MARINE TECHNOLOGY REPORTER

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DOF BRASIL

Eirik Tørrenssen Discusses Growth of a Subsea Giant

AUV Ops

Profile of Dr. James McFarlane Sr., AUV industry pioneer

Seismic Survey

Unconventional wisdom from Atle Jacobsen, Dolphin Geophysical

Deck Machinery

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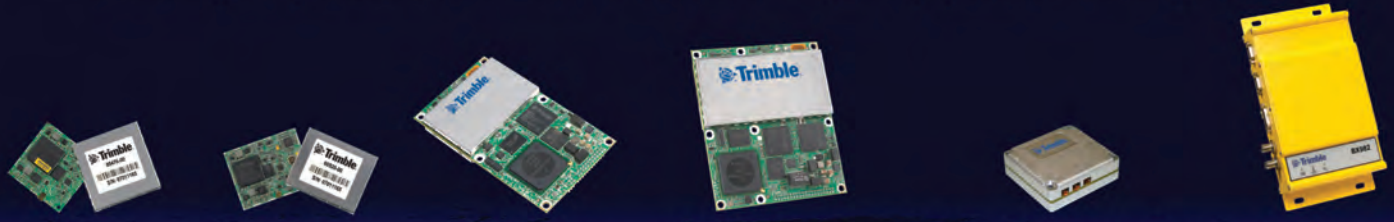

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Blue Thunder

Ulstein Verft recently delivered Blue Thunder, a magnificent PSV for Blue Ship Invest.
Full story on page 14.
(Photo: Ulstein Group/Per Eide Studio)

Credit: DOF

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While subsea technology is an exacting business, publishing tends to be more interpretive, and with that it never ceases to amaze me the direction a particular edition takes. Case in point is this month's cover story on DOF Brasil, a story which quite literally came out of the blue at the last minute when our writer in Rio, Claudio Paschoa, happened to win some time with a very busy man in Eirik Tørrenssen, Country Manager Brazil, DOF Brasil, who discusses insights on the organization's pre-salt operations and the challenges of operating in Brazil, starting on page 28.

The timing of the article was fortunate, too, as it was hot on the heels of the Offshore Technology Conference in Houston, an event which never ceases to amaze. For anyone doubting the resurgence of the oil and gas business globally, the trek to Houston and the second largest OTC ever would help to quickly dispel those doubts. According to show organizers the event attracted more than 104,000 visitors and nearly 2,800 exhibiting companies, a mammoth event in a state where everything is big. OTC again attracted titans of the industry from around the world, and in the multiple hallways there was more than a fair share of new subsea technology on display. Our coverage of this starts on page 32.

Saving the best for last, starting on page 24 we profile a man that is familiar to most every reader of this publication, AUV industry pioneer Dr. James McFarlane Sr. of International Submarine Engineering. Dr. McFarlane and ISE are synonymous with the evolution of the AUV, and Tom Peters, a regular contributor to our pages, does an excellent job of gaining insight and perspective on the 78-year-old icon.

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SeaRobotics: 5.7-m USV to NATO

SeaRobotics delivered an Unmanned Surface Vehicle (USV) in its 5.7-m hull series to the NATO's Center for Marine Research and Experimentation (CMRE). This general purpose USV will be utilized to improve payload capacity and efficiency of the impressive, fully autonomous mine neutralization system developed at CMRE. With more than 350 kg of payload, the ability to be configured as an all-electric or as a diesel-electric hybrid system, and the ability to reach speeds in excess of 5 m/sec, the 5.7-m system will excel in numerous applications. Enhancing its role in mine neutralization operations or many other tasks, the system can ship worldwide in a standard 20-ft. container. The engineered boat trailer doubles as a shipping cart and allows transport of the exceptionally stable USV at a reduced beam on the road or in a container.

The Searobotics product line of USVs includes both 5.7-m and 11-m vessels, both of which can be used in arctic operations.

SeaRobotics' containerized 5.7-m USV to the NATO CMRE.

Deepflight Super Falcon &

Red Bull Founder's Subsea Flight

Hawkes Ocean Technologies said that Dietrich Mateschitz, cofounder of the energy drink company Red Bull, ordered a DeepFlight Super Falcon submersible, a two–person winged submersible craft that will be delivered to Laucala Island Resort, on Mateschitz' private island in Fiji. "We are delighted to be building a Super Falcon submersible for Mr. Mateschitz," said Graham Hawkes, founder of Hawkes Ocean Technologies. "It's very fitting that the co-founder of Red Bull, a company iconic with adventure, will now be connected to sub-sea flight."

"Positively buoyant with a fail-safe return to the surface; launchable from ship or shore; designed for comfort and 360 degree viewing from acrylic domes; and uniquely capable of sub-sea flight, Super Falcon is the culmination of all our work," said Adam Wright, President, Hawkes Ocean Technologies.

Gibdock Refits Seismic Vessel

Gibdock completed a refit of the seismic vessel WG Cook for WesternGeco, one of six 12-streamer 3D seismic ships delivered to the owner in 2010. The 19-day project was completed on time and with no serious QHSE incidents in preparation for WG Cook's deployment offshore Canada for a seismic survey, according to the repair yard. "The project was awarded on a competitive tender basis, while the location of the yard is also favourable for this project," says Mick Richardson, WesternGeco Fleet Technical Manager. "However, our return to Gibdock also reflects our preference for teamwork based on forward planning and our requirement for a strong commitment to QHSE." Gibdock allocated its largest drydock to the project, allowing a variety of yard equipment to be deployed simultaneously. The dock's heavy lifting capability was also a factor, with one of its three cranes being occupied continuously by a 5m exhaust extension and main mast modifications. Docking repairs also included the replacement of the ship's thruster z-drives, box cooler removal, sea chest modification, hull blasting and painting. Particularly demanding was upgrade and modification of WG Cook's hydraulic pipes on two decks, and modification of hydraulic lines after equipment relocation. The WG Cook project included work on hydraulics, so skills available in this trade were a particular focus, with close co-ordination between the ship's owner, the yard and the yard's subcontractors.

HOS Orders MPSVs

Leevac Shipyards Jennings LLC signed contracts with Hornbeck Offshore Services, LLC, for the construction of two STX Marine SV 310 Multi-Purpose Supply Vessels (MPSV), 12,070 BHP diesel electric powered MPSV's measuring 302 x 76 x 26-ft.

The SV 310 is described by the shipbuilder as a complex vessel design with unique characteristics integrated into the design by Hornbeck Offshore to meet a number of subsea inspection, repair and maintenance (IRM) support and heavy lift requirements. It will feature a 250-ton crane provided by Cargotech, and will be powered by four Caterpillar Model 3516C Tier 3 IMO II Marine variable speed diesel propulsion generator sets rated at 2250 kW each.

The propulsion drives and thrusters are being provided by Schottel. GE Power Conversion is the vendor for the integrated electrical system, power management, vessel control, DP-2 systems, machinery alarms, power and propulsion systems. Marine Interior Systems has been selected for the joiner work and Marine Aluminum will be providing the helideck system rated for a Sikorsky S-92 helicopter. The vessel will be built to ABS, USGC and SOLAS classifications. Additionally, will be ABS Classed with the A1 Offshore Support Vessel (FFV-1) notation for off ship fire-fighting capabilities and SPS (Special Purpose Ship).

Leevac is currently building two Z-Tech 2400 Class Escort Tugs for G & H Towing Company, one MMC 879 PSV, two LDS 300 DE PSV's for Tidewater Marine, and two LDS 270 DE PSV's for Aries Marine.

TACOS Tech for Crucial Ocean Measurements

Scientists at Scripps Institution of Oceanography at UC San Diego, in collaboration with two private industry firms, are developing what they tout as breakthrough technologies to capture information from the oceans. Scripps researchers John Orcutt and Jon Berger have developed a MOU with Horton Wison Deepwater (HWD) and John Crane Production Solutions (JCPS) in developing new, stable and long-lasting ocean buoys with sensors moored to the seafloor to measure ground motion, water column pressure, pH, current speed and direction, optical and acoustic backscatter, salinity, temperature, and myriad other variables over extended periods of time. Placing sensors on traditional platforms and ships capable of making these measurements is expensive and the sensors themselves tend to lack the necessary stability needed for long term monitoring. The newly designed 'taut-moored array' will be moored to the seafloor, outfitted with a renewable energy power supply and fiber optics, with data relayed through a surface antenna. The Tendon Anchored Composite Ocean Spar, or (TACOS), designed by HWD and Scripps, has the potential to support a number of deep-water instruments with minimal installation costs.

A key to the TACOS design is the replacement of the currently used multi-legged mooring between the surface and the seafloor with a single, economical tether, which restricts buoy motions. JCPS specializes in the 'pultrusion'of very strong, composite tendons, which involves running a number of glass or carbon fibers through a die, where an adhering resin is infused to secure the fibers in a particular orientation. The rod is pulled at such a rate that the adhering resin can set during the procedure. The resulting members have enormous strength in tension and are resistant to corrosion and biofouling. The researchers estimate the total project cost will be $3.7 million, which includes project funding development, system design and fabrication, installation and operation in Southern California waters for one year.

MacArtney Upgrades SAAB ROV system

MacArtney Norge has a long standing relationship with ROV manufacturer SAAB Seaeye, working together on numerous projects related to the production, maintenance and sale of the versatile Sea Owl 500 observation class ROV system. Now MacArtney and SAAB Seaeye have developed an upgraded XTi. The Sea Owl system was developed by SAAB in the early 90's and applications include observation and inspection of subsea installations and light work tasks in challenging environments. The primary market for the Sea Owl is firmly rooted on the Norwegian Continental Shelf and the XTi has been developed to meet the requirements of operators who perform subsea work on behalf of, for instance, Statoil. Among the new features, the XTi boast a 360 degree control program (6 DOF), a 3000m depth rating and a 400m tether length on the top-hat TMS. In addition, the SAAB Seaeye ICON control system enables easy integration of sensors.

BMT Delivers Metocean Support for Total Norge

BMT ARGOSS (BMT) completed an evaluation of meteorological and oceanographic environmental conditions for the Martin Linge field in the Norwegian sector of the northern North Sea. BMT's assessment also included the installation routes of associated subsea assets, a submarine power cable to Kollsnes (Norway) across the Norwegian Trench via the Troll field, a fiber-optic network to Huldra and a pipeline to the TP1 tie-in point.

The Martin Linge gas field (formerly known as Hild) is situated between Norwegian Licence Blocks 30/4 and 30/7, approximately midway between the Shetland Islands and the Norwegian coast, in approximately 115 m water depth. The Huldra and TP1 sites are in equivalent water depths and a spatial review of the western study area was completed to check the validity of using the Martin Linge Criteria at these three sites.

SSN 783 Completes First Sea Trials

Huntington Ingalls Industries said that the newest Virginia-class submarine, Minnesota (SSN 783), completed alpha sea trials, which are the boat's first round of at-sea tests and evaluations. Minnesota is being built at HII's Newport News Shipbuilding (NNS) division.

All systems, components and compartments were tested during the trials. The submarine submerged for the first time and operated at high speeds on the surface and under water. Minnesota will undergo two more rounds of sea trials, including one with the Navy's Board of Inspection and Survey, before delivery, which is approximately 11 months ahead of its contracted delivery date.

Minnesota, named to honor the state's residents and their continued support of the U.S. military, is the last of the block II Virginia-class submarines and is in the final stages of construction and testing at NNS. Construction began in February 2008, and the keel was authenticated in May 2011. The boat was christened Oct. 27, 2012.

Above: The Virginia-class submarine Minnesota (SSN 783) successfully completed alpha sea trials, its first round of at-sea tests and evaluations. Minnesota is being built at HII's Newport News Shipbuilding (NNS) division.

Ulstein Delivers PSV

(Photo: Ulstein Group/Per Eide Studio)

Ulstein Verft delivered Blue Thunder, the fourth of six medium-sized platform supply vessels of the PX121 design from ULSTEIN to Blue Ship Invest, on May 13, 2013. Owned by Blue Ship Invest, a wholly-owned company in Ulstein Group, the PSV is commercially and technically under the management of Atlantic Offshore. It will enter a four-month contract with Statoil, with four monthly options. In the North Sea, PSVs of the PX121 designs are considered medium-sized. The vessels with this design have an optimal combination of fuel-efficiency and deadweight. They have the capacities and performance close to the segment for larger PSVs, but at a cost that provides excellent value-for-money. Blue Thunder measures 83.4 x 18 m, and is designed for a maximum speed of approximately 16 knots. It has a load capacity of 4,200 tons (dwt), and the 850 sq. m. cargo deck can carry a deck load of 2,200 tons. In addition to tanks for oil, water and drilling fluids, the vessel has four stainless steel tanks for flammable liquids. Blue Thunder has modern accommodation for 23, and is equipped with a dynamic positioning system IMO class II and meets the requirements of DNV's Clean Design notation.

(Photo: Ulstein Group)

From left: Captain Jan Gunnar Forland, managing director Ulstein Verft Kristian Sætre, lady sponsor orild Bugge, managing director Blue Ship Invest Lars Lühr Olsen and project manager Per Svein Brekke.

(Photo: Ulstein Group/Per Eide Studio)

Vard, Cummins with Cochin Shipyard PSV

The Sea Tantalus is the first of a series of Vard Group (STX) designed platform supply vessels being built at Cochin Shipyard Ltd in India. The distinctive hull configuration is being built in countries around the world and the Indian version is the first of four from Cohin.

At 82.2 x 17-m the Sea Tantalus has a 7.6-m depth at the main deck. Built to DNV standards, including "clean notation," the new vessel employs diesel-electric propulsion. Power is provided by four 1635 hp (1,200 kW) Cummins KTA50-DM1-powered electrical generators. These provide power to a wide range of electrical needs of the vessel as well as the twin 2,100 mm azimuthing thrusters each of which has a 1,600 kW in put requirement.

Other class notations include: COMF for low noise and high comfort in the 28-member crew accommodations, Fire Fighter-1 for fi-fi capabilities, OILREC for the vessel's oil recovery potential, and LFL* as the vessel can safely carry liquids such as methanol in specialized stainless steel tanks.

With a design speed of 14-knots, the Sea Tantalus has tankage for 1,000 cu. m. of fuel, 1,050 cu. m. of water and 250 cu. m. of lube oil. The cargo deck has a 2,100-ton capacity. Engines and engine application support was provided by Cummins Korea.

The Sea Tantalus shortly after launching at Cochin Shipyard. It is the first of a series of Vard Group (STX) designed platform supply vessels being built at Cochin Shipyard Ltd in India.

Kongsberg Seismic Vessel Deck Handling Deal

Kongsberg Evotec AS, a Kongsberg Maritime company, will provide the complete back deck solution for handling of up to 20 streamers simultaneously aboard a GC Rieber owned new-build seismic exploration vessel, awarded by builder Kleven.

The ST324XT designed by Skipsteknisk in Ålesund, will be built at Kleven's shipyard Myklebust Verft in Sande, Norway, and will be operated by Dolphin Geophysical from Bergen. The vessel can tow up to 20 streamers and features an advanced technology for handling of cables, wires and ropes. Each streamer winch can contain up to 12,000m of streamer cable, giving this vessel high 3D capacity.

The delivery comprises all the back-deck equipment needed for safe and efficient handling of all on board seismic equipment. Delivery of the full back-deck handling system is expected to start in spring 2014.

www.km.kongsberg.com

Rolls-Royce Delivers for WesternGeco

Rolls-Royce delivered advanced deck machinery system for a highly specialized new Amazon-class seismic research vessel for WesternGeco, which is under construction at Flensburger Shipyard in Germany. The contract includes the supply of a control and back deck system for towing and handling of 18 streamer cables and a range of towing and handling equipment and special winches needed for in-sea deployment and seismic surveys. The innovative system is automated and remotely operated to ensure safe and efficient handling, making it amongst the most reliable on the market. The vessel measures 127 x 32m and is expected to operate around the world.

Vestdavit Besiktas Seismic Chase Boat Davits

Vestdavit was contracted to supply work boat and man overboard davits for four specially designed chase vessels which will support Norwegian seismic major PGS' fleet of seismic ships. The ships are to be built at Turkey's BEŞIKTAŞ GEMI İNŞA A.Ş. yard for Faroe Island shipowner P/F Thor, which has chartered the vessels to PGS.

Vestdavit Area Sales Manager Sven Arild Wågsæther said, "The workboat davit for each vessel will be our PLR-15,000 davit with a SWL of 15 tons. These are the largest single-point lifting davits we have designed. We see seismic work boats becoming larger and larger, and operators need a simple but robust and reliable davit which will launch and recover heavy workboats safely in tough conditions, day in and day out. This davit will consistently and safely handle a loaded workboat in sea states up to 4 / 5, and is both easy to maintain and simple to operate." Thor's 64 m chase vessels will be delivered beginning 2014 and enter service to assist PGS operations worldwide. Key tasks are operational support, offshore bunkering, crew change assistance, replenishment of provisions and spare parts, and maintenance of seismic equipment while at sea. Support capabilities include Ice Class 1A, passenger capacity for transporting a full seismic crew, extra work boat, towing, and fuel and fluid transfers. In addition to the PLR-15000 davit each vessel will also be equipped with a Vestdavit PLR-7000 davit for man overboard boat handling.

HoOK R&D

Project Examines Offshore Crane Ops

With funding from the Federal Ministry of Economics and Technology and supported by "Projektträger Jülich" (PTJ) [project sponsors Jülich], over the next three years Hamburg University of Technology, Mareval AG Hamburg and the maritime engineering company HeavyLift@Sea will conduct research into the improvement of tools for the simulation of offshore crane operations. The project is named HoOK - Hochseeoperationen mit Kranen [Offshore Operations with Cranes]. The goal is the early integration of the necessary tools into the design and planning process of ships – an essential requirement to promote innovations and international competitiveness in German specialist shipbuilding.

"We want to develop a simulation tool which enables the optimization of the whole system of ships with cranes even at an early planning stage," says Hendrik Gröne, Managing Director of HeavyLift@Sea, about the objective. "Until now the simulation of crane operations on a moving ship has hardly been discussed in ship building technology studies and has not been considered in design. The existing processes for investigating the combination of cranes and ships under loads and at sea are inaccurate or not suitable for practical application. So an advance in this area is now urgently needed for the offshore sector, which is crucial for the future of German shipbuilding. This would result in significant optimization, for example in the transport and installation process for offshore wind farms."

HeavyLift@Sea, with its headquarters in the HafenCity quarter in Hamburg, is a maritime engineering company with a particular focus in the heavy cargo shipping sector and offers its customers services including simulations of the optimum balance and the movement of the ship, crane and cargo in a variety of applications. The ten-strong team under founders Lars Rolner and Hendrik Gröne takes on projects from the design of individual hoists to the development of entire, complex special vessels.

In the research project, scheduled for three years, HeavyLift@Sea will contribute its experience of practical challenges. The company has software tools for creating ship designs, and answering questions relating to ship design and the operation of ships.

Mareval AG is the coordinator of the research and development project, taking on the tasks of modeling the crane and the loads arising from the environmental conditions. "Even though crane operations are highly significant in offshore technology, there is a shortage of simulations and calculation tools with which they can be analyzed in the early design phase of a crane ship, or in the early planning phase of an offshore deployment. These kinds of tools are needed in particular in order to be able to identify and enhance potential cost reductions in the installation of offshore wind farms," said Dr.Eng. Hendrik Vorhölter from Mareval AG. "After completion of the project at the beginning of 2016, Mareval AG will be even better able to support its customers in planning offshore deployments and choosing and developing suitable equipment."

"We believe that the transition to energy from offshore wind farms can only succeed if more shipbuilding expertise is incorporated," said Prof. Stefan Krüger from the Hamburg University of Technology (TUHH). "Heavy cargo ships, like those developed by HeavyLift@Sea and Mareval, are also suitable in principle for carrying out construction work for offshore wind farms, if it is possible to calculate with some reliability the transfer of heavy loads in wind and waves. We shipbuilders are confident that we can contribute to the project and in doing so increase the competitiveness of the industry partners, and also gain important basic knowledge for research and training at TUHH. This is exactly what makes the project so attractive." The joint project is funded by the Federal Ministry of Economics and Technology from the funding program for Next-Generation Maritime Technologies.

www.heavyliftatsea.de

JonRie for New ASD

JonRie supplied deck equipment has been commissioned on the new ASD Aura from Great Lakes Shipyard, Cleveland, Ohio. The new Tug is a Jensen designed ASD 4650 HP complete with a JonRie Series 220 Double Drum hawser winch on the bow with a capacity of 150m of 60 mm line, a line pull of 15 tons, a line speed of 30 m/m and a brake with capacity of 200 Tons. The winch features JonRies hands free foot control, Active Heave Compensation and a Tension Readout system for every drum with night vision dimming control. On the Stern is a JonRie Series 421 Capstan with a line speed of 10 m/m and a line pull of 10 tons. The controls are all in house JonRie Designed and supplied along with Hydraulic Power Unit also designed and provided by JonRie.

MacGregor Wins Multiple Offshore Winch Orders

MacGregor offshore winches have been specified for a run of new-series small and medium AHTSV development in the 60-65 m range.

MacGregor, part of Cargotec, has secured new offshore winch contracts from three Chinese shipyards, Fujian Southeast, Fuzhou Baima and Guangdong Yuexin Ocean Engineering. The winches are destined for 22 anchor handling tug supply vessels (AHTSVs) under construction for a number of international owners. "Our offshore winches have been specified for a run of new-series small and medium AHTSV developments in the 60-65 m range," says Francis Wong, Director, Segment Sales and Marketing at MacGregor. "Most of these vessels have enhanced equipment and vessel specifications in response to the increased demands from charterers and oil companies in the South East Asia and Middle East regions. These include DP2 capabilities, increased bollard pull and more deck space." The scope of deliveries includes windlasses, mooring winches, capstans, tuggers, anchor handling/towing winches and storage reels; some of the vessels will also be fitted with MacGregor shark jaws/towing pins. Deliveries will begin in August this year and will continue at intervals until March 2014.

900-ton MacGregor AHC Subsea Crane

Cargotec's MacGregor received a EUR 22 million order to deliver a 900-ton active heave-compensated (AHC) MacGregor subsea crane to the South Korean shipyard, Hyundai Heavy Industries Co Ltd. It will be installed on a 150m multi-purpose offshore construction vessel (MOCV) ordered by Sealion Shipping, on behalf of Toisa Ltd.

"This is the largest active heave-compensated MacGregor offshore crane that has been ordered," said Frode Grøvan, Director, Sales and Marketing for Advanced Load Handling. "At a time when subsea modules are getting larger and heavier and operations are being conducted at ever greater depths, a sophisticated crane on this scale equips the new vessel to meet the ever increasing demands of the offshore construction market."

www.seadiscovery.com

Unconventional Wisdom

Atle Jacobsen

CEO, Dolphin Geophysical

By Alan Johnstone

Atle Jacobsen the CEO of Dolphin Geophysical, is, in many ways, a bit of a paradox. An experienced, no-nonsense, veteran of the marine seismic surveying industry, he is also disarmingly easy to 'talk shop' with, engaging and has an obvious thirst for new ideas and technology. But the core contradiction lies in his approach to business.

This is a man that shows no qualms about ripping up the rulebooks and making brave decisions, but at the same time there is a steadfast caution that underpins the very essence of the Dolphin business model. It is bold, yet calculated – leaping in new directions, but ensuring that it has prepared the ground for a comfortable landing in advance.

It's an approach that is paying huge dividends, with revenues for 2012 (only the firm's second full year in business) standing at $221.3m (a 50% increase on the previous year), while profits hit $40.6m before tax. From out of nowhere Dolphin is now the fifth biggest player in the competitive marine seismic marketplace. Here's how:

Low assets, high potential

Jacobsen, formerly the CEO of seismic operator Wavefield Inseis (which he sold to CGG Veritas in 2008), saw the opportunity for a new seismic company in 2010, just when the sector was hitting a low point. Oil prices were around $70 a barrel, E&P spending was suffering as a result and seismic stock was, to put it mildly, unattractive.

"That's when I saw the potential," he says, from the HQ of Dolphin Group AS in Bergen, Norway. "The market was depressed, but there was, I believed, gathering evidence of an upturn. Myself and my partners knew the seismic business inside out and decided to take advantage with a new kind of company, founded on a financially cautious business model."

Jacobsen made the novel decision to invest in people instead of steel: recruiting experienced seismic minds, while chartering, rather than owning, a fleet of high-tech vessels. This asset-light model would, he believed, allow the company to remain limber enough to constantly adapt to the market, seeking fresh opportunities and optimising revenues, whatever the conditions.

"I wanted to be in the position where we could upscale and, if needed, downscale our fleet whenever necessary. The long-term charter agreements (between three and five years) allow us to do that. In addition, this gives us the luxury of being less capital intensive than many of our competitors, while we can also cherry-pick the very best high-end vessels for our seismic fleet. It's a win-win."

Cynics might argue that not owning the steel provides less long-term security, but, in a constantly fluctuating market, Jacobsen disagrees. "I don't see the disadvantage," he said. "We have been careful to forge very strong relationships with our charterers – for example with Sanco and GC Rieber (Dolphin is anticipating the delivery of the newbuilds Sanco Swift in Q2 2013 and Sanco Sword in 2014, while it ordered the refurbished "Geo Atlantic" and newbuild "Super Duke" from GC Rieber earlier this year) – where we understand and respect each others needs.

"We're reliable partners for one another and this gives us all the stability the business requires, while giving our customers the most cutting-edge, operationally excellent seismic fleet on the market."

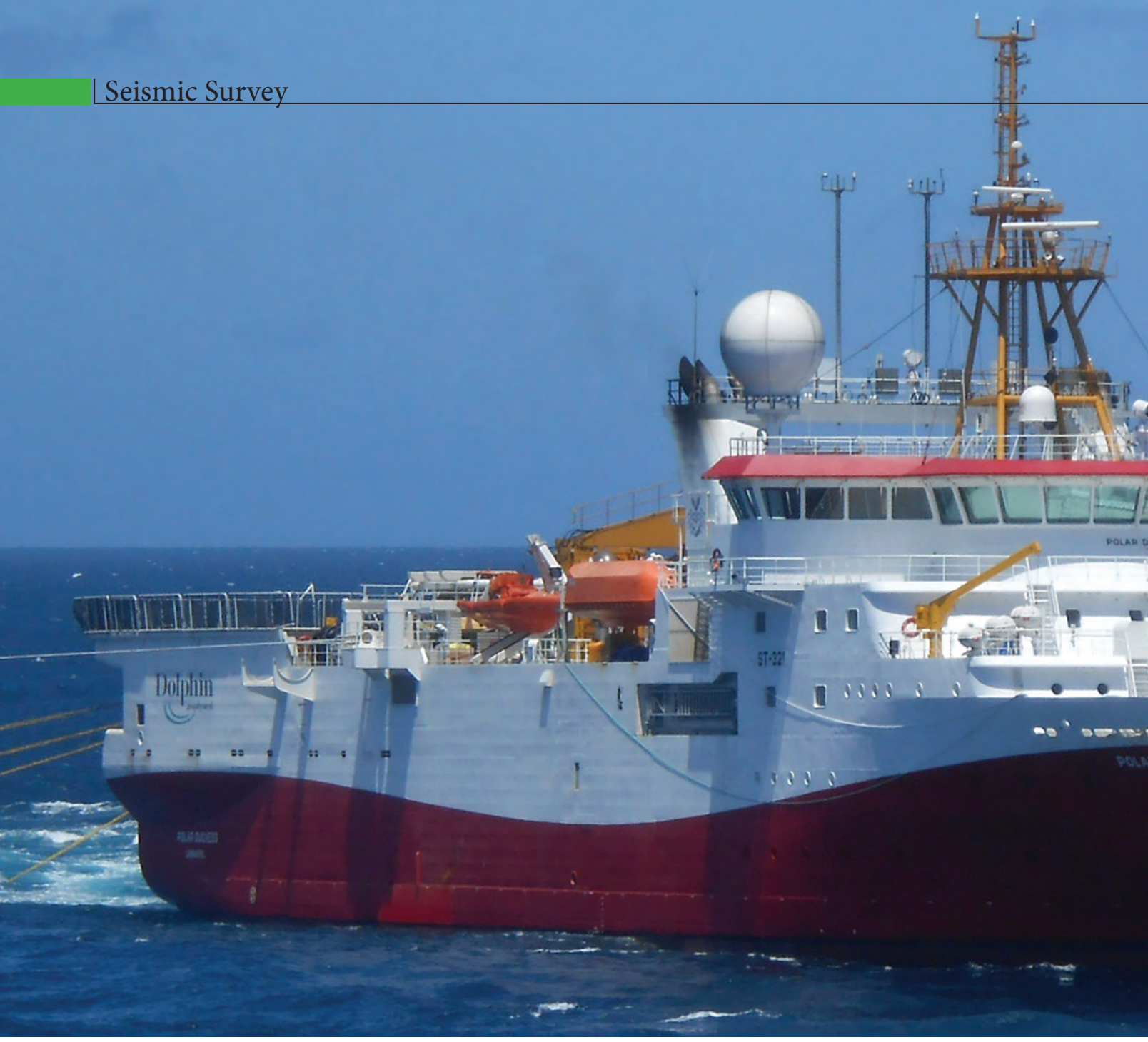
Investing in the future

Although the vessel investments have been "cautious," the capital injected into the business has been sufficiently gener-

Atle Jacobsen Fact File

Home:	Bergen, Norway
Education:	MSc. in Nautical Engineering from NTH in Trondheim
Experience:	CEO of Wavefield Inesis, SVP of Marien Product Line at CGGVeritas, offshore experience with contractors including PGS and Stolt Offshore.
Best business achievement:	Gazelle Award 2008, Wavefield Inseis
Future Plans:	Continuing to build Dolphin as a full service marine seismic operator, with a good mix of contract and Multi-Client activity, and the most high-end, operationally excellent fleet in the sector.

www.seadiscovery.com



ous to fund ambitious expansion.

Through a mixture of bank lending, bond activity and stock market equity moves (Dolphin is listed on the Oslo Stock Exchange), the firm raised $141m in 2012 to facilitate its growth, particularly in the Multi-Client and Processing fields.

The Processing division of the firm saw a startling evolution last year – with an onshore centre opening in London, onboard processing rolling out across the entire fleet, around 40 new members of staff and the purchase of Open Geophysical in Houston, the developer of the OpenCPS seismic software product – while Multi-Client saw investment levels reach $63m.

Jacobsen sees this diversification away from pure survey data acquisition as a key building block for Dolphin's sustainable success.

"This kind of strategic investment provides value both for the business, and for the levels of service we provide to our client portfolio (which now includes names of the order of Shell, Statoil, TGS, Oil India and ONGC).

A growing 3D and 2D Multi-Client data library gives us long-term, proprietary, marketable assets, while processing allows us to get the optimum value out of this, keeping everything in-house, and gives our clients the services they need.

"It's this broad base," he said, "that allows myself and the rest of the executive management team to plan for long-term sustainability in what we know, from our own experience, is a very cyclical industry."

People first

Jacobsen, who has over 19 years experience of the industry, is planning further growth for Dolphin this year (he's set his sights on revenues of $300m for 2013), but plans to stay true to the principles he founded the business on.

"I invested in people first and foremost, because over the years I've learnt that they're the greatest asset in this industry," Jacobsen opines.

"Anyone can buy seismic equipment, or charter vessels, but you don't get anywhere unless you have the talent and the experience to read, understand and adapt to this industry."

He continues: "I've surrounded myself with the right people and that's the reason Dolphin has developed so rapidly.

From the outside it might look like we've made some bold decisions, but thanks to the experience on the team, they've always been well-informed ones."

And there's nothing contradictory about that.

Industry Pioneer

Dr. James McFarlane Sr.

International Submarine Engineering Ltd.

by Tom Peters

In October, 2011 Dr. James McFarlane Sr. was presented with the Diver Certification Board of Canada's Lifetime Achievement Award. Prior to receiving that honor, Dr. McFarlane had received numerous awards over the years for his work in developing underwater manned and robotic vehicles and supporting equipment. But it was the comments made by David Parkes, the DCBC's chief executive officer at the presentation, that gave a more defined picture of Dr. McFarlane than the award itself.

"Jim's underwater-orientated technical contributions to Canada and the world are almost beyond compare. In just one field of underwater work, Jim has been part of engineering teams that have designed and built more than 400 robotic manipulators and over 200 vehicles," Parkes said.

For the past 38 years or so for Dr. McFarlane it has been all about creating, designing and building underwater vehicles and support systems. He started his own company, International Submarine Engineering Ltd. (ISC), in 1974 to establish a presence in the underwater industry but even before that, during his 18-year stint in the Canadian Navy, he had been involved in building submarines. Knowingly or not, that work obviously charted the career path for this bright entrepreneur from Canada's West Coast.

"On Nov 18, 1952, I joined the navy to see the world," Dr. McFarlane said in a recent interview with MTR. He was sent to Nova Scotia for basic training at CFB Cornwallis and then to CFB Shearwater where he became a navy pilot and certified on the Grumman Avenger and the Hawker Sea Fury.

He chuckled as he referred to himself as "an ordinary seaman/naval airman standard."

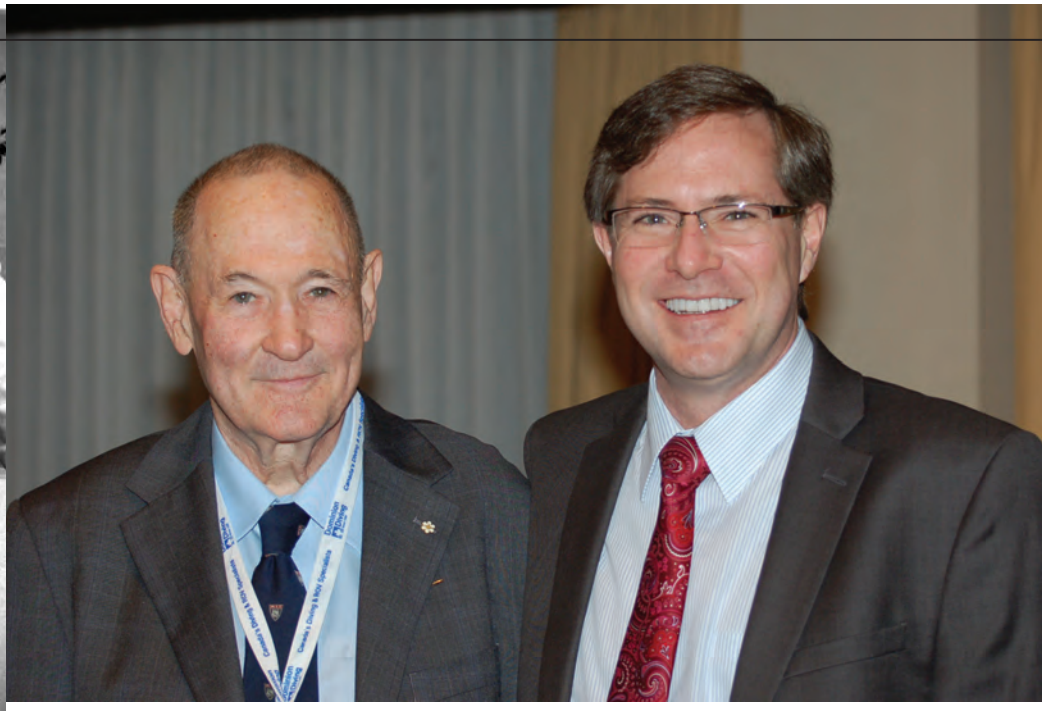
However, during his last years in the navy "I was building submarines in the Chatham Dockyard (on River Medway) in England. By that time I had gone to the University of New Brunswick and MIT in Cambridge (MA). I had already gotten a ticket for driving ships and I was an engineer as well, so I went to England as a constructor of the Oberon class submarines we had in the Canadian Navy for 35 years," he said.

When he returned to Canada he was posted in Ottawa and his work with submarines continued which really set his future path.

"They (navy) were looking at ways of increasing the diving capability and there were discussions of manned subs at that time and there weren't really any to speak of. I got involved with the acquisition of one here on the West Coast and I just got involved (in the industry). I left the navy after 18 years and started building manned subs. Then 38 years ago I started ISC to build tethered remotely operated vehicles (ROV) and then started autonomous vehicles (AUV) and all sorts of other kinds of contraptions," he said.

Sandwiched between his retirement from the navy and the startup of ISE, Dr. McFarlane joined International Hydrodynamics as vice-president of engineering and operations. He had personal responsibility for the development, construction, trials and operations of the company's submersibles, ancillary equipment and launch and recovery equipment.

Today, ISE and a sister company ISE Research, employ approximately 75 people. The company is based in Port Coquitlam, BC, and develops and builds ROVs, AUVs, manned



James McFarlanes, Jr. & Sr., left circa 1980 & above today.

submersibles, robotic manipulators, semi-submersibles, computer control systems and unmanned surface vessels.

The development of these various forms of underwater equipment and systems is relatively new in the world of industry. Dr. McFarlane, highly regarded around the globe for achievement and innovation in this fledgling business, basically got in on the ground floor. He is often recognized as a pioneer in this field.

However, he modestly doesn't look at his career and achievements as groundbreaking.

"Well, when it's ongoing it is hard to evaluate what's going on. Things are moving right along and it is certainly an adventure," he said. But the 78-year-old McFarlane does recognize the fact his company's work has helped revolutionize underwater work and exploration.

"If we hadn't done it, it would never have been done," he says.

The company's record speaks for itself. Over the nearly four decades the company has achieved many firsts. The first commercial ROV in the North Sea in 1976; the ROV TECH ends divers walking inspections of pipelines in the Gulf of Mexico in 1979; the first sub-sea blowout inspection on the Ixtoc-1 in 1979; the first semi-submersible autonomous underwater vehicle Dolphin in 1981 developed for military applications; the first AUV survey ever done in 1982 followed by the longest AUV mission under the ice with AUV, Thesus in 1998.

The "adventure," as he states, has put ISE at the forefront.

"We started the ROV business pretty well in the world really. We did the first job on the Piper Alpha pipeline (in the U.K.) 30 some years ago and from there I decided that there was going to be a market for autonomous vehicles. I conceived a couple of different kinds and we got money from the Canadian government for opportunities they foresaw as things they wanted to do," he said.

The development the autonomous vehicles has proven invaluable especially in the Canadian Arctic.

ISE built two built two AUV for Defense Research and Development Canada which were used in collaboration with other federal departments such as National Defense and Fisheries and Oceans in the Arctic to gather data which will used in the establishment of Canada's undersea boundaries in the North.

"It (collecting the date) it was something that could only have been done in Canada because nobody else had the tools to do it," Dr. McFarlane said.

The two, cylindrical shaped AUVs built for the Arctic project were each about seven meters long and weighed around 2,000 kg. They had a propeller on the back and six small wings, four were located on the tail and two at the mid-point. These fins enabled the AUVs to fly through the water. They were powered by lithium ion batteries that could be recharged underwater and charge could last for missions as long as 350 – 400 kilometers.

Dave Hopkin, section head, Maritime Assest Protection, Research and Development Canada Atlantic, said in an interview, the two AUVs were invaluable in collecting data that could not have been done with an icebreaker or any other equipment in the Arctic environment. The work done by the AUVs under the ice was to investigate under ocean territory exceeding the 370 kilometers a country automatically gets as an exclusive economic zone.

Hopkin, who has worked on past projects with ISE, said ISE is unique in that they will work with a client to customize the

equipment, which occurred in this case when the two AUVs were constructed. This equipment was also unique in that it was very portable. It was built in modules which allowed for it to be dismantaled for transportation purposes and then reassembled.

Dr. McFarlane sees the development of autonomous vehicles as the greatest advancement in the industry thus far.

"We have them down to 5,000 meters," he said, depths where divers can't go. Plus, he adds, "these tethered vehicles give you real time pictures and you are working as if you are there but you are unable to cover the kind of territory you can cover with autonomous vehicles."

And, going forward, he says there is a strong future for the AUVs as the industry finds a greater diversity for their application.

"I think what's going to happen is a greater diversity of platforms and greater diversity in the applications there of but I do seriously think the exploration of ocean floor for metals and methane is going to prove to be very major work," he said.

"Methane can be used in automobiles and there are indications that it is all the way round the world so that has its charm. But I really don't think we know all the possible applications yet," he said. In an amusing anecdote concerning methane, Dr. McFarlane referred to country singer Wilf Carter, a native of Aulac, New Brunswick, who wrote a song during the Second World War that was called "When the Ice Worms Nest Again."

"It was played a lot actually but about 10 years ago in the Gulf of Mexico they discovered worms on methane ice," said Dr. McFarlane and with a hearty chuckle "we said we knew that in Canada years ago, Wilf Carter used to sing about it."

Dr. McFarlane said his company's business is expanding and becoming more international. China and Japan are now markets but noted some caution in dealings with China.

"We can sell stuff to them as long as it isn't massed produced," he said. But meanwhile ISE has completed construction of four autonomous vehicles for Japan "and we have got more underway and we have got one underway for China." Dr. McFarlane noted a growing demand for underwater vehicles and equipment with a specific emphasis on equipment for deep water.

At 78 Dr. McFarlane, who is president of ISE, remains active in the daily workings of the company. There is an enthusiasm in his voice when he speaks of its accomplishments and what the future may hold, so it is highly unlikely this industry pioneer - whether he likes that label or not - is about to leave anytime soon.

(Photo: DOF)

DOF Brasil

Skandi Vitória, the largest PLSV ever built in Brazil.

During a recent tour through the region, Claudio Paschoa, MTR's Contributing Editor in Brazil, was able to post some questions to Eirik Tørrenssen, Country Manager Brazil, DOF Brasil. With offices in the O&G hubs Macaé and Rio, Tørrenssen is hard to corner, but between trips and meetings he managed to provide insight of DOF Group Brasilits pre-salt operations and on the challenges of building large OSV's in the country.

By Claudio Paschoa

Eirik Tørrenssen and wife at the launching of Skandi Iguaçu at the STX Shipyard in Rio

DOF ASA is an international group involved in the ownership and operation of a fleet comprising supply and subsea vessels, and also owns service companies for the subsea market. The Group has a modern fleet with an average age of approximately six years. The fleet (wholly/partly owned) is comprised of 74 vessels (20 AHTS vessels, 24 PSVs and 30 CSVs), of which 69 are in operation and five are currently under construction, due for delivery in 2013 and 2014.

DOF Group Brasil is the arm of DOF ASA in the Brazilian region, comprised by Norskan Offshore and DOF Subsea Brasil that has the strategy to deliver integrated services for the offshore industry.

In this context, Norskan (established in Brazil in 2002) is the responsible for the main technical management and operation of the fleet and DOF Subsea Brasil (established in 2006) provides highly specialized subsea services. Today DOF Group Brasil operates 25 vessels (5 PSV, 11 AHTS, two PLSV, 7 CSV) in Brazil, with three vessels being built, as well as a fleet of 14 ROVs. Of its 25 operating vessels 12 were built in Brazil, leading the construction of state-of-the-art vessels in Brazil with assets like Skandi Salvador – the first construction vessel built in Brazil; SkandiVitória and SkandiNiterói – the first two PLSV's built in Brazil (the only Brazilian build PLSV's); and Skandi Amazonas and SkandiIguaçu, which are the biggest AHTS's ever built in the country.

Has the requirement for Brazilian content posed any particular challenges in the building of these vessels?

We have been able to meet such requirements. But we think that this discussion is important, and we understand the government has a legitimate concern to reinforce and stimulate the Brazilian industry development in this sector.

What is the situation regarding sourcing qualified crew to man these vessels?

The lack of enough qualified personnel is an issue that affects the entire O&G industry, not only in Brazil, and when it comes to the maritime sector the situation is really challenging due

to a lack of experienced seafarers. The Brazilian nationality requirement poses additional challenges, and we would be in favor of a relaxation of the regulation for a period of time to ease the pressure on the industry.

Could you highlight any areas of technical innovation that you feel DOF are pioneering in Brazil?

As mentioned before, we have been pioneering in regards to building high-end vessels and subsea equipment in Brazil in an effort to match the challenges of higher depths and operations in harsherenvironments due to the pre-salt discoveries. Our assets reflect theseprospects of the industry.

How is DOF Group Brasil relationship with STX shipyard?

We have a long term relationship with STX OSV Niterói and they have built nearly all our Brazilian vessels.

What are DOF Group Brasil future plans for shipbuilding in Brazil?

We still have 3 AHTS's being built with STX Niterói to be delivered. SkandiUrca has performed the technical launch last year and is expected to be delivered until Q3 2013.

Could you tell us how the transition from the old Norskan ownership was done and what changed in the company now under full DOF management?

Norskan was originally a joint venture between Solstad and DOF but today Norskan Offshore is a 100% DOF ASA Company.

What are some of the subsea support systems you carry in your fleet?

Skandi Salvador: Brazilian Flag vessel with 140 ton AHC crane, two WROV's on board, Hipap system and a spread of positioning survey equipment

- Skandi Santos: 250 ton AHC crane, two WROV's, one Observation ROV, a tower to deploy a christmas tree;
- Geograph: Survey vessel with MultiBeam hull mounted, one WROV and one Observation ROV, 40 AHC crane;
- Geosea: IRM and light construction vessel, one WROV, 40 ton AHC crane, 10 ton AHC winch, A-frame;

DOF vessels anchored in Guanabara Bay Rio de Janeiro.

(Photo: Claudio Paschoa)

How about on new AHTS vessel?

Skandi Iguaçu is the biggest AHTS built in Brazil to date. Skandi Iguacu has above 32,000 BHP installed and a bollard pull of 324 tons, which is far beyond any other anchor handler built in Brazil. The volumetric capacity for the winches is the highest capacity which Rolls-Royce has delivered to an anchor handler. Rolls-Royce is one of the main producers in the world for this equipment. Skandi Iguacu is constructed according to the DNV Clean Design notation, which stipulates requirements for controlling and limiting operational emissions and discharges.
These requirements cover the most important environmental aspects.

What are the technical advantages it provides?

The SI is a new generation high powered anchor handling vessel designed for field installation operations across a wide range of water depths and environmental conditions. It is outfitted with the latest equipment within safe AHTS operations, such as the largest AHTs winches, cargo rail cranes with manipulators and new systems for handling rig anchors at stern.

Why is it capable of reducing fuel consumption?

It has a hybrid propulsion system combining a well proven conventional diesel engine, direct driven reduction gear boxes and CP propellers with a diesel electric system.

How does DOF/Norskan sees the Brazilian support and multipurpose vessel market for the next decade?

The Brazilian market is a market with many opportunities for growth. At the same time there is a challenge to cope with inflation, regulations, and scarcity of personnel. We are certain that Brazil will continue to be an important marketplace for DOF vessels, and we will continue to focus on managing the risks associated with operating in Brazil. The multipurpose vessel market in Brazil is still mainly dominated by foreign flag vessels, however since 2006 some maritime companies started building MPSV's locally due to the growing demand and to the increasing regulation that gives priority on Brazilian built vessels. The Brazilian naval industry expects to have an increase of approximately 114 Brazilian built support vessels until 2020 and we believe that MPSV's will take part on this growth.

OTC 2013: Near Record 104,800 Attendees

The offshore industry gatherered May 6-9 for the 2013 Offshore Technology Conference at Reliant Park in Houston. And lest anyone doubt the resurgence in the global offshore market, attendance at the conference reached a 30-year high of 104,800, the second highest in show history and up 17% from last year.

Attendance surpassed the 2012 total of 89,400 and the sold-out exhibition was the largest in show history at 652,185 square feet, up from 641,350 in 2012. The event had 2,728 companies representing 40 countries, including 244 new exhibitors in 2013. International companies made up 39% of exhibitors. This year's event featured nine panel sessions, 29 executive keynote presentations at luncheons and breakfasts, and 298 technical papers. Speakers from major IOCs, NOCs, and independent operators presented their views on the current challenges and future directions of the industry.

OTC's Spotlight on New Technology recognized 15 technologies for their innovation in allowing the industry to produce offshore resources. U.S. Secretary of the Interior Sally Jewell toured the exhibition floor and held a press conference where she discussed her commitment to work with industry leaders to ensure safe and environmentally responsible offshore oil and gas operations. Norway's Crown Prince Haakon and his wife, the Crown Princess Mette-Marit attended the Annual OTC Dinner on Sunday to celebrate the 40th anniversary of Norway's participation in OTC. The royal couple toured the exhibition floor where more than 60 Norwegian companies were part of Norwegian Pavilion. The Annual OTC Dinner was attended by more than 1,000 industry leaders and conference attendees, and raised $250,000 for the Offshore Energy Center. OTC also presented its 2013 Distinguished Achievement Award to Ken Arnold; OTC Heritage Awards to James Brill and Dendy Sloan; and the Distinguished Achievement Award for Companies, Organizations, or Institutions to Total's Pazflor deep offshore development at the sold-out event on the floor of Reliant Stadium.

www.otcnet.org

Industry Award to Aker Solutions' MPO unit

Aker Solutions' subsidiary, Managed Pressure Operations, won the Woelfel Best Mechanical Engineering Achievement Award at OTC for its Riser Safety System (RSS). The award recognizes products, devices or systems that reflect innovation or practical use of mechanical engineering in solving problems, improving design or maximizing performance, according to the ASME International Petroleum Technology Institute. The RSS is designed to assist in control of wellbore fluids while undertaking oil and gas drilling offshore.

www.akersolutions.com

BSEE and USCG Partner to Improve Offshore Oversight

Bureau of Safety and Environmental Enforcement (BSEE) Director James Watson and U.S. Coast Guard (USCG) Rear Admiral Joseph Servidio announced a new Memorandum of Agreement (MOA) that will strengthen the working relationship between their two agencies on the management of safety and environmental protection responsibilities on the Outer Continental Shelf (OCS).

Under current regulatory regime, both the USCG and BSEE have shared responsibilities for the regulation of safety management systems on the OCS. This MOA ensures a comprehensive, joint approach to safety and environmental management. Together, BSEE and the Coast Guard will use this agreement to establish a process for the identification of offshore safety and environmental management requirements within the jurisdiction of both agencies and to spur the development of joint policies and guidance. The agreement also provides a mechanism to ensure that all future regulations, policies and guidance are enforced consistently by both agencies.

The MOA is implemented in accordance with an overarching Memorandum of Understanding (MOU) between BSEE and the Coast Guard signed November 27, 2012. The MOU outlined the efforts of the two agencies to closely coordinate responsibilities for regulation and enforcement on the OCS and for the establishment of future focused agreements such as the one announced today. It was the first MOU between the two agencies since BSEE became a bureau in 2011.

OTC 2013 Spotlight on New Technology Awards

Fifteen companies and their technologies were honored in Houston at the Offshore Technology Conference with the ***Spotlight on New Technology Award*** which recognizes innovative new products that significantly impact offshore exploration and production. The ***Spotlight on New Technology Awards*** showcase the latest and most advanced hardware and software technologies that are leading the industry into the future.

Winning technologies were selected based on the following five criteria:

- **New:** less than 2 years old
- **Innovative:** original, groundbreaking, and capable of revolutionizing the offshore E&P industry
- **Proven:** through full-scale application or successful prototype testing
- **Broad Interest:** broad appeal for the industry
- **Significant Impact:** provides significant benefits beyond existing technologies

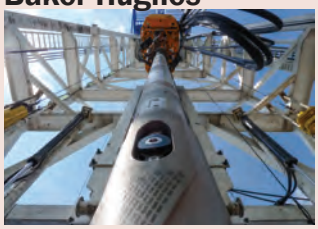
Spotlight Awards for 2013:

- ABB – Onboard DC-Grid
- Baker Hughes – FASTrak LWD Fluid Analysis Sampling and Testing Service
- Bayou Wasco Insulation, Dow Oil & Gas, PIH, Trelleborg Offshore – DOW NEPTUNE Advanced Subsea Flow Assurance Insulation System
- FMC Technologies – Condition and Performance Monitoring
- FMC Technologies and Sulzer Pumps Ltd. – High-speed, Helico-axial Multiphase Subsea Boosting System
- GE Oil & Gas – RamTel Plus and ROV Subsea Display Panel
- GE Oil & Gas – Deepwater BOP Blind Shear Ram
- Reelwell as – Reelwell Drilling Method Riserless (RDM-R)
- SBM Offshore – Drilling Riser Trip Saver
- ShawCor Ltd. – Mobile Robotic Cutback System
- STATOIL ASA – Remotely Welded Retrofit Subsea Hot Tap Tee
- Superior Energy Services – Complete Automated Technology System (CATS)
- Wärtsilä Corporation – Wärtsilä GasReformer
- Welltec –Well Cutter
- WeST Drilling Products AS – Continuous Motion Rig (CMR)

www.otcnet.org

ABB

Baker Hughes



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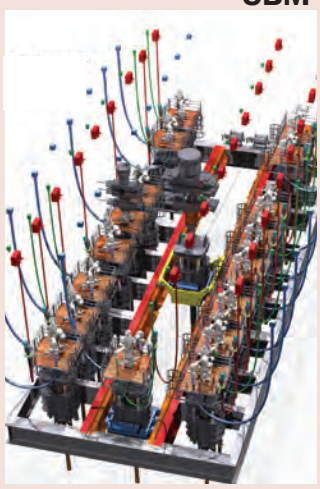
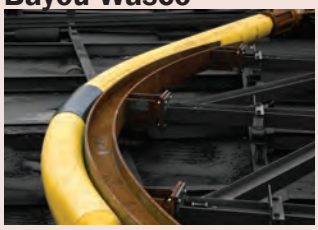


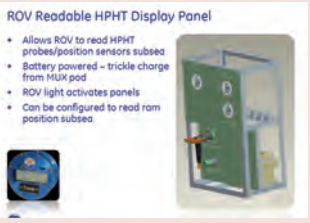
Bayou Wasco



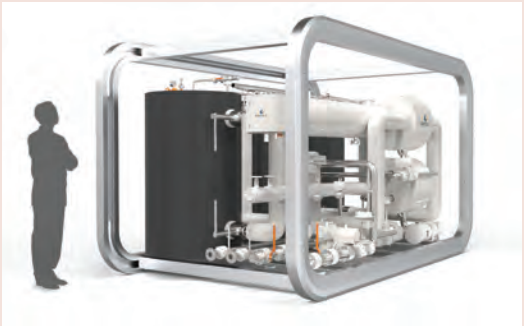
ShawCor

FMC Helico

GE ROV Panel



Wärtsilä



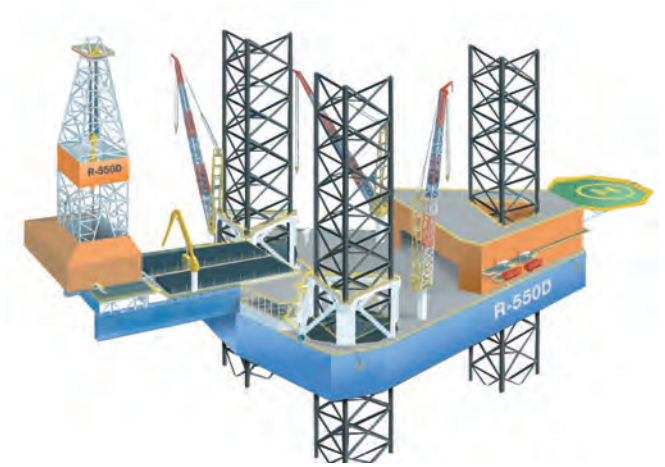
Swire Announces New Products

Swire Oilfield Services, LLC, introduced two new products to the Gulf of Mexico region at OTC: Swire's Modular Systems division and SAFE (Swire Advanced Fluid Engineering) Tanks address the industry's need for offshore workspace solutions and more advanced offshore fluid storage and transport. The company's Modular Systems offering is made up of a range of both pressurized and non-pressurized modules, which provide reliable and effective workspace and storage solutions. Initial offerings in the Gulf of Mexico will include 12-foot, 16-foot and 20-foot pressurized offices, along with 10-foot and 14-foot non-pressurized workshops. Plug-and-play design promotes the highest levels of operator safety while ensuring operations can begin immediately once onsite.

www.swireos.com

CSSC-HPS to Build R-550D Jackup Rigs for Alliance

CSSC Guangzhou Huangpu Shipbuilding (CSSC-HPS) confirmed that it is starting the construction of "two plus two" units of jackup drilling rigs capable of operating in 400 Foot Water Depths, using the Zentech design and TSC integrated equipment packages. Alliance Offshore Drilling PTE Ltd. of Singapore is the owner of the R-550D rigs under construction.



CSSC-HPS joined with TSC Group Holdings, Ltd., a Cayman Islands company and Zentech, Inc. of Houston, Texas to form a new business model for the design of the basic rig (Zentech), fully integrated drilling equipment and control package (TSC Offshore) and construction at the Huangpu Shipyard. The concept is centered on the patented Zentech R-550D, a high capacity and extended reach jackup drilling rig, rated for 400-foot water depths. This design was approved by the Technical Appraisal Committee, comprised of a blue-ribbon panel of Chinese and international offshore drilling experts, and has also been granted ABS Class approval.

Improving Propulsion Systems Efficiency

GE unveiled a new power and propulsion system that it claims reduces fuel consumption by controlling engine speed on platform support vessels. The Variable Frequency Active Front-End power and propulsion system, or VF-AFE, enables shipowners using conventional power system components to lower engine speeds when feasible, cut fuel consumption and reduce emissions and maintenance requirements, the manufacturer claims. When a support vessel is operating in dynamic positioning (DP) mode, the load on the engines is reduced just to counter the effect of wind and waves, but all engines are kept running in order to provide redundancy. This means that if the power from one engine is lost, power is still available from the others to keep the vessel in position. This arrangement while effective is not the most efficient. With VF-AFE, all the engines remain connected, but their speed can be cut when the load is reduced.

"We have made a calculation based on specific operating conditions, assuming a fuel price of $900 per ton," English said. "We estimate that with the engines loaded at 50% of rated load for a full year on a ship with 8 megawatts of installed power operating for 300 days a year, 24 hours a day, the fuel savings could be up to $300,000 per year."

www.gepowerconversion.com

SIDUS' SS250 Pan and Tilt

Used with CodaOctopus Echoscope Sonar System

SIDUS Solutions was selected to be the Pan and Tilt provider for Penta Ocean, who fitted the CodaOctopus Echoscope sonar system to SIDUS' SS250 Pan and Tilt. Penta Ocean aims to monitor and realize the underwater situation in real-time to

accurately depict the location of subsea items being placed on the ocean floor. Penta Ocean chose the SIDUS SS250 Pan and Tilt system for its high resolution positioning and strength. Penta Ocean designed the lowering arm to raise and lower the sonar package using the SS250 side loading strength to handle such extremes. It proved excellent. Penta Ocean is very pleased with the outcome of the project.

www.sidus-solutions.com

New DPS

GE debuted the latest version of its Dynamic Positioning (DP)system, which it claims is more energy efficient, better integrated and more "mariner friendly." GE Power Conversion aims to simplify DP with a new human-machine interface (HMI). The control panel is very clean and uncluttered with very few control devices. Its 26-in. touchscreen is tiltable to suit each operator's preference for standing or sitting in front of the screen, or moving around it. It accommodates operators of different heights and is equally visible in a whole range of lighting conditions on the bridge, especially reflections from the sun and artificial light. Screen displays in an operator selectable range of languages allow the operator to access all system functionality in his/her mother tongue.

GE: Two New Subsea Condition Monitors

GE has two new condition monitoring and sensing solutions: the Acoustic Leak Detection System and the Subsea Multi-Domain Condition Monitoring System.

The Acoustic Leak Detection System uses passive, acoustic hydrophone technology to detect and locate subsea oil and gas leaks by discriminating the noise of a leak from other sources of sound. Developed from naval military technology, the sensing system enables extremely sensitive and accurate measurement of subsea acoustics and can be used to detect "silent" leaks that occur when there is low flow rate or low differential pressure. GE's ALD is the leading ISO-qualified technology for permanent (25 years) deployment available today that can detect both crude oil and gas with sufficient sensitivity while providing wide area coverage of up to 500 m.

The Subsea Multi-Domain Condition Monitoring System combines electric emission monitoring and acoustic hydrophones specially designed for monitoring the operating condition of subsea machinery and processes—from pumps and valves to supporting infrastructure. Typically combined with ALD to detect subsea leakage, the system performs multi-domain analysis supported by proven pattern recognition and machine learning algorithms to identify and display subsea structure, machine and pipeline activities and anomalies.

www.seadiscovery.com

Harkand Makes Management Appointments

Colin Forbes (left), Kevin Gorman and John Ewen

Harkand strengthened its senior management team with the appointment of three senior figures as the company embarks on the next stage in its growth strategy. Kevin Gorman joined as vice president of HR. One of two new newly created Group positions, his appointment will allow Harkand to strengthen its capacity as it looks to grow its current 750-strong global workforce. He is joined by new Group general counsel Colin Forbes. John Ewen has been appointed general manager for Harkand ISS, which serves Europe, Harkand's largest region. All three posts will be based in Aberdeen.

Gorman brings with him a wealth of experience across the construction, engineering and oil and gas industries both within the UK and internationally. Most recently HR director at Subsea 7 where he oversaw the merger with Acergy, he will be responsible for developing Harkand's HR strategy including resourcing, training and development, compensation and benefits, and employee and industrial relations.

Roper to Head Saab Seaeye U.S.

Saab Seaeye expanded its international presence by opening an office in Houston, Texas. The office is headed by Chris Roper, previously Saab Seaeye's North American distributor, who recently relocated to Houston to set up the new operation. "The move places us in an ideal position to support sales and service in the region," said Saab Seaeye director, Matt Bates. "America and the Gulf of Mexico in particular, is an important market and Houston is the ideal base."

He explains that the office will grow to offer technical support, spares and service support. Spare parts for Seaeye's range of commercial ROV and Hybrid AUV systems are currently being located in Houston to strengthen the service to customers in the region.

MetOcean Welcomes MacPherson, Squires

MetOcean recently welcomed Emily MacPherson and Laura Squires to the Sales and Marketing team. Emily brings more than 10 years of brand marketing and sales experience to MetOcean, and will be responsible for the expanding Buoy and Profiler product portfolio and brand marketing and advertising for the company. She holds a Bachelor of Business Communications and a Bachelor of Business Administration, with a Major in Marketing and Economics. Emily has over nine years of experience in the environmental and oceanographic field which makes her a key edition to Buoy and Profiler group.

Laura Squires joins the MetOcean's Sales and Marketing department, and is responsible for the Tracking and Locating product line and the coordination of internal sales logistics. Laura holds a Bachelor's Degree in Commerce, Major in Computing and Information Systems, and a Certificate in Human Resources Management from Saint Mary's University. Hailing from Toronto, Ontario Laura is pleased to now call Halifax, Nova Scotia home.

MetOcean designs and manufactures drifting buoys, environmental platforms, and the NOVATECH location and recovery locator beacons. MetOcean's drifting buoy family consists of the following environmental monitoring, oil spill response, and search and rescue drifters: NOVA profiling float, Iridium SVP (iSVP), iSPHERE, Argosphere, SLDMB, and iSLDMB.

Emily MacPherson (left) and Laura Squires

Tidewater to Acquire Troms Offshore Supply AS

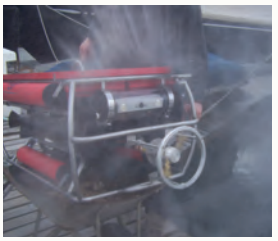
Tidewater Inc. entered into an agreement with HitecVision to purchase Troms Offshore Supply AS for approximately $395 million. The acquisition of Troms Offshore, headquartered in Tromsø, Norway, will expand Tidewater's global footprint into the Norwegian sector of the North Sea and supplement Tidewater's experience and vessel fleet operating in harsh environ-

Mariscope Introduces McClean ROV

In cooperation with the Kentucky-based company Acamar Maritime Solutions, LLC, Mariscope has developed the new McClean ROV cleaning system. The McClean is the first ROV with rotational heads using cavitation jetting technology to clean many types of underwater structures.

During the official presentation carried out in March, 2013, in the city of Puerto Montt, Chile, Chuck Phillippe from ACAMAR and Christian Haag from Mariscope demonstrated the potentials of the system.

After the official presentation, field tests were carried out with interested clients. Excellent results were achieved cleaning heavily fouled mooring chains and fish nets in the local aquaculture industry. This new ROV cleaning solution is offered by Mariscope with different head assemblies to accomplish many types of tasks with the same equipment. In addition, hydraulic driven assemblies are available to clean in places otherwise not accessible with the ROV.



ments, including cold climates. The Troms Offshore-owned fleet is expected to include five large, modern and technically-advanced deepwater Platform Supply Vessels (PSVs) at closing. In addition, Troms Offshore has one additional deepwater PSV under construction at the VARD Aukra yard in Møre og Romsdal, Norway and an option to build a seventh vessel.

"We are committed to effectively serving our customers on a global basis and meeting their evolving needs, especially in challenging environments. We believe that the Troms Offshore management team, shore-based employees, mariners and fleet will help us deliver on that service commitment," said Jeffrey M. Platt, President, CEO and Director of Tidewater Inc. "Troms Offshore's expertise, relationships and location in Northern Norway provides Tidewater with a unique entry point into the Norwegian sector of the North Sea and cold water markets, including the Barents Sea, Greenland and Eastern Canada. We look forward to the Troms Offshore team supplementing our presence in these markets and helping us to meet growing requirements from customers. We will bring Tidewater's technical, financial and other resources to help expand the existing business with an expectation to grow the number of employees and vessels servicing these markets."

The purchase price includes $150 million in cash and the assumption of approximately $245 million of combined Troms Offshore obligations, comprised of net interest-bearing debt and remaining installment payments on vessels under construction. The stock purchase agreement also contemplates possible additional cash consideration, the payment of which is contingent upon future financial results of Troms Offshore in 2014-2017.

The acquisition is expected to be completed in the second calendar quarter of 2013, subject to regulatory and other approv-

als, including the Norwegian Ministry of Industry and Trade. Lazard acted as Tidewater's financial advisor in the transaction.

RDSEA Goes to Work in Costa Rica

Left image: Los Suenos, CR
Right image: Rear: Jose Vega, National Univ. Heredia Costa Rica, Eduardo Alvarez, Campbell Scientific, Centro Caribe.
Front: Jeff Scudder, JS Marine & Environmental, Juan Arroyo, Campbell Scientific, Centro Caribe

RDSEA International supports new tide gage installations in Costa Rica. The five-star Los Suenos Marina, Herradura, Puntarenas, Costa Rica now has daily tidal data available for its' users and the nearby community. Original specifications for the system were for routine monitoring, with future upgrade to a tsunami warning station planned. Campbell Scientific, Centro Caribe and J.S. Marine and Environmental Services, St Petersburg, FL, were responsible for the installation in the field using an AQUATRAK Liquid Level Measuring System integrated with a Campbell Scientific CR-1000 data logger/controller. Data transmission is via NOAA's GOES Satellite Service. Data will also be received and managed by the University of Hawaii Sea Level Center (UHSLC). UHSLC serves multiple roles in supporting real-time oceanographic operations as well as climate and oceanographic research. The UHSLC collaborates with agencies within host countries in the installation and maintenance of a global network of tide gauge stations, which meet standards that range in resolution from tsunami warning to global sea level rise.

http://uhslc.soest.hawaii.edu

RDSEA Supports AMBIDADOS

RDSEA supports AMBIDADOS and the Oceanographic Institute, University of Sao Paulo (IOUSP), with the deployment of Brazil's first "home-grown" buoy system (ATLAS-B) in the Atlantic. With a fiberglass toroid donated by NOAA-PMEL (Seattle) and systems integration by AMBIDADOS, a successful deployment was conducted from R/V Alpha Crusis (formerly Moana Wave of UH in the Pacific). RDSEA President Rick Cole was on board the AC to oversee the deployment and to make the inductive connection between the 10

subsurface sensors (SBE MicroCats) mounted on the mooring line and the buoy controller. Averaged data are transmitted daily back to IOUSP laboratories for post processing and dissemination. A 100% data stream was achieved with data now flowing from the 28ºS - 42ºW region of the western Atlantic. Full meteorology is also incorporated into the buoy's data set. These data will enhance the ongoing PIRATA Program and other ocean and climate research being conducted in the Southeastern Brazilian Bight region.

Aker Solutions Doubles Up in Brazil

Aker Solutions recently laid the foundation stone of a new plant in Paraná that will double the company's subsea production capacity in Brazil. The plant in the city of São José dos Pinhais in the Paraná state in Brazil will be operational in 2015. It will replace Aker Solutions' current subsea manufacturing facility in Curitiba and double production capacity in the country.

Aker Solutions' Executive Chairman Øyvind Eriksen and Luis Araujo, president and country manager of the company's Brazilian operations, took part in a ceremony laying the foundation stone at the new site. Luis Carlos Setim, the mayor of São José dos Pinhais, attended together with other local government officials.

"Brazil is a very important market for Aker Solutions and this new plant will strengthen our subsea offering," says Araujo.

The new facility will have about 1,200 employees and generate work for an additional 5,000 people at suppliers.

Expansion was significantly aided by the winning of an $800m contract in April to deliver subsea equipment to the Brazilian oil company Petrobras. The contract is for 60 well-

sets with vertical subsea trees, subsea control systems, tools and spares to be used at Petrobras' deepwater pre-salt field developments in Brazil.

"The forecasts for the Brazilian oil and gas industry are very promising and we are committed to developing our manufacturing capabilities and local content," said Araujo.

Aker Solutions last year started building a new multi-purpose service site for its drilling equipment business in Macaé, 180 km northeast of Rio de Janeiro. The facility, set to open in 2014, will expand the company's capacity to serve the fast-growing drilling market in Brazil. Aker Solutions is also located in Rio de Janeiro and Rio das Ostras in Brazil.

BMT Restructures Marine Survey Businesses

BMT Group Ltd. (BMT) announced that marine surveying companies BMT De Beer and BMT Techmar became BMT Surveys on May 1, 2013. Phil Thompson, Transport Sector Director at BMT Group explains: "BMT De Beer and BMT Techmar have combined experience of over 110 years working in the marine surveying market. The company names will disappear, but the breadth and depth of our offering will be available to our customers through a more coherent network. We continue to be one of very few marine surveying companies that deals with both H&M and P&I and we are fully committed to investing in the future of marine surveying."

This name change will see BMT Techmar become BMT Surveys (Antwerp) with BMT De Beer becoming BMT Surveys (Rotterdam) supported by additional offices in Amsterdam, Harlingen, Delfzijl and Jakarta. As well as this restructure, BMT Surveys has launched a dedicated Risk & Quality division to reflect an industry demand for loss prevention, audits and risk management. BMT Surveys (Risk & Quality) B.V. will operate as a separate business unit based in Rotterdam and managed by Olivier van der Kruijs who has been working with BMT since 2007.

www.bmtsurveys.com

Bibby Offshore Completes Hyperbaric Evacuation Trials

Subsea installation contractor Bibby Offshore completed hyperbaric evacuation trials across its entire Diving Support Vessel (DSV) fleet. Bibby Offshore claims that it is the only company worldwide to carry out this procedure on its entire fleet, which includes the Bibby Sapphire, Polaris and Topaz, and the only diving contractor with audited outcomes using performance based standards for this level of contingency planning.

The trials involved mating a Self-Propelled Hyperbaric Lifeboat from the DSV to a Portable Hyperbaric Reception Facility onshore, deployed by Mimir Marine.

The onshore facility is specifically designed to accept divers transferred from the isolation of a lifeboat in the event of vessel abandonment. Specialist technicians from Mimir Marine were also present to support the hyperbaric evacuation training exercise.

The recent trial involved a simulated dockside rescue of divers from the Topaz hyperbaric lifeboat. This was the first time Bibby Offshore had trialed with the Bibby Topaz lifeboat and the simulated transfer of the divers was completed within three hours of the lifeboat arriving on the quayside.

Bibby Offshore currently has more than 1,000 people working onshore and offshore worldwide, with offices in Aberdeen, Liverpool, Singapore and Trinidad. It recently added two new vessels to the fleet and continues to expand its subsea construction, engineering and project delivery services.

Sonardyne Donates to Engineering College's Fundraising Appeal

Alton College's new Engineering and Design Technology Centre will give students access to cutting-edge technology in state-of-the-art facilities, creating an inspirational environment and firm foun-

dations for successful future careers.
An investor in the future of engineering, Sonardyne International Ltd. has recently made a substantial donation to the Alton College Fundraising Appeal for a new Engineering and Design Technology Center. The donation brings forward the Center's building completion date to Autumn 2013 and will enable the college to teach 310 students a year.
Located close to Sonardyne's UK manufacturing headquarters, Alton College attracts aspiring engineers from across Southern England, providing them with the opportunities and support to achieve their full potential. With application numbers for Engineering and Design Technology courses doubling over recent years, the over-subscribed course has been restricted by its current facilities. To rectify this, the college launched a fundraising appeal, hoping to generate the required £2.46 million for the design and build of the new centre. Once complete, the centre will house two well-equipped workshops for wood, metals and plastics; facilities for turning, welding and casting; Computer Aided Design (CAD) and Computer Aided Manufacture (CAM) facilities; two technology laboratories and a technician work station and secure tool store.

EPC Offshore Invests in Growth

Project management and concept development specialist EPC Offshore has invested $3.5m in a new Aberdeen office in a strategic move which will enable the company to recruit more staff, expand its service offering to clients and reaffirm its commitment to the region.
It agreed a long term lease on a three-story, 7,000 sq. ft. Grade A building at 56 Carden Place in the heart of the city's West End.

Preece Joins Ceona

Mark Preece will join the executive team of Ceona as Executive Vice President Commercial & Business Development and will report to Steve Preston. Preece was scheduled to join the company on June 2, 2013. Preece has extensive senior management, commercial, operations and business development experience gained both in the UK and international Oil & Gas and Offshore Renewable energy markets.
Before joining CEONA he was CEO at the tier two subsea start-up company Reef Subsea, SVP Business Development & Marketing at Acergy, Managing Director with Bibby Line Ltd, and earlier was with Technip SA, Coflexip Stena and Stena Offshore where he was Managing Director Canada & Caspian, and Senior Vice President UK and International Business Development.
In his earlier career he was a Ship's Master, a Marine Superintendent and a Project Manager. Preece is a Master Mariner with an MBA from Henley Management College.

Xodus Wins Premier Contract

International energy consultancy Xodus Group won a contract worth $2m to deliver the subsea Front End Engineering Design (FEED) study for the Premier Oil Catcher project in the Central North Sea. The scope of work will involve two phases. A review of previous and current studies, preliminary process flow diagrams and investigative work to identify structural functional requirements, will lay the foundations for the subsequent select phase.

Andrew Wylie, senior consultant at Xodus Group

At this stage, Xodus will develop and engineer field and subsea architecture, flow assurance processes, subsea control systems, pipelines and tie-ins, as well as providing technical safety and risk support.
The Catcher field is located in block 28/9 and is potentially one of the larger North Sea discoveries in recent years. Xodus will assist in the FEED for the three riser systems for each of the wells, to allow production from the field through the subsea tie-back.
In the last four years Xodus has secured £11 million worth of FEED contracts for FPSO projects and has been involved in more than 50% of completed FPSO FEEDs in the North Sea.

Coastline Surveys Completes Geotechnical Investigation for Navitus Bay

Coastline Surveys completed a geotechnical investigation of the seabed cable route at the proposed Navitus Bay offshore wind park, off the South coast of England.
Mike Unsworth, Project Manager for Navitus Bay, said: "We have worked with Coastline Surveys during previous phases of the project. The team's thorough knowledge of the project, combined with their geotechnical expertise and extensive experience of working along the south coast, made them the obvious choice for this latest piece of work."
Using its own 24m survey vessel, MV Flatholm, along with their C-COREHP vibrocorer, Coastline Surveys successfully completed sampling at 22 locations along the planned route for the cable. The route runs from the shoreline to approximately 12 miles off shore.
On investigating the ocean floor, the team expected to find marine sands overlaying bedrock, with a range of depths throughout the area. It soon became clear that the site was made up of a variety of soil conditions ranging from soft silts to dense sand and clays.
Navitus Bay required undisturbed quality samples where possible, but particularly around the palaeochannels, where fine grained material and peat deposits were also expected.
Coastline Survey's C-COREHP unit has a real-time Penetrometer fitted to it, to monitor the rate of penetration during sampling.
This was especially invaluable in areas of softer loose sedi-

ments as it allowed the geotechnical team to recover high quality samples with reduced disturbance.

The stiff clays and dense sands that the team encountered presented a different kind of challenge. The class leading power and weight of the C-COREHP unit meant the team were able to achieve good depths in these conditions, penetrating the ground up to one meter into the underlying stiff clay in some locations. The penetrometer was particularly useful in these difficult conditions allowing the team to realise when they wouldn't be able to recover any more sediment. As a result, the team were able to terminate their tests when appropriate, saving time and costs whilst preserving sample integrity.

Graduate Training Program for Divers

Scotland's first graduate training program for divers was launched by diver training facility The Underwater Centre and Stork Technical Services (Stork). The Stork Dive Trainee Program is a three-year work-based training initiative, which will offer a number of newly qualified commercial divers the opportunity to step straight into a job within the oil and gas industry.

Stork will offer four trainee places a year to candidates who successfully complete the 13-week Commercial Diving Premium Industry Career program at The Underwater Centre. Representatives of Stork will visit the Centre once a quarter to meet and observe the students before inviting the top three or four to attend an assessment day at its Aberdeen premises, of which one will be chosen.

Successful trainees will spend three years working with Stork at various locations. They will initially start working with dive technicians and be involved in maintaining dive systems, logistics and processes to help familiarisation. They will also work with the onshore dive team and complete around 80-100 days diving offshore. Annual fixed-term contracts will be available to candidates successfully completing the three-year program.

Navies Sign Submarine Rescue Arrangement

The Royal Australian Navy (RAN) signed an arrangement with the Republic of Singapore Navy (RSN) during the recent IMDEX. Chief of Navy Vice Admiral Ray Griggs who signed the agreement with his Singaporean counterpart Rear Admiral Ng Chee Peng, said the Submarine Rescue Support and Cooperation Arrangement was developed between the RAN and RSN

Bowtech Wins ROVOP Deal

Bowtech Products won a contract by ROVOP to supply cameras and lights, which will equip two new ROV systems. ROVOP recently invested in two new vehicles as part of its planned expansion; the first a 3,000m rated, 150 hp work class Schilling HD ROV and the second a SAAB SeaEye Cougar XT ROV system.

The Schilling HD ROV follows an identical system, which was delivered in February 2013, for which Bowtech Products supplied a L3C-650-L color tooling camera (with integral LED lights) and a LCC-700-L monochrome tooling camera, (also with integral LED lights).

The scope of supply for the new Schilling HD ROV system includes three of the latest 20,000 lumen high powered output LED-V-SERIES floodlights, six LED-R-7300 series lights, two L3C-650-L color tooling cameras, a SURVEYOR-SD 36:1 color zoom camera and the newly released EXPLORER PRO low light camera. The same suite of cameras will be integrated onto the SeaEye Cougar XT ROV system.

Bowtech Products has also supplied all of the associated cables, connectors and brackets for the cameras and lights.

www.bowtech.co.uk

to enhance submarine rescue system availability between both navies. The arrangement also allows for familiarization visits between the two Navies to ensure interoperability of these important systems.

Prysmian Wins Deal to Install Submarine Cables

Prysmian Group won a new contract worth more than $100m for the supply and installation of submarine cables for a section of ExxonMobil's existing offshore operations in the U.S.

The scope of work involves the replacement of approximately 50 km of submarine power cables with increased capacity 40 kV EPR submarine cables designed for water depths of up to 45m. The cables will supply electric power from the existing shore-based generating plant to offshore platforms.

The turnkey project will be executed by Prysmian with the submarine power cable being supplied by its Drammen, Norway factory and installation being undertaken using the Cable Enterprise laying vessel. The Cable Enterprise will undergo significant modification work in 2014 to be converted to a full Dynamically.

Kraken Delivers Synthetic Aperture Sonar to DSTO

Kraken Sonar Systems announced that the sea acceptance testing of its AquaPix Interferometric Synthetic Aperture Sonar (InSAS) with Australia's Defence Science and Technology Organization (DSTO) was a success. The AquaPix®system was integrated and tested onboard DSTO's REMUS 600 Autonomous Underwater Vehicle (AUV). DSTO is a national leader in safeguarding Australia by delivering valued scientific advice and innovative technology solutions for the country's defence and national security.

Dockside tests were carried out in the shallow waters surrounding the HMAS Waterhen naval base in Sydney harbor, while deeper water tests were conducted from HMAS Creswell in Jervis Bay. "We are extremely satisfied with the results from our sea acceptance testing with DSTO," said Karl Kenny, President and CEO of Kraken. "AquaPix met all expectations in terms of performance as well as the program delivery schedule and budget. Synthetic Aperture Sonar technology is a true breakthrough and will radically improve the efficiency and accuracy of seabed imaging for both military and commercial applications."

DataBank Datalogger: Available for Stationary Deployments

Turner Designs recently configured an enclosure for stationary field deployments housing its DataBank Datalogger. The new DataBank Datalogger Station offers great resistance to the environment allowing users to log data continuously during long term deployments. It approximates IP 66 and Nema 4x providing a degree of protection against corrosion, windblown dust and rain, and water splash-down. The DataBank Datalogger Station stores up to 9,999 records as well as 16 calibrations and uses an intuitive GUI interface for easy sensor configuration, calibration, and data download via USB connection to a PC. The DataBank's internal memory enables unattended datalogging at user-defined intervals with the fastest datalogging interval at 1 datapoint/second. Power is supplied to the DataBank & Cyclops either from the internal battery or from an external source such as a marine battery for extended deployments. The Databank Datalogger Station comes with one factory-installed, underwater rated impulse cable to be used as a power and communication cable with Turner Designs' Cyclops sensors. Standard cable lengths offered by Turner Designs are 5M, 10M, 25M or 50M. Standard Cyclops optical kits are available for detecting: in vivo Chlorophyll, Crude Oil, Refined Fuels, CDOM/FDOM (dissolved organic material), Blue/Green Algae, Fluorescein Dye, Rhodamine Dye, PTSA Dye, Optical Brighteners, Tryptophan, and Turbidity. Cyclops Fluorometers can also be configured with custom optics for specialized applications per customer request.

www.turnerdesigns.com

Kongsberg Mesotech:

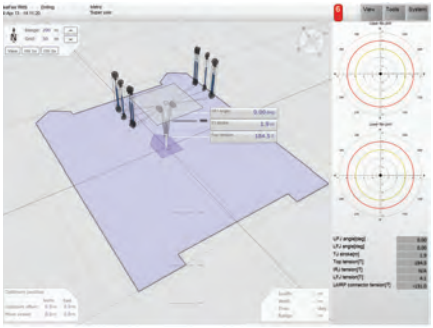
Ultra High-Resolution Sonar Head

Kongsberg Mesotech Ltd. released its new 1171 Series Multi-Frequency High-Resolution Fan/Cone Sonar Head. According to the company, it is ideal for imaging and profiling, the scanning sonar head is intended for applications where data and image clarity supersede any other requirement, including, underwater construction support, site clearance and bridge and pier inspection. The sonar head supports multi-frequency operation on both the fan and cone transducers. The operating frequency of the cone transducer can be selected by choosing one of four different 'pre-set' frequencies (675/900/1200/1300 kHz). The operating frequency of the fan transducer can be selected by choosing one of three different 'pre-set' frequencies (900/1000/1100 kHz) or by choosing 'tunable' mode where the frequency can be changed in 5 kHz increments. Increasing the frequency will result in narrower beams and sharper data.

Kongsberg Mesotech Ltd. has also released a new version of the MS 1000 processing software (Version 5.23), which supports all multi-frequency sonar heads

with selectable and tuneable frequencies, and is required to access the features of the new multi-frequency high-resolution sonar head.

Upgraded Kongsberg Riser Management System



Kongsberg Oil & Gas Technologies AS (KOGT) released of the Kongsberg Riser Management System (RMS), which introduces a number of new features developed to enhance situational awareness and improve data presentation. RMS is a real-time monitoring and decision support system for safe and optimal operation of drilling and work-over riser systems based on instrumented monitoring of critical parameters. According to the manufacturer, its ability to provide optimum handling of drilling risers has been enhanced with the release of this new version.

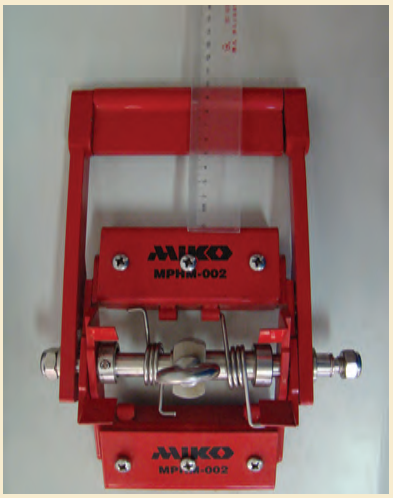
RMS can be interfaced directly with KONGSBERG´s DP or Position Mooring System or supplied as a stand-alone system. RMS R1.7 will be made available during May 2013.

VENOM: Airborne Acoustic Processing System

General Dynamics Canada has introduced next-generation airborne acoustic processing systems for more reliable and accurate detection of underwater threats. The UYS-505 system, named VENOM, is the latest addition to General Dynamics' family of acoustic processing offerings. It leverages commercial-level advances in hardware and the innovations in signal processing technologies to maximize the detection of submerged threats in deep and coastal waters. VENOM is built specifically for fixed and rotary-wing applications, and engineered to improve tactical awareness, reduce operator workload and alleviate size, weight, and power concerns in the cramped cabins of modern military aircraft.

The VENOM system is engineered for passive and active signal processing operations. It can process signals from up to 64 deployed sonobuoys, and features embedded control for dipping sonar systems. It also includes General Dynamics Canada's Computerized Underwater Detection Assistant (CUDA), an application designed to automatically assess the tactical picture in noisy littoral regions without operator intervention.

The Magnetic Effect



Metrol Technology, a leader in oil well instrumentation, has developed what it calls a useful subsea tool from the relatively simple technology of Miko pipe magnets. The company is currently gaining some valuable cost and time benefits through having perfected the use of powerful permanent magnets when positioning instrumentation on seabed structures. The powerful magnets manufactured in Norway by Miko AS can eliminate the need for costly installation with the underwater welding of instrument brackets, clamps and containers. Because of this the magnets are now in regular use by Metrol on projects in the North Sea and in Atlantic waters.

The Miko pipe magnet that was chosen for this task features two powerful magnetic pads hinged across a central axis. The magnets are free to move and will adhere to the surface of steel pipes of any diameter between eight and 42-in. A stainless steel eye enables a cable to be attached when the magnet is being used for its intended purpose of lifting pipes. However, when one is being used by Metrol the eye can be used to hold an instrumentation receptacle. That may then be attached to almost any of the varied shapes encountered on seabed structures.

Because each magnet is capable of holding up to 200 kg of valuable instruments the devices deployed by Metrol face no danger of being moved or lost. Yet despite the powerful holding capabilities of the magnets, an integral lever enables the adhesion to be broken easily by a diver or ROV so that the instrument can be easily recovered or relocated with the magnet.

Ben Taylor, global projects manager with Metrol, explained that once they had double-checked the half-life and corrosion resistance of high performance neodymium magnets they were able to trust them with their valuable instrumentation. "We have found that they provide versatility especially when fitting equipment in confined spaces. Most importantly they reduce design and engineering time. We developed some ROV-friendly shackles for the magnets and now they eliminate the need for welding. This saves engineering design time, money and in some cases it can mean the difference between a job happening or not."

The pipe-magnet is part of the MAM range of permanent magnets from Miko Marine. The company is a world leader in the development and use of industrial magnets and offers them in a range of sizes. They are useful for a wide variety of tasks that can include attaching anti-pollution booms to a ship or platform, for providing solid mooring points for small craft alongside a vessel or for providing temporary markers or safety anchors for divers.

www.miko.no

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March 15- November 8, 2013

Coming this spring!

For the third year in a row Marine Technology Reporter sponsors the Subsea Photo Contest, showcasing the best underwater images- from vessels and equipment to people and ocean life. Winning photos will be published in a special section of the Nov / Dec issue of MTR, featuring the Grand Prize Winner *on the front cover of the magazine.*

3rd Annual

Subsea Photo Contest

MARINE TECHNOLOGY REPORTER and SeaDiscovery.com

underwater technology and ocean science news

To see submissions from last year, go to:
http://photos.seadiscovery.com

UNDERWATER COMMUNICATION AND POSITIONING SOLUTIONS

Evo Logics®

S2C technology: communication and tracking combined for a wide range of subsea applications

- time, space and cost-saving solutions
- low power consumption for autonomous operations
- advanced data delivery algorithms, addressing and networking, remotely configurable settings
- extendable platform with multiple configuration options: power-saving Wake Up module, acoustic releaser, additional sensors, custom solutions, OEM versions available

USBL POSITIONING SYSTEMS

simultaneous positioning and communication - no need to switch between positioning mode and modem mode

- multiple target tracking
- reliable data transmissions
- range: up to 8000 m
- accuracy: up to 0.04 degrees

LBL POSITIONING SYSTEMS

highly accurate, precise and stable performance

- multiple target tracking
- range: up to 8000 m
- accuracy: better than 0.01 m

UNDERWATER ACOUSTIC MODEMS

reliable data transmissions even in adverse conditions

- range: up to 8000 m
- depth: up to 6000 m
- data rate: up to 31.2 kbps
- bit error rate: better than 10^{-10}

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