one of a three-strong board of directors.

The subsequent decade has seen Shipyard De Hoop take on a wide variety of projects from innovative newbuilds to ongoing repair and maintenance contracts. Among the former are several series of vessels from customers around the world – including a current contract to build six shallow-draft Ice Class tugs for client COC in Kazakhstan.

Recently completed contracts include five fast supply intervention vessels (FSIVs) – the first of their type and offering the operator 45 per cent fuel savings compared to similar vessel types thanks to the hybrid propulsion system that was part of the De Hoop design. Also, the last of 10 high-tech PSVs has now been delivered to Abu Dhabi national oil company, ESNAAD, in what Janssens says was a very large order for the company.

“What makes us proud is that these vessels are doing very well; the first one is now working for over 24 months without any downtime,” he added.

This high-quality workmanship is provided by a permanent team of 150 craftsmen – with a further 200 locally-available subcontractors – based at the two facilities in Lobith and Foxhol, while a smaller facility is maintained

in Rotterdam for final fitting out of larger ships. But whichever of the company’s facilities is carrying out the work, they are united by a common goal.

“Shipyard De Hoop is a special yard because of its unique, boutique approach towards shipbuilding, [with] a dedicated group of people realising interesting ships. Client relations are central in the approach as well as the fact that we try to maximise the value added. The yard has all key disciplines in-house – including design and engineering, steel-cutting, pressing, carpentry, piping, machinery, etc – which allows better process and quality control as well as flexibility during the build,” explained Janssens.

“The focus is on custom design and building commercial vessels. The types of ship may often vary, but the projects always start with a clean sheet of paper. First, we try to understand our client’s business model – ie, how do they want to earn money? We co-operate to translate this into the right design and specifications, including performance criteria for the vessel. Our aim is to design the best money-maker for our clients, the best fit-for-purpose ship. Where we can, we try to apply the KISS (keep it simple, stupid) principle, but go high-tech or work with beautiful designs in areas or functions where it is needed or important.”

Of course, running a successful company is easy when times are good: it’s when things get difficult that tests an individual’s business acumen – and difficulties are something the shipbuilding industry is very used to.

“We, like many other shipyards, have faced challenges over the years. Besides the many technical challenges which form our day-to-day business, it is the unforeseen or unexpected things that can all of a sudden



◄ Karina was the first of five FSIVs built by Shipyard De Hoop



cause a serious domino effect. Since I started at this yard in 2004, we had to close down a daughter yard twice, due to a heavy downturn in the market. We also experienced the sudden default and bankruptcy of a very large client for whom we were building seven vessels at the time. In 2015/16, we were faced with two subcontractors which went bankrupt and one was non-performing during the build of a tightly-planned 10-ship order. Managing such events causes grey hair and sleepless nights, especially when you work in a small team.”

This is where Janssens’ previous experience and expertise in management consultancy undoubtedly helps. “We aim to build economic vessels with a good value for money, but the sheer size of our projects sometimes exceeds the value of the entire company: project financing then also becomes a challenge. Hands-on project management, understanding risks and clear communication are the key factors in getting the job done and dealing with changes.

“Hands-on project management, understanding risks and clear communication are the key factors in getting the job done and dealing with changes”

“We are lucky that we have built up a strong client base – with people who know and trust us – as well as a solid financial position, otherwise such projects would not always be possible.”

And as Shipyard De Hoop approaches its 130th anniversary next year, it is safe to assume there are more challenges – and opportunities – lying in wait. Certainly technical advances will play a key role in design and production. Exciting developments such as 3D printing and welding, as well as assembly robots, will impact the manufacturing side, while an increasing focus on fuel consumption and alternative forms of energy and propulsion

▲ Shipyard De Hoop has been at Lobith on the Rhine for almost 130 years; a recent contract for six Ice Class tugs, right, includes four ASD push boats and two harbour tugs



will focus the minds of designers.

In the short term, Janssens cites increasing regulation as a challenge not conducive to Shipyard De Hoop’s boutique business model. “More and more paperwork seems to be needed to build a ship, which may threaten the flexibility and freedom of mind which you need to design and build the next generation’s ships.”

Those vessels will also require skilled labour; not only does the existing De Hoop team need to stay ahead of the technologically-advancing curve but thought must be given to attracting the next generation of shipbuilders. What should anyone considering a career in the industry be ready for? “It is never a dull moment. You have to be very precise in what you do, don’t give up if things are difficult but never break any promise you make. Prepare yourself for a ride: it will be a demanding job, but very adventurous.”

Away from work, that sense of adventure appears to run through the whole Janssens household. Just over a year ago, Patrick’s wife realised a long-held ambition to open a concept store selling clothes, food and beverages and living accessories. “The store is a success, which makes me proud of her.”

The couple’s 13-year-old son is thriving at college and also excels at football as well as enjoying many other sports, while their 10-year-old daughter is already showing signs of creative entrepreneurship as well as playing field hockey.

Helping to coach her hockey team is one of the ways Janssens enjoys life beyond the shipyard, while his own sporting preferences include – inevitably – sailing, along with mountain biking, tennis and skiing. Going to concerts and stand-up comedy shows also help maintain a work-life balance.

The family home is in a small village in the heart of the country, convenient for getting to the yard as well as for Amsterdam’s Schiphol airport – a regular destination for Janssens as the role demands a lot of international travel. On the day *IT&O* spoke to him, he was in the office where the view from his window comprised “a new 135m river cruise vessel, *Amadeus Queen*, on the slipway, as well as two 55m hybrid FSIVs and also a steel section for a tugboat flying through the air” – prompting the important clarification that this last element was being moved by crane.

That proximity to the day-to-day activity in the shipyard more than compensates for the various frustrations and problems that running any business inevitably throws up. Asked what gives him most pleasure in his role, Janssens instantly responds: “The team effort and the fact that the end result is so tangible – a great ship and happy client. I really enjoy joining a sea trial every now and then. Then one can see the result of an extremely wide variety of people with different backgrounds – sometimes different worlds – each bringing their part of the puzzle, and when it comes together they can all be proud.”

Advanced lubricants rise to the challenge

Ben Bryant, marine market manager at Munich-based Klüber Lubrication, looks at how to handle today's deck equipment challenges with advanced greases

Anchor winches, cranes, level winders and other equipment exposed to the elements on the deck of a vessel may look good with a thick, consistent layer of grease, but appearances can be deceiving. In fact, several problems may be lurking below the surface of commonly used greases.

For example, premature wear can occur if the grease is not up to the design loads and speed of the equipment. Today's deck equipment is being pushed much harder over a wider range of operations, resulting in higher loads on gears and bearings that are rotating faster. Advanced, high-performance grease formulations are designed to handle today's more demanding conditions.

Obsolete formulations cannot match the advantages of new lubricants: commonly used thick asphaltic grease will slide off the vertical face of the slewing gear on deck cranes. Alternatives can provide a thin layer which stays in place, improving component longevity and safety on deck.

Improper selection of lubricants can occur



▲ Advanced grease formulations are designed to handle today's demanding conditions on deck

in an automatic lubrication system. For instance, a softer grease used in an automatic lubrication system often performs better than older grease types. A lubricant must either separate contact points with a film or deliver additives that maintain anti-friction benefits even when squeezed out at the point of contact. Modern greases with high viscosity

base oils and advanced additives can achieve both objectives.

In addition, temperature changes can affect grease performance; a grease which is good for the tropics may not flow through the auto-lube system in northern climates. Synthetic base oils in speciality lubricants have a greater operational temperature range.

Stocking different lubricants for different applications can become complex. While some high performance lubricants are designed for a narrow set of applications, others perform over a wide range of conditions. A lubrication engineer can sort through the requirements of each application and help rationalise the lubrication inventory while keeping an eye on the customer's operational objectives.

Material incompatibility can occur. A recent investigation of seal failures on watertight doors led to a finding that the standard grease being applied softened the seals, causing them to tear when the door was operated.

Eco-friendly characteristics are required when lubricants eventually wash out to sea. This necessitates formulations that are as good in performance in deck equipment as they are for the environment.

Modern lubricants have been formulated to maintain lubrication in today's challenging marine applications. Key to selecting a speciality lubricant is an understanding of the operating conditions for the application – such as load, speed, temperature, type of friction, materials and environmental conditions. In addition, identifying specific operational objectives to be achieved, or business issues to be resolved, will justify the investment in a speciality lubricant. A lubrication engineer can review lubricant types, formulations and performance parameters to recommend the best lubricant to meet the desired objective or outcome.

Expanded range boosts order book

Since the early 1990s, Turkey's Data Hidrolik has designed and delivered towing winches, hooks and pins for various types of tugboats, AHTSs and workboats. Using the wide experience gained over nearly three decades of operation, the company has successfully developed a range of durable, low maintenance equipment.

Its latest generation of winches includes the option of electric winches with frequency drives to adjust speed and forces, as well as

▼ Data Hidrolik's range of winches has been developed over more than 25 years



the more traditional hydraulic systems.

Also available with the newest winches are monitoring systems with length and load measurement displays, pneumatic brake and clutch mechanisms and auto tension features. In addition, shark jaw mechanisms are available with the new product range.

For a number of new orders coming from Russia, the materials and components of the winches, towing hooks and towing pins have been selected for their performance in low temperature operations where winter conditions can drop below -40 deg C.

Towing hooks and towing pins are an important element of Data Hidrolik's product range, and in high demand because of their long lasting and dependable designs. The company's towing hooks have pneumatic/hydraulic release, load display or shock absorber options; pins have single/double fork or shark jaw options, with power unit, starter cabinet and control panel as part of the package.

According to its 2018 order book, Data Hidrolik will deliver towing winches from 25 tons up to 80 tons pulling forces, towing hooks from 30 tons up to 100 tons SWL and towing pins up to 345 tons SWL with single or double forks.

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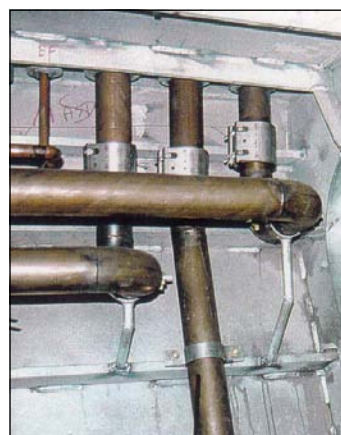


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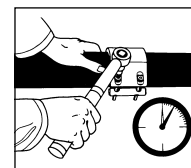


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The bright spot in the marine world

Remote box cuts costs and improves safety

Safety requirements and the need for integration between systems in marine applications are increasing the demand for electronics installed in deck equipment. If correctly utilised, electronics can also help to decrease service costs.

Ships can be involved in different jobs anywhere in the world. A new contract often means new needs, with a consequent software update required. So fleet managers need to verify, on each specific project, the grade of utilisation of the equipment, assuring the safety of vessel operation. At the same time, distance increases costs: ship owners need to keep a close eye on both equipment and crew operations.

Italian crane manufacturer HS Marine, known for the strength and the reliability of its products, is always ready to meet the needs of the market. Managing director Stefano Forni said: "Even though all our electronic devices are plug-and-play and they don't require any settings, we are often required to provide our assistance for software updates because of additional sea state setting, installation of accessories, analysis of the actual crane duty cycle or new integration needed between the crane and other equipment. This is the reason why we have extended the concept of 'remote diagnostic' to small/medium size cranes for additional functions."

Since 2014, HS Marine has been able to

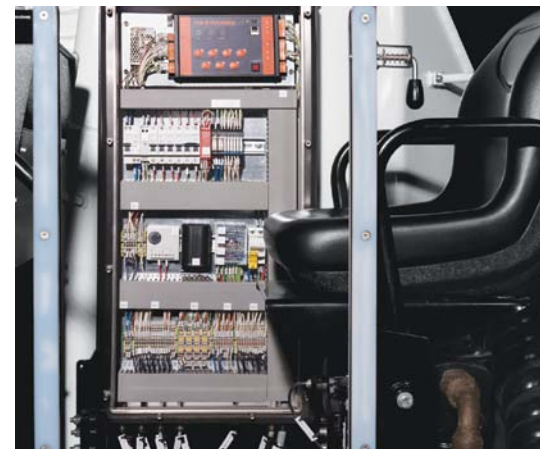
assist customers worldwide on all its cranes that are equipped with its multifunction service unit (MSU). The operation is easy and cheap: the crane operator just needs to connect a laptop with internet access to the MSU through a standard LAN cable (one cable is always provided with the crane). And that is all. The HS Marine service technician can download all recorded data (the MSU also functions as a black box), set crane parameters, perform diagnostics and troubleshooting and upload new software versions, all without moving from his office.

In the past, this option was required mainly by the offshore market or dredging operators, and just for large cranes. Nowadays efficiency, flexibility and costs of service are also important for workboats and small service vessels.

Many customers have already saved large amounts of money and downtime, when vessels located in distant ports have needed a new sea state, a different option or a simple troubleshooting operation and HS Marine has fulfilled their requests by remote assistance.

The MSU has been such a success that HS Marine has now made it standard on its medium and large size cranes, and customers are already requesting its extension to the smaller cranes.

Bard Arne Saunes, who moved from Norway to Italy to join HS Marine as sales



▲ HS Marine's remote diagnostic MSU is now fitted as standard on its medium and large cranes

manager, said: "Sometimes customers are concerned about electronic devices: although our MSU is very useful and reliable, at the same time it is not essential for the operation of the crane. In fact, the crane can work without the MSU, because the crane's PLC is completely independent of it. And no worries about the software: we always perform a full test on our crane simulator before releasing and providing every new software version. Definitely, the MSU adds value to the crane, without any prejudice."

Fibre-rope offshore crane offers multiple benefits

MacGregor's dedicated fibre-rope offshore crane, FibreTrac, allows operators to use the full lifting capacity of the crane, at practically any depth, so a smaller crane and vessel can be used for more assignments, and owners are able to bid on a wider range of contracts.

This is made possible because of neutrally-buoyant, high-performance fibre rope. Fibre rope weighs virtually nothing in water, so regardless of the length of rope used, it does not add anything to the load experienced by the crane. This is in complete contrast to steel wire cranes, which have to bear the load as well as the ever-increasing weight of wire paid out.

Gentle rope handling and a controlled environment safeguard the integrity of the fibre rope, guaranteeing a long lifetime.

MacGregor fibre-rope cranes use a novel capstan, developed by Parkburn, as a traction winch. It consists of two interlocking drums slightly angled and offset in relation to each other. The drum geometry creates a natural and stable helix without generating any fleeting forces, so the rope does not twist on the drum as it is gently detensioned. The winch system



◀ MacGregor's FibreTrac offshore crane can be operated at full lifting capacity at practically any depth

can be delivered with digitally-controlled electric or hydraulic-drive units. Features include integral active-heave compensation and power regeneration capabilities.

The open design of the winch also assists with rope cooling, further assisting in eliminating the heating and degradation problems associated with on-load fibre ropes stored on winch drums. Importantly, it can accommodate non-uniformities resulting from splices in the rope.

The company has also developed a new modular fibre-rope retrofit solution, based on the same technology. This

allows customers to convert their existing wire-rope cranes to fibre-rope versions, unlocking their full potential.

Standard features of the FibreTrac crane include a lifting capacity of up to 200 tons single line, or 270 tons double fall, and active heave compensation direct on the winch. The cranes have a control system developed in-house by MacGregor, and the main winch can be mounted on the crane or below deck. Auxiliary winches offer up to 25 tons safe working load and 4,000m wire capacity. The FibreTrac crane also boasts spacious, air-conditioned operator cabin.

Flying the flag for smaller vessel owners

For one ship registry, the market for smaller vessels has grown in recent years, as owners demand a more personal service. Glenn Armstrong, CEO of Maritime Cook Islands, outlines some of the latest developments in the sector

There has always been a market in ship registry for smaller vessels, but what has changed and developed in the past few years is the need for smaller owners to receive a more personal and user-friendly service from the flag of their choice.

This is because some of the larger registries, while they offer service excellence, do not cater to the needs of smaller owners. In other words, smaller tonnage operators feel neglected by their flag.

There are a number of smaller registries which today cater to the smaller owners and Maritime Cook Islands (MCI) is one of them. MCI supports a large range of small and specialist vessels such as tugs and OSVs, barges, commercial and private yachts, and fishing vessels.

MCI was set up in the Cook Islands, by friends and business partners with relevant legal and business experience, in the aftermath of the Pacific island nation's financial crisis of the 1990s. As a result of the crisis, the government had identified a number of activities that were being performed by the government that could be performed more efficiently and profitably by the private sector.

In 2000, the government called for expressions of interest in operating the Cook Islands' Ships Registry. MCI was the successful tenderer and took over the operation of the register from the Ministry of Transport in 2001.

Because of the Cook Islands' stable legal system and open government, as well as attractive fiscal regime, it was a natural place to set up a ship registry. Unlike other registries, MCI is not run by a foreign company nor is it run by a law firm in a foreign country: it is based in the Cook Islands, our managers and shareholders live and work in the Cook Islands, and work very closely with the government on a daily basis. The flag is staffed and managed by senior shipping people with relevant qualifications and experience of the global shipping industry.

MCI aims to be transparent and raise its status as a professional, legitimate ship registry for the industry, for the long term. It has built experience and expertise in the specialist vessel sector thanks to London-based shipping company Pacific Basin, which registered its fleet of tugs and barges



in the Cook Islands while they were engaged in major oil & gas projects in Australia and the Middle East. The MCI office in Singapore also has extensive experience with the offshore industry and so today we have 36 barges, 39 tugs and 50 utility and offshore vessels on the register.

In a market plagued with over-capacity – which has been exacerbated by the collapse in oil prices and the cancellation or postponement of many oil & gas and major construction projects around the world – the Cook Islands' share of the market is expanding because a growing number of discerning smaller owners are demanding a more bespoke and real-time service from their registry.

"The Cook Islands' share of the market is expanding because a growing number of discerning smaller owners are demanding a more bespoke and real-time service from their registry. I see our role increasingly as that of a trusted advisor"

Glenn Armstrong, MD, MCI

They want to be able to pick up the phone or get an instant email response from a qualified and experienced person who is available immediately – and this may not be the case with some larger flags.

As managing director of MCI, I see our role increasingly as that of a trusted advisor. We want to be seen as a flag which is completely up to date and aware of global shipping

▲ Maritime Cook Islands supports a large range of small and specialist vessels, including tugs, says the registry's MD, Glenn Armstrong, inset



regulations – including issues such as ballast water management, the Maritime Labour Convention, the Polar Code and IMO's initiatives on carbon dioxide emissions.

Owners want to be informed on these developments by their registry and MCI is able to provide this service.

We have a full range of clients from small private yachts to very large ore carriers and very large crude carriers. Our biggest six ships account for almost a million gross tonnes, but it would be fair to say that smaller owners with fewer than a dozen vessels make up the bulk of our business.

We are known for providing additional support to smaller owners who might not have the resources to monitor all of the changes in the regulatory environment that will affect their operations. For example, we recently supported a tug owner who was found by Port State Control not in compliance with the requirements of the NO_x technical code.

Our technical department worked with the owner, the supplier of the engines and the classification society to find a solution which enabled the two tugs to be brought into compliance at relatively small cost, avoiding the need for a very expensive engine replacement exercise.

That owner has since registered another two vessels with the Cook Islands.

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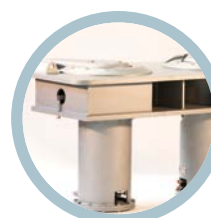
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Two dual-fuel harbour tugboats ordered by green-minded firm

Harbour and terminal towage operator and pilotage services provider PSA Marine has recently awarded a contract to build two dual fuel LNG harbour tugs, scheduled for delivery in 2019.

Under the LNG Bunkering (pilot programme), the company will receive a grant of up to Sing\$2m for each tug from Singapore's Maritime and Port Authority (MPA). With these fleet additions, the company has taken a big step forward in adopting environmental corporate social responsibility practices in its support of the MPA's drive towards a sustainable maritime transport system.

Peter Chew, managing director of PSA Marine, said: "As a responsible corporate citizen, this is one of the ways in which PSA Marine can play its part in reducing its carbon footprint and greenhouse gas emissions from our business operations."

PSA Marine owns and operates more than 60 tugs in China, Hong Kong, India, Oman and Southeast Asia, with its flagship operations in Singapore.

Acquisition increases fleet to nine vessels

Philippines-based Chelsea Logistics Holdings Corporation (CLC), formerly Chelsea Shipping Group, has acquired the 125grt Japanese-built tugboat *Fortis VI* to expand its fleet for manoeuvring tankers and other larger vessels. *Fortis VI* will bring CLC's total tugboat fleet to nine.

CLC CEO, Chryss Alfonsus V Damuy, said: "By modernising and expanding our operations, we can provide better shipping and logistics solutions as well as make our country more competitive in capturing the increasing trade opportunities in the Philippines and in Southeast Asia."

Regional expansion

Britannia's P&I held an Asian members' forum in Hong Kong, where it outlined its strategy of strengthening its presence in the region including its recent takeover of offices in Tokyo and Kobe, Japan.

Andrew Cutler, CEO of Britannia, said: "Enhancing our personalised service to members by having dedicated Britannia-owned local offices in key territories is vital."

Firm nets sports deal

KVH Industries and Pilipinas Global Network Limited have announced a deal to bring coverage of Philippine Basketball Association full games to merchant ships.

Popular tugboat range gets exclusive design make-over

Singapore-headquartered PSA Marine and Robert Allan Ltd of Vancouver, Canada, have again collaborated on the Z-Tech range, this time on an exclusive design edition which will have a restyled deckhouse and wheelhouse.

Cheoy Lee shipyard in Hong Kong has been awarded two contracts for the construction of three Z-Tech Exclusive Design Edition 5000 tugs for PSA Marine and South China Towing Co of Hong Kong. They are scheduled to be completed this year.

The hull form and deck layout are kept essentially the same and the tugs will maintain all features of the original Z-Tech concept, which combines advantages of modern ASD and tractor tug designs. As the Z-Tech concept development partner, PSA Marine currently operates 12 Z-Tech tugs in its fleet. South China Towing Co, a joint venture company of PSA Marine, Mitsui OSK Lines and Tokyo Kisen Co, is a new

member of the Z-Tech club.

The new tugs will have a 27.5m LOA, 11.5m beam, depth of just over 5m and achieve a bollard pull of 50 tonnes. The first Z-Techs, *Indee* and *Pardoo*, entered operation in 2004. Now there are more than 80 Z-Tech tugs in service or under construction, not counting those designed by others but following the Z-Tech concept.



► Z-Tech tug *Indee*, first of the popular range

Electric propulsion for rescue tug

An electric propulsion system developed by global technology company ABB and built in China has gone into service on board a new Chinese rescue tug.

The Azipod® D, which is available across a power range from 1.5MW to 7.5MW, incorporates ground-breaking thruster technology enabling installed power savings of up to 25 per cent as well as less maintenance and significantly reduced fuel consumption and emissions.

Its launch application is the tug built by Huangpu Wenchong Shipyard for Guangzhou Salvage Bureau, a division of the Chinese Ministry of Transport. In pre-delivery sea trials, the vessel exceeded design targets in bollard pull, fuel economy, manoeuvrability and low-load performance.

Rescue tug captain, Shaohua Liu, said: "We are really impressed with the

vessel's performance. Response time and manoeuvrability, both of which are critical in our operations, are excellent. Less power was required than we expected for a given function. The Azipod D has exceeded our expectations by far."

Jaakko Aho, VP, thruster products, for ABB Marine & Ports, said: "The Azipod D range demonstrates our continuing drive to raise efficiency and cut lifetime running costs. More can now be achieved with less, and the scalable Azipod D is suitable for an even broader range of applications compared with earlier units."

"With proven reliability, lower installed power requirements, economic efficiency and reduced maintenance requirements, we are confident of out-performing our peers and strengthening our position as the supplier of choice for high-end thrusters."

Class society to open office in Philippines

Classification society Indian Register of Shipping (IRClass) hosted a customer meeting in Bangkok, Thailand, as part of its efforts to increase its commitment to the Southeast Asia region.

IRClass revealed that it was in the process of setting up an office in Manila, Philippines, and shared news on major areas of research such as hydrodynamics, ship and offshore structure, and vibration and noise.

IRClass managing director, Suresh Sinha, said: "We gained authorisation as a recognised organisation from Thailand last year. This meeting with ship owners in Bangkok was vital in further consolidating our presence in Thailand."

"It is important for IRClass to be in active conversations with the maritime fraternity in Asia, in order for us to provide better tailored services and training courses."

Marine group celebrates 30 years in Asia

LOC, the global marine and engineering consultancy for the shipping and offshore energy industry, is celebrating 30 years of business in Asia.

Singapore was the chosen location for the opening of LOC's first office in Asia, in 1987. Since that time, the LOC group has continued to grow its Asia Pacific footprint, developing 11 further offices across the region in Thailand, China, Hong Kong, South Korea and Vietnam – with the latest opening just last month in Kuala Lumpur, Malaysia.

LOC's regional director for Southeast Asia & Asia Pacific, Alex Harrison, said: "We owe the longevity and success of LOC in Asia to the dedicated teams who have worked across all of our regional business over the years

and for the on-going efforts made both in Singapore and across the region to maintain the business in the current challenging market conditions."

During the past three decades, LOC has grown its regional team from just a few in 1987 to close to 100 employees across Asia Pacific, with local hires as an ethos. LOC Singapore reflects this, with Singaporeans accounting for around 60 per cent of its team in the republic.

For many years, LOC has been at the forefront of marine-related environmental awareness, including the provision of consultancy for the development of offshore renewable energy. It now brings this experience to the offshore renewables sector in Asia – having recently been appointed as marine consultants and warranty surveyors on two offshore wind farm projects in Korea, as well as the recent signing of an MoU with the Bureau of Standards, Metrology and Inspection (BSMI) in Taiwan.

Following the consultancy's increased focus on hull and machinery (H&M), there has been a large upswing in H&M instructions regionally, as LOC continues to develop its market share in the Asia Pacific region.

In the energy sector, it remains a market leader in marine warranty and marine

▶ Alex Harrison,
LOC regional
director for
Southeast Asia &
Asia Pacific



assurance services for new construction projects, such as the recently completed construction tow and hook-up of the multi-billion-dollar Ichthys central processing facility (CPF) and FPSO facilities.

Rutger Bierman, managing director for LOC Singapore, said: "Singapore has always been a central area of focus for us. It is the gateway to the ASEAN region and having a base here enables us to do business in emerging markets in the region easily. The business-friendly environment is also another factor in operating from here."

The Singapore office and the other regional offices are key in managing and supporting the construction, mobilisation and transportation phases of some of the largest capex oil & gas developments.

In 2006, as part of developing its design engineering expertise, LOC established Singapore-based sister company, Longitude Engineering, which focuses on oil & gas, renewables and marine design and analysis.



◀ Rutger Bierman,
managing director
for LOC Singapore

Firm supplied rubber pontoons for challenging ferry salvage operation

Rubber pontoon manufacturer, Shandong Nanhai Airbag Engineering, played a crucial role in the successful salvage of South Korean ferry *Sewol* three years after the vessel sank with the loss of 304 passengers and crew.

The China-headquartered company supplied 12 rubber pontoons – with a total buoyancy of 2,400 tons – for the operation to lift the stricken ferry carried out by Shanghai Salvage last March. The complex salvage operation is thought to be one of the deepest lifts of a complete hull ever attempted.

For the hoisting arrangement, two lifting barges were rigged to pull on 66 lifting wires,

each of which was connected to one side of a beam underneath *Sewol*'s hull. The wreck's recovery was delayed for nine months due to technical problems and challenging conditions.

After being raised to the surface, the ferry was transferred to a semi-submersible ship and carried to the port of Mokpo where it was searched for the remains of the nine people still missing.

Nanhai Airbag manufactures a range of inflatable rubber airbags and pontoons for marine salvage and wreck removal with a single lift capacity from five to 200 tons. The company also produces ship launching airbags and pneumatic rubber fenders.

The 6,825-ton *Sewol* sank in April 2014 while sailing on its regular route between Incheon and Jeju. Of the 476 passengers and crew on board, the majority were secondary school children.

The high-profile incident resulted in widespread criticism about how the vessel owners and crew, as well as the authorities and South Korean government, handled the rescue operation, with the wider issue of how vessels are regulated also being exposed.

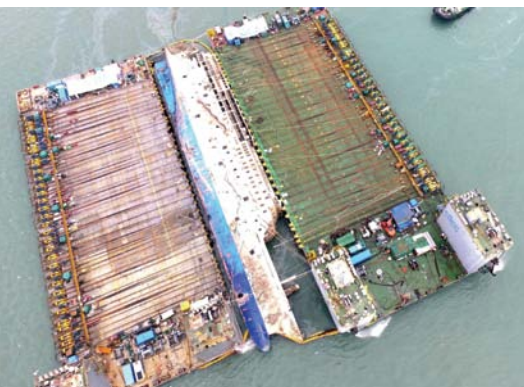
Fender company invests in plant

Shibata Industrial, the Japan-based majority shareholder of ShibataFenderTeam (SFT), has invested heavily in a cutting edge, fully-owned mixing plant for rubber compounds and fender production in Klang, Malaysia. The new factory is due to begin production this year.

Hirota Suzuki, director at Shibata Industrial in Japan and managing director of the SFT office in Malaysia, said: "The steep growth in demand for SFT's high-quality rubber fenders was the catalyst for this far-reaching investment decision, which will further strengthen our global position as a leading fender manufacturer."

Shibata Industrial will invest around US\$7m in predominantly Japanese-made rubber mixing equipment.

SFT will be the first fender manufacturer to use the latest-generation compound mixers.



◀ The *Sewol* salvage operation

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Grabbing a slice of the US windfarm action

Propulsion company Volvo Penta is looking to establish a significant position in North America's burgeoning offshore windfarm sector, building on its strong presence in Europe.

The global operator – part of Sweden-headquartered Volvo Group – is confident that its integrated propulsion system (IPS) will prove popular for new windfarm support vessels (WSVs) serving the sector.

Jens Bering, VP of marine sales for Volvo Penta of the Americas, said: "When compared

to standard shaft drives, IPS consistently produces 30-40 per cent longer cruising range, 15-20 per cent higher top speed, 20-35 per cent reduction in fuel consumption, 20-35 per cent less CO₂ emissions and 50 per cent lower perceived noise levels.

"In addition, IPS provides safe and predictable boat handling, especially with its standard joystick controls. IPS is also easier to install, taking about 50 per cent less time than inboard shafts, and is easier to service. The pods also provide higher torque and faster acceleration, as well as higher bollard pull of approximately 4 tons per pod unit, so it will not lose grip in high seas."

All this makes Volvo Penta's IPS an ideal solution for WSVs, believes Bering. "Windfarm support vessels operate under some

of the world's most difficult conditions. They must be able to work 24/7 in high winds and heavy seas, delivering crew and materials quickly and safely to the offshore tower without wasting time and fuel.

"On station, it's a big challenge for the operator to nose up to the turbine towers and hold position in turbulent waters when transferring technicians and supplies."

The US Department of Energy (DOE) is predicting rapid growth of offshore wind energy development in coastal waters. The first US windfarm at Block Island – four miles off the Atlantic coast of Rhode Island – is now operational and the DOE reports that there are 28 projects with a total capacity of more than 23GW now in the works.

Many of these will be 30 miles or more offshore and will require specialised support vessels. Bering says Volvo Penta is actively pursuing this market. "We have a strong market share in the European windfarm support vessel segment. We have a great deal of real-world experience in this sector and excellent relationships with the naval architects, shipyards and operators, and we are well positioned to meet the demand for these highly-specialised vessels as the North American market opens up over the next few years."



◀ Volvo Penta says its IPS technology is ideally suited for WSV applications

New arrivals add to auxiliary portfolio

US-headquartered engine company John Deere Power Systems has added two new versions to its PowerTech™ range of marine engines for gen set and auxiliary applications.

The 9ltr 6090HFM85 and the 13.5ltr 6135HFM85 both have ratings that meet EPA Tier 3 and IMO Tier II emissions standards and are type approved by US classification society, the American Bureau of Shipping.

The smaller engine is rated for variable speed at 242kW (325hp) at 2,000 rev/min and for generator drive and constant speed auxiliary at 262kW (351hp) at 1,800 rev/min. Its larger counterpart is rated at 373kW (500hp) at 2,000 rev/min for variable speed and 458kW (614hp) at 1,800 rev/min for a generator drive and constant speed auxiliary.

Heather Balk, marine market planner for John Deere, said: "The range of engine options allows our customers to select the best product for a variety of generator and auxiliary application needs, including pumps, winches, cranes and hydraulics."

Gas engines to power newbuild tug

Rolls-Royce has delivered the first two production versions of its new mobile MTU gas engine following the successful completion of performance tests by the pre-production units.

The twin 16-cylinder Series 4000 gas engines, each with an output of 1,492kW, arrived at the Vietnam shipyard of Strategic Marine in December for one of two aluminium-hull catamaran ferries being built for Dutch operator Rederij Doeksen. A second pair of engines for the second ferry were due to arrive early in the new year.

Both vessels will enter service later this year carrying passengers on the Dutch Wadden Sea, a World Heritage Site that has been a particularly sensitive area worthy of protection, hence Rederij Doeksen's decision to select a pure gas propulsion system.

The new MTU marine engine – unveiled at Hamburg's SMM international maritime

trade fair in September 2016 – is also ideally suited to tugboats, pushboats and other special purpose vessels. Further orders to date include two engines for a tug being built by Damen for operator Svitzer.

The performance tests on the pre-production engines followed more than 5,000 hours of development testing and took place late last year at MTU's main facility in Friedrichshafen in Germany, watched by representatives from the operator, the shipyard and Lloyd's Register of Shipping.

The testing included verifying the performance data, fuel consumption and the engine's safety features such as the emergency stop. Also, the emission measurements demonstrated compliance with IMO Tier III emission standards with no additional exhaust gas aftertreatment.

The 16-cylinder Series 4000 from MTU – part of Rolls-Royce Power Systems – will be available this year as a certified series production engine with a power range of 1,500-2,000kW. An eight-cylinder version will follow, rated 750-1,000kW. Compared to a diesel engine, the gas engine emits no soot particles or sulphur oxides, 90 per cent less NO_x and 10 per cent less greenhouse gas.



◀ The Series 4000 gas engine undergoes performance testing at MTU Friedrichshafen

Cleaner diesel engine designed to meet US emissions regulations

Engine company Cummins is working on a new version of its long-established QSK38 marine engine that will meet the latest US emissions regulations by linking it to its selective catalytic reduction (SCR) system.

The US-headquartered company unveiled its latest offering at the International WorkBoat Show in New Orleans at the end of last year. The engine, which will also come with an improved warranty, will be available from 2019 for customers operating in the US offshore oil & gas, commercial transport, passenger transport and commercial fishing industries.

Sensors located in the SCR will monitor the system performance, enabling precise injections of urea to neutralise emissions from the engine. As well as meeting the

US Environmental Protection Agency's most stringent Tier 4 emissions standards, operators will benefit from cost savings as the system monitors the data and appropriately injects urea to ensure there is no waste.

Cummins is also working on a new tug application for its newest and most powerful marine engine. The company has contracted naval architects Robert Allan Ltd to prepare drawings of its proven RAsstar 3500 escort and ship-handling tug design with a pair of 4,200hp QSK95 engines for power.

Computerised testing carried out by Robert Allan Ltd of the tug with the Cummins engines has indicated it will be able to generate up to 102 tonnes of bollard pull and achieve a free-running speed of 14.2 knots. The proposed design also has Cummins auxiliary power.



▲ Cummins' QSK38, now with lower emissions

In brief

Technology group Wärtsilä has launched an upgraded, more powerful version of its well-established Wärtsilä 20 diesel engine. The new development features an increased cylinder output of 220kW that will increase the engine's power density, enabling vessels to accommodate greater payloads or achieve faster speeds with almost the same fuel consumption as the current version.

Caterpillar has received IMO Tier III notice of compliance from classification society DNV GL for its German-built MaK M25E medium-speed marine engine for main propulsion or auxiliary applications. The M25E uses selective catalyst reduction technology that converts NO_x into harmless diatomic nitrogen, carbon dioxide and water vapour.

The first Schottel Rudderpropeller with the newly developed and patented ProAnode has left the company's German factory. The ProAnode's new form and position has the corrosion-reducing anodes on the inside of the nozzle to reduce the risk of damage and flow interference.

Sensor specialist Danfoss Industrial Automation has unveiled a new gas temperature sensor, the MBT 5116, to help ship owners and operators improve engine efficiency and maintenance.

First in series meets IMO standards

The latest dual fuel marine engine from Japanese manufacturer Yanmar enables ships to switch between LNG and diesel fuel during operation – even under full engine loads – and complies with IMO Tier III emissions regulations at launch.

The 6EY26DF, unveiled at Europort in Rotterdam in November, is a six-cylinder, 1,533kW-rated medium-speed engine suitable for tugs, OSVs and other applications. It is

the first in a new series of dual fuel engines being developed by Yanmar to comply with IMO Tier III regulations introduced at the beginning of last year.

Compared to the all-diesel EY26 engines, the 6EY26DF delivers reductions of 84 per cent in NO_x, 25 per cent in CO₂ and 99 per cent in SO_x and particulate matter.

Yanmar says that while advanced electronic control is typically required for utilisation of two different fuel types, the EY26DF series employs high-precision air flow technology that optimises combustion conditions to deliver stability and reliability during operation.

Other advantages cited include no power limitations for LNG, which can sometimes cause knocking in other engines due to the fuel's low methane concentration.

▲ Yanmar's 6EY26DF is the first in a new series of dual fuel marine engines



Engine duo achieves dual fuel test success

Two dual fuel versions of MAN Diesel & Turbo marine engines have successfully passed their Type Approval tests (TATs) in front of the industry's main classification societies.

At CSSC Marine Power in Zhenjiang, China, a five-cylinder MAN L23/30DF test engine achieved an output of 125kW per cylinder at a nominal speed of 720/750 rev/min. Following the test, the engine was also granted a certificate for compliance with IMO Tier III regulations in gas mode without any aftertreatment.

The new dual fuel variant is based on MAN's conventional MAN L23/30H which was first developed in 1965 and has been

continuously developed over the past five decades. Among key improvements of the latest version are a simplified fuel injection system, meaning fewer parts need replacing and giving the engine a time between overhaul of 36,000 operating hours.

Meanwhile, at MAN's headquarters in Augsburg, Germany, the more powerful MAN L51/60DF successfully completed its TAT during four days of testing. The nine-cylinder test engine had an output of 1,150kW per cylinder at a nominal speed of 500/514 rev/min and ran on fuel oil and natural gas.

The TATs for both engines included testing their dual fuel safety concept as well as MAN's proprietary engine control system.



Artist's impression of Wagenborg Offshore's new W2W ERRV

Walk-to-work conversion is heading for North Sea role

Operator Wagenborg Offshore is converting a PSV to a walk-to-work emergency response and rescue vessel (W2W ERRV) after securing a six-year contract supporting offshore natural gas operations in the North Sea.

The vessel, currently named *Blue Queen*, is an Ulstein PX121 PSV design, built by Ulstein in 2015 and now being converted by Dutch shipyard Royal Niestern Sander. The 83.4m x 18m vessel will be equipped with an additional accommodation module, an Ampelmann A-type motion-compensated gangway and Barge Master T40 motion-compensated crane. The 16-week conversion project is due for completion by March and the vessel will start operations shortly afterwards with a new name, which is still to be decided.

Wagenborg Offshore will operate the W2W ERRV as a standby and support vessel for inspection and maintenance of unmanned natural gas platforms in both Dutch and

British waters of the southern North Sea.

In November, the company – part of Netherlands-headquartered transport group Royal Wagenborg – signed a contract with Nederlandse Aardolie Maatschappij (NAM) and Shell UK to support their combined business unit for gas production.

Wagenborg Offshore already operates a W2W ERRV named *Kroonberg*. Announcing the latest contract, the company said: “The PX121 has gained excellent feedback from the offshore industry due to a favourable combination of fuel-efficiency and load capacity. The PX121 is particularly suited for a conversion to other types of service, such as walk-to-work or emergency response and rescue, without compromising her outstanding dynamic positioning performance.”

Modern offshore platforms are smaller and normally unmanned without a helicopter deck, resulting in a need for walk-to-work vessels.

In brief

Solstad Farstad has secured six-month contracts for two of its PSVs from the Brazilian subsidiary of Statoil, the Norwegian state-owned oil & gas company. *Far Serenade*, built in 2009, and five-year-old *Far Scotsman* have started work providing support for exploratory drilling in Statoil's Carcara field in the Santos basin in Brazil's southern waters. Both contracts include options for up to nine three-month extensions.

Cyprus-headquartered SD Standard Drilling has paid US\$22.2m for two second-hand PSVs, bringing its total fleet to 18 vessels. The company announced it had completed the purchase of *ER Georgina* and *ER Athina* through its Norwegian subsidiary, Wanax. Now renamed *Standard Provider* and *Standard Supporter*, both PSVs are Rolls-Royce UT 776 CD designs built in Norway.

Scottish offshore operator North Star has been bought by UK-based infrastructure investment company Basalt for an undisclosed sum. North Star provides emergency response and rescue services to the offshore industry in the UK North Sea, where it currently owns and manages 31 vessels and retains more than 850 seagoing staff on contract.

Golden Energy Offshore Services has secured a six-month contract extension for PSV *Energy Swan* from Wintershall Norge.



Support vessel comes together in Norway

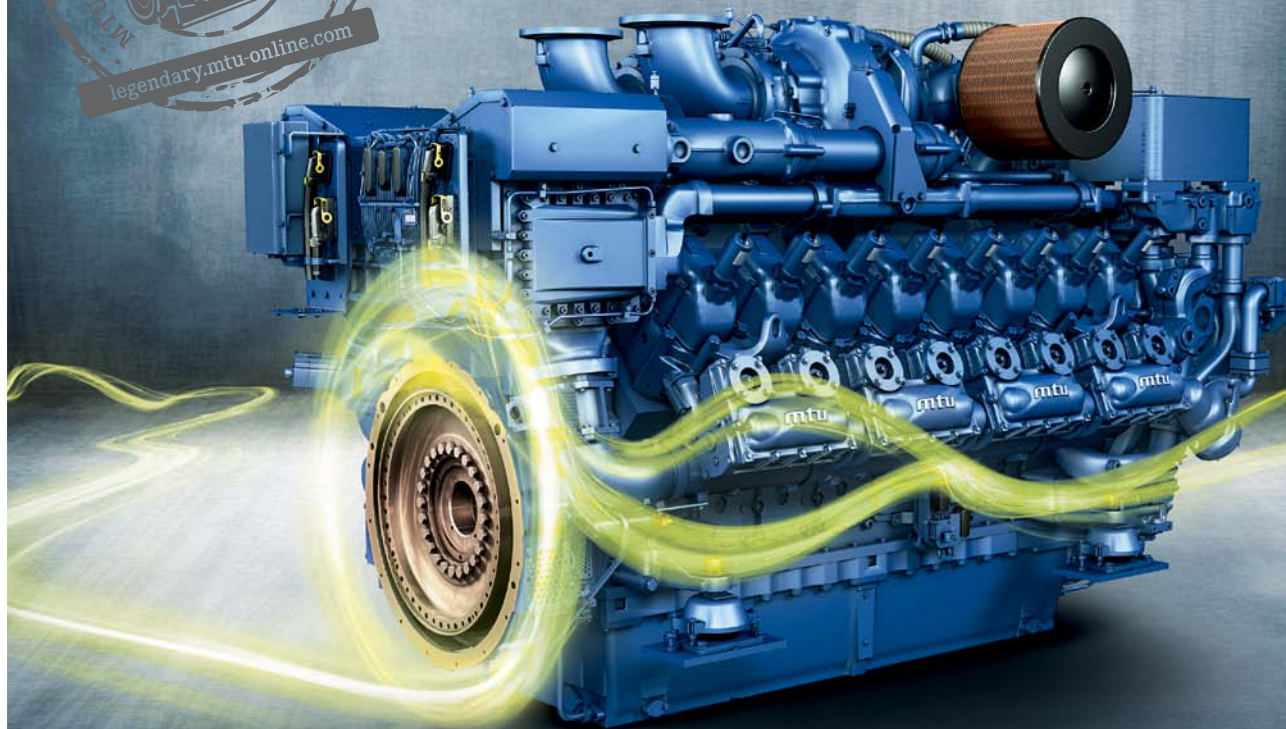
A new DP2 walk-to-work construction support vessel for Acta Marine is being fitted out at Ulstein Verft in Norway following hull construction in Poland.

Acta Auriga, pictured left arriving at Ulstein Verft, was launched in dry-dock on completion of the hull – which incorporates Ulstein's X-BOW® and X-STERN® optimised hull form – and then made the journey to Norway.

The vessel is now being completed – including installation of the SMST-provided motion-compensated gangway and 3D crane – and will then undergo commissioning and testing before delivery scheduled by the end of March. *Acta Auriga* will offer hotel facilities for up to 120 personnel as well as 1,000m² of deck space for cargo storage.



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Power. Passion. Partnership.

New ATB unit will serve LNG network in US

Energy giant Shell is setting up an LNG delivery network to ports in Florida and the Caribbean using a newly-built articulated tug and barge (ATB) unit to be built by Mississippi-based shipyard, VT Halter Marine.

It will be the US's first offshore LNG ATB and will be owned and operated by new marine transportation company, Qualified Liquefied Natural Gas Transport (Q-LNG). The 324ft x 64ft x 32.6ft (99m x 19.5m x 10m) barge will carry 4,000m³ of LNG. The accompanying Z-drive tug – measuring 128ft x 42ft x 21ft (39m x 12.8m x 6.4m) – will have 5,100hp from twin GE 6L250

MDC EPA Tier 4 main engines. Delivery is scheduled for the first quarter of 2020.

Q-LNG has been formed by Harvey Gulf CEO, Shane Guidry. He owns 70 per cent of the new company, with Harvey Gulf owning the remaining 30 per cent. Q-LNG has been launched with the ambition to become a key player in the transportation of LNG in the US, starting with the long-term contract with Shell.

Technology company Wärtsilä will provide much of the onboard technology and equipment for both vessels. The supply for the tug includes all of the bridge navigation, communications and dynamic positioning

equipment as well as thruster, project management system (PMS) and automation. On the barge, the Finland-headquartered company will be responsible for the cargo handling, cargo control and cargo containment system, as well as the PMS and automation.

VT Halter, located in Pascagoula, Mississippi, is the marine operations element of engineering company VT Systems, itself a subsidiary of Singapore-headquartered global engineering group ST Engineering.

Rob Mullins, CEO at VT Halter, said: "We are pleased to announce our partnering with Q-LNG and Mr Guidry for engineering and construction of this first-of-a-kind offshore LNG bunkering ATB. Our talented workforce are up to the task of delivering an industry-leading product."

Shane Guidry said: "I'm very appreciative that Shell has the confidence in me and my team to service their LNG transport needs. Everyone is aware the eastern ports of Florida are very busy with pleasure craft and Q-LNG will be focused and dedicated to deliver extremely safe transit to all the ports we will service."

The LNG ATB unit is designed to meet the requirements of the American Bureau of Shipping and the International Gas Carrier code as an LNG bunkering barge.



An artist's impression of the new LNG ATB unit

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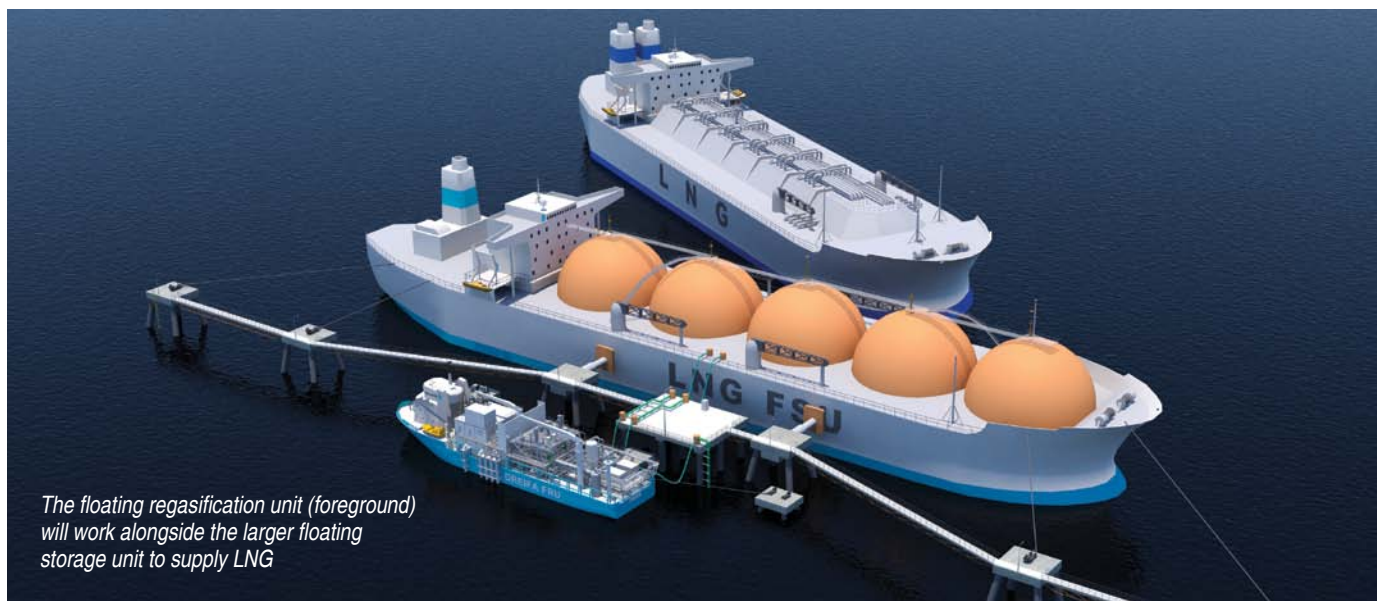
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The floating regasification unit (foreground) will work alongside the larger floating storage unit to supply LNG

Plans by a Norwegian start-up company to convert a PSV to a floating regasification unit (FRU) for LNG have been granted approval in principle (AiP) by classification society DNV GL.

It means the company, Dreifa Energy, can press ahead with plans to have the FRU ready for work in the second half of this year.

Following its formation in 2016, Dreifa Energy bought PSV *Blue Betria* last June to convert it to an FRU by installing a regasification unit and associated utility systems on its 893m² deck. The converted vessel will operate in combination with a standard LNG carrier acting as a floating storage unit (FSU).

DNV GL issued the AiP following an assessment of the basic engineering package developed by Dreifa Energy.

In a statement, the company said:

PSV takes on a new role as floating regasification unit

“In addition to confirming the design’s compliance with the rules of the society at the current stage of engineering, the AiP provides clarity on the regulatory framework and classification procedure towards final approval. This is an important step forward in Dreifa Energy’s efforts to be prepared to enter contracts for equipment and conversion.”

Once in service, the FRU will have a regasification capacity of 50-300 million standard cubic feet per day (mmscfd). Dreifa plans to offer the vessel on charter, along with the FSU which it expects to buy or

charter in the second-hand market for LNG carriers. To minimise capex/opex costs, it envisages the vessel will have a storage capacity of 130,000-145,000m³ and steam turbine propulsion.

Blue Betria was built by Ulstein in 1983 and underwent an extensive upgrade in 2015, carried out by previous owner Blue Star Line. The 80.8m x 18m x 7.1m PSV is the first of what Dreifa Energy aims to be a fleet of FRUs it owns and operates as it predicts LNG production capacity is expected to grow by 50 per cent in the coming years.

In brief

The number of LNG-fuelled vessels could treble by 2020, despite a slower-than-expected uptake of the fuel, according to DNV GL. The classification society says 117 vessels are currently burning LNG with a confirmed order book for another 111, and a further 114 classed as LNG-ready.

Skangas of Norway and Titan LNG, based in the Netherlands, have signed an agreement to co-operate on serving marine LNG customers. The two companies say it will help secure LNG supplies for ship operators.

New icebreaking LNG carrier *Eduard Troll* has completed its gas trials in advance of starting work at Russia’s Yamal LNG field, inside the Arctic Circle.

Mammoth tow for an African first

The most powerful of ALP Maritime’s four new anchor-handling salvage tugs has delivered and helped install Africa’s first FLNG facility after towing it on an 8,000-nautical mile journey from Singapore.

The 309-tonne bollard pull *ALP Striker* – delivered to the Netherlands-based maritime services company in 2016 – spent much of November towing the *Golar Hilli* FLNG vessel to its new location off the coast of Cameroon, near the coastal town of Kribi.

As the world’s first converted FLNG vessel – it was built as an LNG carrier in 1975 – *Golar Hilli* has capacity to liquefy up to 2.4 million tonnes of LNG per year from Cameroon’s offshore Sanaga Sud and Ebome fields in an ongoing agreement between owner Golar LNG and a partnership of Perenco Cameroon and state-owned SNH.

► *ALP Striker* tows FLNG *Golar Hilli* round South Africa’s Cape of Good Hope en route from Singapore

ALP Striker was the first of ALP Maritime’s four Future class AHTS vessels designed by Ulstein Design & Solutions and built at Niigata Shipbuilding & Repair in Japan. The 88.9m x 21m vessel is powered by four 4,500kW MaK engines driving Berg 5,000mm diameter controllable pitch propellers, supplemented by four thrusters.



New module gives real-time fuel inventory measurement

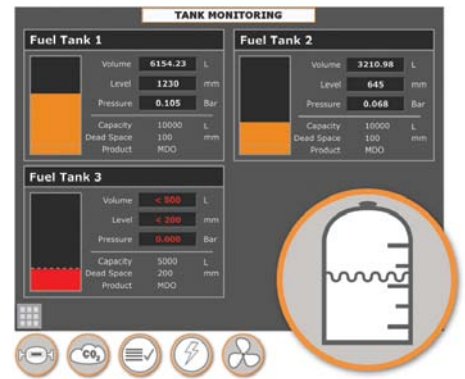
Improved monitoring of onboard and onshore fuel tank inventories is provided for vessel owners and bunker operators with a new module from UK-based Royston Diesel Power.

The latest enhancement to Royston's advanced engine fuel monitoring system, the tank monitoring module features electronic fuel monitoring system (EFMS) technology to provide real-time inventory measurement capabilities.

The engine system accurately records data by monitoring bunker deliveries and

individual engine consumption, with the data presented on touchscreen monitors installed on the bridge and in engine control rooms. In addition, the system transmits the information from ship to shore, where it can be accessed through a web dashboard with computer generated graphs and Google mapping to show an operational profile of a vessel.

Incorporating modern sensor technology, volumetric readings are calculated by the module after measuring variables in temperature and pressure to produce accurate fuel readings.



▲ A Royston fuel tank monitor display

The information is displayed locally but can be rapidly transmitted to the engine web portal as part of a comprehensive monitoring and control system package.

The system provides comprehensive fuel data analysis and reporting options to provide vessel owners and operators with a detailed picture of engine performance and other mission critical information. This 'complete accountability' capability improves asset visibility and control, decision-making processes at all levels, and helps to resolve any shortfalls encountered both on board a vessel and at an onshore facility, ensuring fuel security.

Alongside fuel consumption, the engine system also provides a low-cost method of measuring vessel emissions.

Latest sensor technology offers multi-vision

ABB has unveiled a new situational awareness solution that marks the next step towards remotely controlled and ultimately autonomous ships.

ABB Ability Marine Pilot Vision takes advantage of the latest advances in sensor technology and computer vision to offer multiple real-time visualisations of a vessel's surroundings and new ways of perceiving its situation.

A virtual model of the ship is superimposed on real surroundings, making it possible to see the operation from a third person's perspective. The operator can switch between views instantaneously, making it easier to predict vessel motions and be alert to previously hidden obstacles or collision risks. The resulting improvement in situational awareness benefits safety and efficiency.

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Transponder major aid to collision avoidance

Ocean Signal is introducing the ATA100 Class A AIS transponder, a combined SOLAS and inland-approved solution capable of exchanging dynamic and static ship data with other AIS systems to aid collision-avoidance and improve safety for both commercial and recreational vessels.

Developed to meet the latest IMO carriage requirements and IEC standards, the new device incorporates UK-based Ocean Signal's trusted technology within a compact design which is easy to use and simple to install.

The ATA100 is the only Class A AIS transponder available rated to the IPX7 waterproofing standard and features a 7in high-intensity, full-colour, rapid-response LCD to clearly display real-time marine traffic information. The coastline map and radar views have various orientation display options, while a standard target list display can be customised according to preference to provide immediate detailed information about nearby vessels.

The company says its Class A AIS is user intuitive, featuring large illuminated keys and easy-to-grip jog stick. The simple-to-use AIS message-sending functionality ensures safety related messages can be quickly delivered or received by the user, while an instant message and alarm function provides immediate notification of any potential

► *Ocean Signal's ATA100 Class A AIS transponder*

problems or hazards. The ATA100 is supplied with pilot plug and is suitable for either flush panel or free-standing mounting for easy installation into almost any position or location as it occupies a minimal amount of bridge space.

Data such as location, speed over ground and course over ground is calculated automatically using the integrated 99-channel GPS receiver, while the static and voyage related data such as MMSI, call sign and identity, type of ship, destination and ETA is effortlessly programmed into the AIS transponder via a user-friendly intuitive menu interface.

Neil Jordan, managing director of Ocean Signal, said: "The ATA100 combines our proven technical know-how with the fluid product design our customers have come to expect to create a fully compliant, single unit solution which is easy to use and install on a wide range of vessels. It has been



meticulously designed to allow operators to access and interpret the information provided by AIS to simplify navigation and improve safety, with intuitive operation and features such as the large clear display, versatile mounting options and easy-to-grip jog stick."

As expected, this new Class A unit is compatible with Ocean Signal's award-winning rescueME MOB1 man overboard AIS/DSC device and is programmable to accommodate up to 30 MOB units, providing immediate notification in the event that a MOB1 should be activated.

Add-on enables EU rules to be met

Rolls-Royce has extended its marine energy management solutions with a 'cloud-based' fuel consumption and carbon dioxide monitoring module designed to help shipowners meet the EU's monitoring, reporting and verification (MRV) regulation.

The collection and reporting of voyage data became a mandatory requirement from 1 January, meaning owners of vessels over 5,000gt that call at EU ports have to monitor, report and verify their fuel consumption and CO₂ emissions.

Bjørn Kåre Myskja, Rolls-Royce, UX/developer engineer, digital and systems, said: "The energy management EU-MRV module allows for automated gathering and reporting of fuel consumption, CO₂ emissions and other relevant data required of the new regulation."

With the new module installed as an add-on solution to the Rolls-Royce energy management system launched in May last year, data can be sent automatically from the ship to the 'cloud', where information and reports can be accessed and downloaded from anywhere with an internet connection. The software also validates incoming data.

Myskja said: "With shipowners able to constantly track accurate fuel consumption and emissions data via the Rolls-Royce energy management web portal, they can reduce fuel costs and mitigate against non-compliance and any financial penalties imposed by EU member states. More accurate data delivers greater costs savings."

In addition to data collection simplicity, a key focus during the software development phase was data protection. Eivind Vinje, Rolls-Royce technical product manager – energy management, said: "System security and integrity has been increased four-fold, with state-of-the-art encryption technologies, a two-step verification process and a 24/7 security centre. We also invited a number of third party cyber security experts to 'hack' into the system, but all failed to breach the protocols or find any weak spots."

While the energy management EU-MRV module has been designed to be an invaluable tool for those with operations in the EU, the system is future-proofed to meet anticipated global requirements. China has similar reporting mechanisms in place, with the IMO's data collection requirements entering



▲ *Fuel consumption and CO₂ emissions figures displayed on screen using the Rolls-Royce energy management EU-MRV module*

into force in January 2019. This requires the collection of fuel consumption data per fuel type, but not CO₂ emissions directly.

The software has been verified by the Norway-accredited MRV verifier Ecoxy AS, which also co-operated in the development of the solution to ensure its compliance with all aspects of the EU MRV regulation as well as to meet customer requirements for a solution capable of substantially reducing manual data inputs.

College's latest courses see students scaling new heights



Novikontas Maritime College, in Riga, Latvia, has recently become a certified training provider of all Global Wind Organisation (GWO) basic safety training modules.

The GWO basic safety courses are designed for personnel working in the wind industry and related fields. All the practical exercises are conducted by highly experienced instructors at the college training centre's newest facilities for specialised training in work at height, sea survival, fire-fighting and more.

College deputy director Dmitrijs Semjonovs said: "Our main values are maintaining a customer-oriented approach, and the quality and flexibility of our courses – and therefore all the latest courses (just like all others) can be arranged at any time, to suit the client.

"Our high standards are ensured by having the required number of GWO-approved trainers in place at all times, so they can begin the training right after getting the enquiry from the clients.

"Novikontas training centre is focused on providing courses approved by STCW (the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers), the GWO and, in the very near future, OPITO – the global, not-for-profit,

▲ *Working at height, above, and sea survival, below, are just two of the GWO-approved safety courses now being offered by Novikontas Maritime College in Riga*



skills body for the energy industry."

Novikontas is one of the Baltic region's leading training centres, enrolling an average 12,000 trainees annually on more than 110 different courses. Semjonovs added: "As we are an international training centre and a lot of course participants arrive to us from EU and non-EU countries, all of the courses are conducted in English."

Dutch institute offers LNG-specific training

As part of the European ReaLNG project, specific courses have been developed for crew working on LNG-fuelled vessels. Among the training tools developed for these courses is the new state-of-the-art LNG dual fuel bunkering simulator model for the K-Sim engine simulator platform.

This model is specifically designed for

training in LNG fuel handling and bunkering operations, and Rotterdam-based STC Group is the first training institute in the Netherlands to use and own it. This enables STC Group to train its students and professionals even better in understanding the complexities, risks and hazards of working with LNG in a safe and realistic environment.

Web service boosts safety

Inmarsat has launched a vital new service, SafetyNET II, for maritime safety information providers (MSIPs), marking a key stage in upgrading the Global Maritime Distress and Safety System (GMDSS), which helps to save thousands of lives at sea each year.

Inmarsat's new generation international broadcast and automatic reception service for maritime safety information enables MSIPs to transition their communications to web-based messaging. As a web-based service, SafetyNET II introduces broadcast scheduling, continual monitoring, message cancellation and multiple text input methods, among other improvements.

Following exhaustive testing with six host countries, SafetyNET II is fully available for the delivery of safety-related messages, such as weather forecasts, navigational warnings and piracy alerts. It also provides additional reassurance to ships in distress, by modernising the infrastructure supporting the IMO's GMDSS in a way that can enhance search and rescue operations.

Another enhancement sees the introduction of read-receipts, so search and rescue (SAR) personnel know whether messages responding to distress calls have been picked up. It is a seemingly small change, but one that assists SAR decision-making.

"SafetyNET II is an important and highly effective next generation safety service," said Peter Broadhurst, senior vice president, safety and security, Inmarsat Maritime. "Direct input from MRCCs and other MSI providers was instrumental in developing and refining the solution to fit end-user requirements.

"Most MSIPs are familiar with web-based interfaces which means the training requirement is lower. They can focus on new functionalities, such as the ability to schedule navigational warning repeat messages," Broadhurst added.

MSIPs also often have to work within tight budgets. Using a web-based platform means they do not need to spend on specialised hardware or divert stretched resources for IT upkeep. Inmarsat recognised that the new system needed to be both future-proofed and backwards compatible.

Simulator courses target small port tug operators

A powerful virtual-reality ship simulation system, operated by the Port of Milford Haven in Wales, is running courses to train tugboat operators from across the UK.

The navigation suite, based at Milford Waterfront, creates highly realistic computer-generated versions of any port in the world, giving trainees the opportunity to take the controls of any vessel, including tugboats, to practise scenarios.

Tug skippers from Williams Marine Services of Milford Haven and Southampton and Teignmouth Harbour Commission in Devon spent two days undertaking theory based safety training and working on simulated 'as real' scenarios within the port.

Training focused on the dangers around small conventional tugboat handling, the importance of good communication between pilots and tug handlers, and working in poor weather conditions.

Harbourmaster and CEO at Teignmouth Harbour Commission, Cdr David Vaughan, put some of his team through the course. He said: "Our employees returned from the course with nothing but praise for an excellent, well run and well-presented course. There has been a gap in the market for this

► *The navigation suite simulator operated by the Port of Milford Haven in Wales uses the latest Dolphin software from MARIN*



kind of training for small port tug operators which has now been filled."

Steve Hardcastle, deputy harbourmaster at the Port of Milford Haven, manages the simulation suite.

He said: "This facility enables maritime professionals to get bespoke training in a safe environment. The cutting-edge technology means that any type of incident can be replicated in any location.

"The navigation suite is operated by marine professionals and pilots who have experienced the scenarios that are presented during the exercises, so they are well placed to oversee the training."

The course is overseen by experienced tug professional David Brown of DB Marine, based at Sheerness in Kent.

Built using MARIN's latest software, Dolphin, the navigation suite can introduce additional environmental and hydrodynamic forces, and gives tug or boat masters the opportunity to carry out the towage of single or multiple barge movements either pulling, pushing or 'hipped up' depending on the size of the barge or pontoon.

They work in simulated form on small and some larger ships, understanding and realising the dangers of connecting up, girting and under-the-bow towage.

Procedures will mitigate risk of supply collisions

Aberdeen, UK-based Seacroft Marine Consultants has launched SafeZone 500, a suite of procedures, training, workplace mentoring and audit tools which manage and mitigate the risk of collisions between offshore installations and their attending supply vessels.

SafeZone 500 was developed in response to heightened industry recognition of – and Health & Safety Executive (HSE) focus on – the hazards of operating vessels in close proximity to offshore oil & gas installations. Changing weather, equipment serviceability and, significantly, human factors all combine to create a real risk of collision which requires to be proactively managed.

Seacroft has a 20-year track record of developing safe marine operating procedures for the North Sea industry. It identified an opportunity to deliver a cost-efficient off-the-shelf offering to clients by distilling the combination of regulation and best practice into a set of procedures which could be applied to any offshore installation and its attending OSVs and PSVs.

The resulting programme imposes a set of



procedures, check lists and communications protocols which asserts the installation's positive control over the vessel's movements and confirms that, at all stages, relevant checks have been completed and procedures complied with and that risks are managed fully in line with HSE as low as reasonably practicable (ALARP) principles.

Seacroft technical director, Michael Cowlam, said: "Operating companies can choose to develop their own bespoke solutions, but that is costly.

"Our programme is an innovative, ready-to-use, cost-efficient suite of tools which clients can adopt, assuring their ability to demonstrate compliance to the HSE."

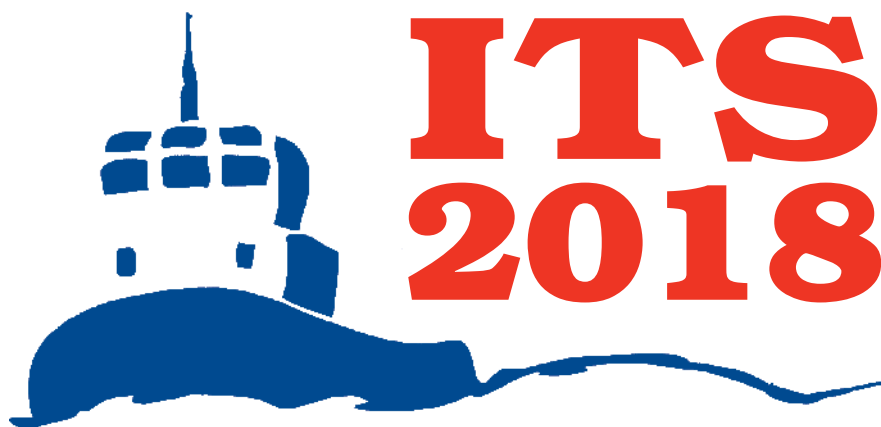
SafeZone 500 principles have already been adopted by several North Sea operating

▲ *A library image of a vessel operating in the Dudgeon wind farm off the North Sea coast of Norfolk, UK*

companies and the associated training successfully delivered to almost 600 key personnel on board installations and vessels across the sector.

Adoption and compliance with the SafeZone 500 principles has also been used by two operating companies to secure closure of two HSE enforcement notices regarding sufficiency of control over vessels in the 500m exclusion zone.

Cowlam said: "We hope more clients will adopt the programme in the UK and other countries as best practice in protecting lives, assets and the offshore environment."



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MARSEILLE

Ultrasonic system a first for company

UK-based NRG Marine has launched Soni8, the company's first ultrasonic anti-fouling system designed specifically for, among others, larger commercial vessels.

Soni8 is the latest product in the Sonihull range that uses ultrasonic anti-fouling technology to prevent marine organisms colonising solid surfaces that are exposed to raw seawater. It has been developed in response to the commercial marine market's demand for a cleaner, more cost-effective way to protect multiple areas and devices against marine bio-fouling.

With eight independent and programmable outputs, Soni8 can protect every part of a vessel or structure and, unlike biocidal coatings and impressed-current systems, it is low cost and low maintenance with zero poisonous environmental legacy. With one panel and eight transducers it can protect all critical equipment inside and outside the hull.

NRG Marine says equipment protected outside a vessel includes hulls, shafts, structures, propellers, water jets, stern drives and steering gear, while inside Soni8 can be used to protect sea-chests, tanks, keel-coolers, box-coolers, pipework, intakes and valves.

Solvent-free spray

US-based Fluoramics is now packaging its popular HinderRUST S4.0 rust stopper and lubricant in an aerosol spray can.

Unlike other forms of aerosol rust stoppers, the product uses a propellant that immediately dissipates upon spraying, meaning it is still solvent-free and safe to use in enclosed areas.



A Hydrex diver buffs a propeller

New propeller maintenance method helps cut fuel costs

Antwerp, Belgium-headquartered Hydrex has developed a new way of maintaining ship propellers to achieve maximum propulsion efficiency.

The traditional approach is to let the propeller foul and build up a calcareous growth and polish the propellers once or twice a year underwater or in drydock. Usually, a grinding disk is used which can potentially damage the propeller blades, removing a substantial amount of metal.

Hydrex founding chairman, Boud Van Rompay, said: "This can alter the shape and efficiency of the propeller, cause roughness and increase, rather than reduce, friction. It is also a major source of marine pollution."

Dave Bleyenbergh, Hydrex production executive, said: "We discovered that more

frequent, lighter buffing of the propeller is the optimum approach to propeller maintenance.

"This is done using a different tool to a grinding disk to buff the propeller before any calcareous layers build up and cavitation erosion impacts efficiency. If done correctly and regularly we can achieve 5 per cent or more reduction in fuel consumption, more than offsetting the maintenance cost.

"As the propeller is being buffed regularly, the cleaning is light and quick. No material is ground away, which is excellent for the propeller and the environment. The propeller is kept in an ultra-smooth condition and this is where the fuel savings are achieved. Many of our customers who have used this service have noticed a remarkable difference in their fuel efficiency after each cleaning."

Portfolio of global satellite services about to go live

Global technology firm Cobham Satcom has unveiled its first Iridium Certus Connected™ terminal, the Sailor 4300. Due to go live in the first half of this year, Iridium Certus is a new portfolio of global satellite services powered by Iridium NEXT, a ground-breaking second-generation L-band global satellite constellation established to deliver global maritime communications.

The Sailor 4300 is a broadband core transceiver (BCX) type terminal, offering a highly reliable link over the Iridium NEXT satellite network with speeds suitable for

data-heavy applications including video conferencing, multi-user internet/VPN, IoT and telemedicine, alongside regular usage including email, electronic forms/reporting and crew communication.

Casper Jensen, senior vice president, Cobham Satcom, said: "The Sailor 4300 for Iridium Certus is designed for users to get the most from Iridium's next generation services. It expands our extensive L-band antenna portfolio and complements Sailor VSAT antennas."

Like Iridium's current satellite constellation, Iridium NEXT features a cross-linked low-



► A Sailor 4300 terminal

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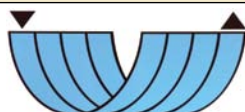
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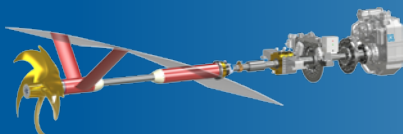

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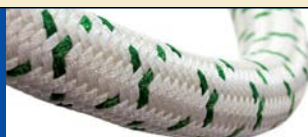
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