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Revolutionary Advancements  
for Subsea Facility Inspection

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Photo: Christoffer Christensen

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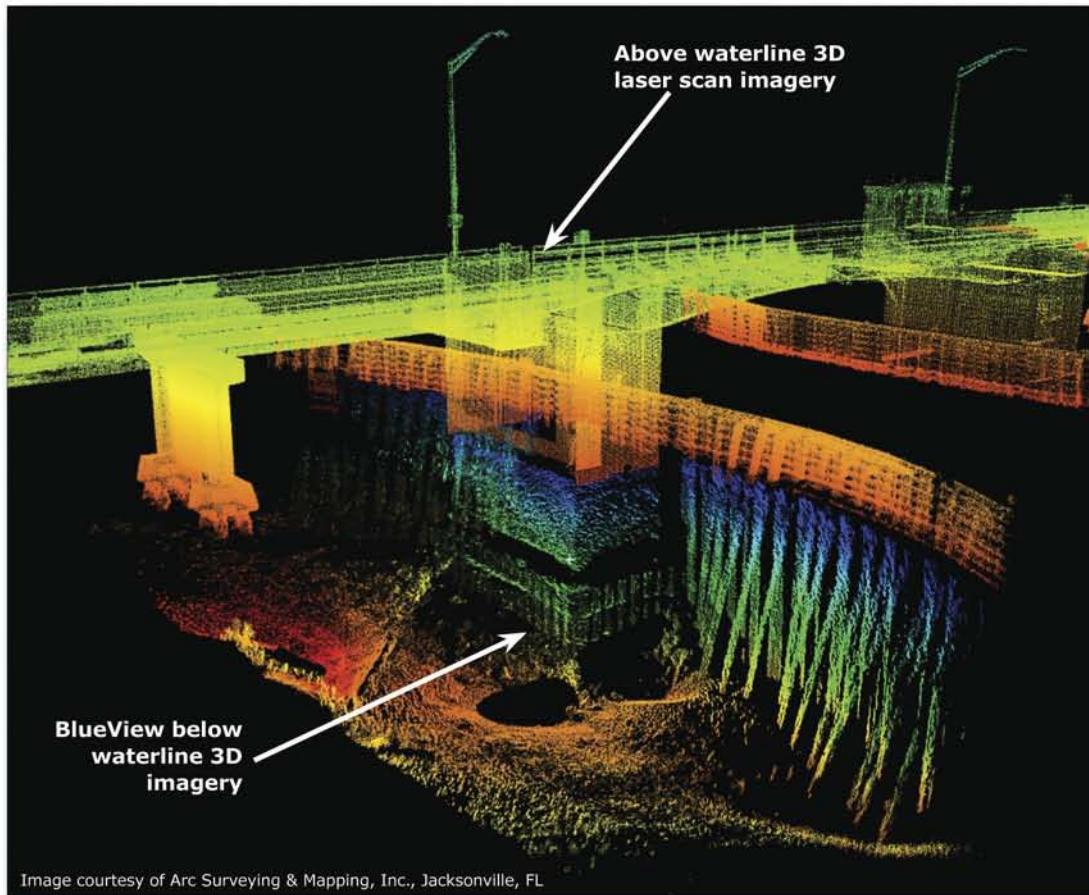
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LLOG Exploration's Who Dat semi-submersible production unit.  
Photo courtesy LLOG.

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**Technology Systems Corp.**

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# Editorial

By Ray Tyson



## Obama's 'historic achievements' in oil, gas do not fit the facts

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President Obama is feeling the heat and, on the offensive, touting the progress his administration purportedly has made in reducing our dependence on imported oil. Or so he asserts, over and over again before the cameras and in a recent report focusing on his administration's "historic achievements" and successful efforts to make America more energy independent. All of this and more supposedly is largely the President's doing, amazingly transpiring during the 3 short years he has been in office.

Obama is in big trouble. Spiking gasoline prices have surpassed the federal budget deficit as Obama's single weakest issue, according to a recent ABC News-Washington Post poll, which shows 65% of Americans disapprove of how the President is handling the rising price of gasoline, while just 26% approve. Obama, with an election looming, is manipulating favorable production statistics in an obvious attempt to improve his standing among voters.

Overall, U.S. Energy Information Administration (EIA) data show that aggregate U.S. crude production has been steadily rising. The country produced 4.95mmbbl/d in 2008, rising to 5.36mmbbl/d in 2009, 5.47mmbbl/d in 2010 and 5.6mmbbl/d last year, according to EIA, which is the Energy Department's independent statistical arm. EIA forecasted that total U.S. production will grow again to 5.83mmbbl/d this year, and keep rising to reach 6.7mmbbl/d in 2020.

Moreover, the White House says the country imported 11mmbbl/d when Obama took office and that under his guidance, the number dropped to 8.4mmbbl/d by the end of last year. The country was also able to import less than half of all the oil it consumes and became a net exporter of petroleum products for the first time in 60 years.

All of the above sounds great, and somebody certainly deserves the credit. But when it comes to production, it's definitely not the president. What the Obama administration has failed to disclose is that oil and gas production on the properties it directly manages has been on the decline.

"We are hearing a lot about the administration's leadership in driving oil production up. The fact is that production on federal offshore and onshore areas is down," the American Petroleum Institute (API) charged in a statement.

Oil production fell in the Gulf of Mexico and the Pacific by 10.4% between

2009 and 2011, by 12.7% in Alaska, and 7.9% on federal lands in general, according to EIA and other government statistics. During that same time, natural gas production fell by 24.9% in the Gulf and Pacific, while production fell by 14.7% on all federal lands. In Alaska, natural gas fell by more than 7%. So, despite the declines, why does the same data show oil and natural gas production increasing overall during Obama's years in office?

In the hydrocarbon-rich U.S. Gulf alone, for example, production from federal leases was 1.15mmbbl/d in 2008, rising to 1.56mmbbl/d in 2009 and about the same level in 2010. However, this increase came largely from projects that the Bush administration helped put in play before Obama came to the table. Output in the Gulf then declined to 1.32mmbbl/d in 2011 and a projected 1.23mmbbl/d this year, which is likely a reflection of the months-long deepwater drilling freeze invoked by the Obama administration following the 2010 BP oil spill. And though the moratorium has been lifted, industry continues to complain about the slowness in issuing federal permits.

A significant portion of the overall gain in U.S. production since Obama took office can be attributed to the onshore shale boom on private and state lands, areas that in no way can be claimed by Obama as a historic achievement. State and private onshore oil production, between 2009 and 2011, increased by more than 28%, while natural gas production, during that same time, increased onshore by 20% on non-federal lands.

Even a member of Obama's own party, U.S. Sen. Mary Landrieu, D-Louisiana, took Interior Secretary Ken Salazar to task for misleading the public in testimony before the Senate Energy and Natural Resources Committee. "When you speak, you get people thinking that we're drilling everywhere, offshore and onshore, when the facts don't justify that."

"Here's the problem," Erik Milito, API's upstream director, said in a statement. "The administration has been restricting where oil and natural gas development may occur, leasing less often, shortening lease terms, going slow on permit approvals, and increasing or threatening to increase industry's development costs through higher taxes, higher royalty rates, higher minimum lease bids, and ineffective regulations and regulatory processes."

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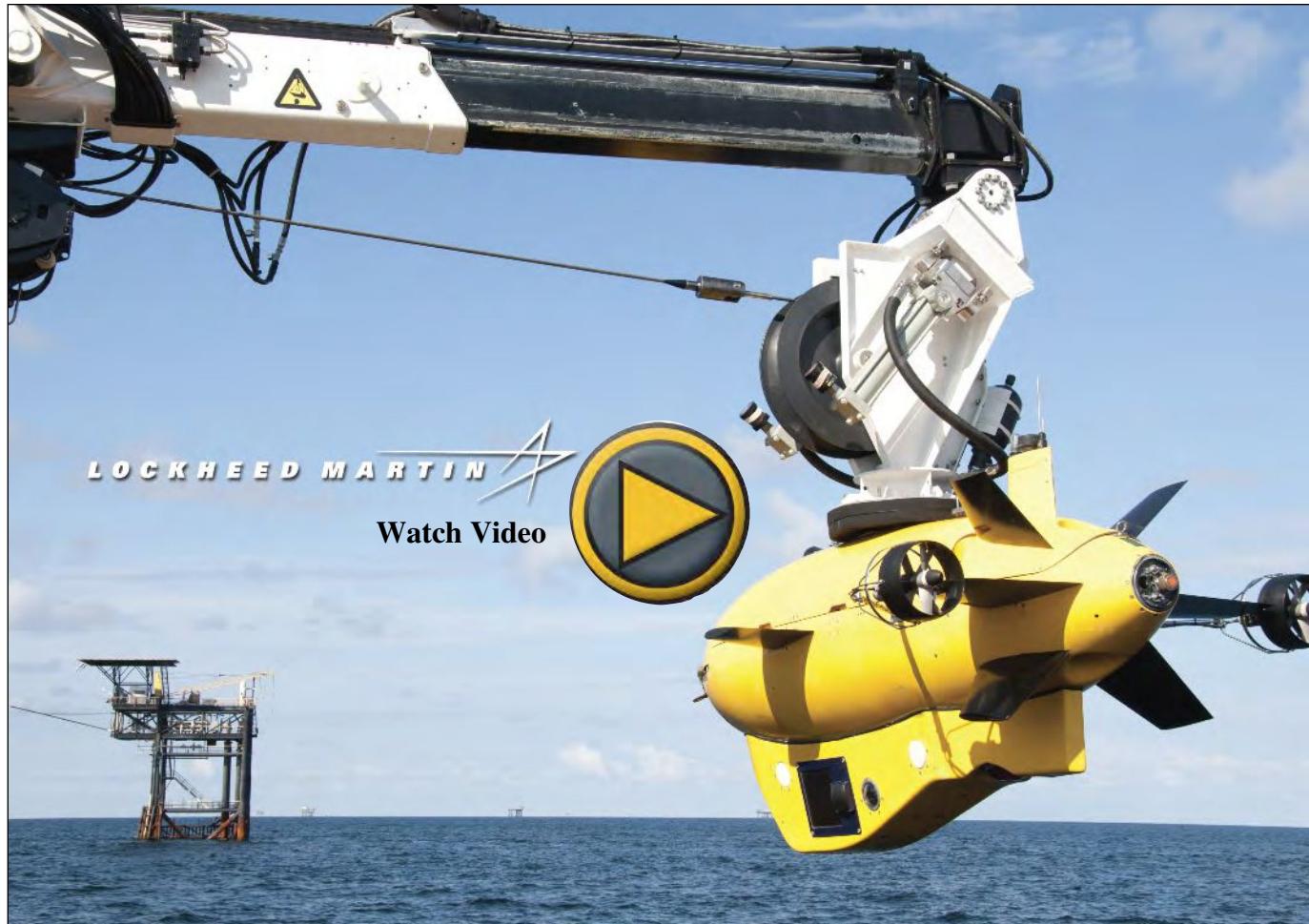
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# Revolutionary Advancements for Subsea Facility Inspection

## Marlin AUV Dramatically Improves Efficiency and Safety

By Dan McLeod and Lou Dennis, Lockheed Martin Offshore Systems



Drawing upon four decades of experience in developing leading-edge manned and unmanned subsea technology solutions for military and commercial customers, Lockheed Martin has developed a “game changing” capability to inspect and evaluate subsea facilities. Safer, faster, more efficient, and less expensive, the Marlin™ Autonomous Underwater Vehicle (AUV) system offers a subsea operating company the potential for a dramatically improved bottom line.

Last year, the Marlin AUV System successfully completed sea trials and demonstrated its ability to rapidly inspect and generate real-time 3D models of various fixed platforms for oil and gas operating companies. The Marlin AUV System offers substantial improvements in cost, performance, safety, and reli-

ability and will revolutionize the way underwater inspections are conducted and will lead to more cost effective operations in deepwater and/or remote subsea fields. Lockheed Martin will make the Marlin AUV commercially available to oil and gas companies in late 2012.

Autonomous inspection of subsea facilities with the Marlin AUV System is a revolutionary development that will dramatically enhance operations by reducing inspection costs through use of smaller vessels, fewer personnel at sea, more efficient operations, and greatly reduced time to conduct post-inspection data analysis. Lower operating costs will enable operators to reduce the interval between inspections, thereby improving integrity assessment of subsea assets and reducing the risk of asset failure.



	<b>IRM ROV and Vessel</b>	<b>AUV and Vessel</b>
<b>Typical Vessel Spec</b>	240 ft Length Overall DPII	120 ft Length Overall Utility class
<b>Personnel/Crew Offshore</b>	~50	~ 18
<b>System Deck Footprint</b>	~ 1,000 ft <sup>2</sup> +	~ 600 ft <sup>2</sup>
<b>System Weight</b>	~ 80 tons	~ 10 tons

*Table 1*

The Marlin AUV System, equipped with appropriate sensors and robust autonomy to conduct structural surveys, pipeline inspections, subsea facility inspections and perform light intervention, offers significant benefits when compared to a ROV. Unhindered by a surface vessel with attached umbilical and a large footprint of ship-board equipment, the AUV can be employed across large areas and remain submerged for multiple shifts. Operators on the surface are in a monitoring mode only, which greatly reduces crew tasking resulting in fewer personnel at sea.

Lockheed Martin proved these benefits are real during sea trials in the Gulf of Mexico last summer. During a demonstration jointly funded by Lockheed Martin, the Research Partnership to Secure Energy for America (RPSEA) and operationally supported by the Chevron Energy Technology Company, the Marlin AUV system quickly, accurately and safely completed a structural survey of an offshore platform with minimal operator involvement.

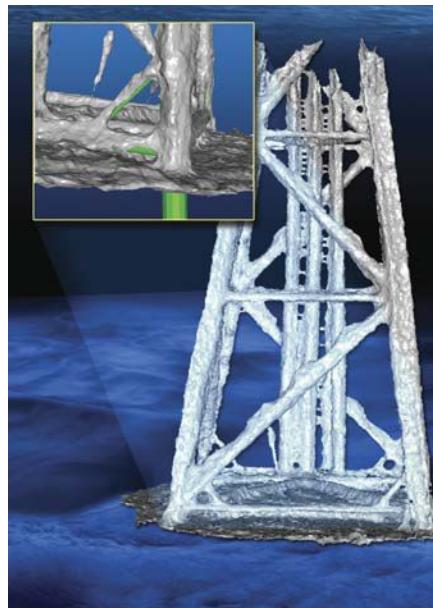
Compared to traditional platform inspection methods on a shallow water platform, which can take up to one day to complete, the Marlin AUV System autonomously completed a facility inspection and constructed highly

accurate real-time 3D models in less than one hour. Once back on deck, the 3D model was imported into analytical software where accurate dimensional measurements were derived. This unique capability provides the client with actionable information onboard the vessel from which to assess the condition of the structure.

Additionally, real-time change detection was demonstrated as a potential for major time and cost savings for oil and gas operating companies looking to return a facility to operation following a major hurricane. Lockheed Martin's 2011 trials also focused on demonstrating the capability to image a platform for which no information is available in order to create a baseline image against which 3D models generated from subsequent inspections may be compared.

This highly advanced feature, coupled with autonomous adaptive route planning, enables the Marlin AUV System to revisit areas where changes have been detected and collect targeted high definition video and / or high resolution sonar images at a much closer range. These 3D models can then be used to develop an accurate baseline for engineering calculations, change detection and precise integrity monitoring.

The Marlin AUV System consists of an operations and maintenance van, launch and recovery system, and ship-



*Collected in 41min and 41m underwater, the Marlin™ AUV system demonstrated its ability to generate a 3D geo-registered model of a fixed four-pile platform*

# Feature Story

board cradle assembly. Mobilization is straightforward, and the entire system can be installed on a support vessel in three lifts. This simple and efficient configuration is operated and maintained by just three people: vehicle operator, crane operator and deck hand.

Once the support vessel is on station, the Marlin vehicle is launched and begins its pre-programmed mission. During its first mission around a platform, the Marlin builds a 3D model of the subsea structure constructed from 3D sonar data. This 3D constructed model becomes the baseline from which future change detection missions are run and also may be used for decommissioning planning, mensuration and feature extraction.

Using sonar data that is “geo-tagged” and precise feature-based navigation allows automated change detection against the benchmarked condition, an enormous time saver compared to the laborious visual examination currently required by inspection engineers.

Unlike risky and weather dependent surface recovery methods used by most autonomous vehicles, Marlin’s patented autonomous underwater homing capture and lift feature

provides a robust and simple approach to vehicle recovery. Upon mission completion, the vehicle autonomously returns to a predetermined waypoint awaiting acoustic command to rendezvous with the ship. The operators initiate an auto homing sequence that results in the vehicle homing to the lift line, where it automatically latches and indicates that it is ready for recovery, followed by the crane operator simply lifting the vehicle from the water. Once onboard, the vehicle is stowed in its shipboard cradle and readied for the next mission.

Today, the Marlin AUV System has validated advances in autonomy that enable a game-changing subsea facility inspection capability for oil and gas operating companies. By using advanced autonomy, true 3D sonar, and in the future, underwater 3D laser imaging sensors, inspections are no longer limited by water turbidity or motion of the sensing platform. The 3D models generated in situ offer field operators with unprecedented ability to accurately monitor the integrity of their subsea facilities with lower costs, fewer people at sea and greatly reduced operational risk.

For additional information, visit [www.lockheedmartin.com/us/products/marlin.html](http://www.lockheedmartin.com/us/products/marlin.html).



*Marlin AUV recovered to L&R crane after autonomously latching subsea*



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# OCEAN INDUSTRY

## James Cameron makes first ever successful solo dive to Mariana Trench



Filmmaker and National Geographic Explorer-in-Residence James Cameron emerges from the DEEPSEA CHALLENGER submersible after his successful solo dive to the Mariana Trench, the deepest part of the ocean. Photo by Mark Thiessen/National Geographic copyright National Geographic

Filmmaker and National Geographic Explorer-in-Residence James Cameron descended 35,756ft (6.77mi/10.89km) to reach the "Challenger Deep," the ocean's deepest point located in the Mariana Trench, in his specially designed submersible DEEPSEA CHALLENGER. The attempt was part of DEEPSEA CHALLENGE, a joint scientific expedition by Cameron, National Geographic and Rolex to conduct deep-ocean research and exploration. Cameron is the only individual ever to complete the dive in a solo vehicle and the first person since 1960 to reach the very bottom of the world in a manned submersible. During the dive, he conducted the first manned scientific exploration of the "Challenger Deep."

The submersible was launched into the Pacific Ocean some 200mi (322km) southwest of Guam on Monday, 26 March 26 at 5:15 a.m., local Guam time. The voyage down to the "Challenger Deep" took two hours and 36 minutes. Cameron resurfaced at 12 noon local Guam time on Monday, 26 March. The submersible—the result of a more-than-seven-year engineering effort—stayed on the bottom for about 3 hours as Cameron collected samples for research in marine biology, microbiology, astrobiology, marine geology and geophysics. Cameron also captured still photographs and moving images to visually document the Mariana Trench.

The "Challenger Deep" has only been reached once before in a manned descent, on Jan. 23, 1960, by then U.S. Navy Lt. Don Walsh—who is a consultant on the DEEPSEA CHALLENGE expedition and was aboard the expedition ship Mermaid Sapphire during Cameron's successful attempt—and Swiss oceanographer Jacques Piccard in the bathyscaphe Trieste. Walsh and Piccard spent about 20 minutes on the ocean floor before returning to the surface.

With breakthroughs in materials and science, unique approaches to structural engineering and new ways of imaging through an ultra-small, full ocean depth-rated stereoscopic camera, Cameron was able to launch the DEEPSEA CHALLENGE expedition, which he hopes will shed light on other virtually unknown deep-water habitats, such as the New Britain Trench and the Sirena Deep.

Details on the expedition can be found at [www.DEEPSEACHALLENGE.com](http://www.DEEPSEACHALLENGE.com).

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### Fugro acquires EMU Ltd

EMU is an independent marine survey and environmental consultancy specialist with annual revenues of over EUR 20M. Based in Southampton, it also has UK premises in Portsmouth and Edinburgh, as well as in Dinard, France and Perth, Australia. The company conducts ecological, geophysical, sediment sampling and hydrographical surveys, and laboratory analysis as well as provides environmental consulting and reporting services. It currently employs 150 highly-qualified and experienced surveyors, oceanographers, and marine environmental scientists. The acquisition will contribute to Fugro's strategy to provide its clients with fully-integrated solutions. EMU's specialist services will further enhance Fugro's capability to support clients' projects from concept to completion.

### Expro announces agreement to sell its connectors & measurements business

International oilfield service company Expro has agreed to sell its Connectors & Measurements (C&M) business, including the Tronic and Matre brands, to Siemens AG at a valuation of US\$630M. Expro's C&M business is a market leader in the design, manufacture, assembly, and installation of subsea electrical power and data connectors and temperature and pressure sensors. The C&M business had revenues of approximately US\$119M in the calendar year 2011. The C&M business employs approximately 450 people in Ulverston in the UK, Bømlo in Norway, Houston in the U.S., Niterói in Brazil, and Johor in Malaysia.

### Strong growth in offshore operations & maintenance expenditure forecast

Over \$335B worth of expenditure is expected over the next 5 years on offshore operations and maintenance, according to a new report, The World Offshore Operations & Maintenance Market Forecast 2012-2016, by Douglas-Westwood. In 2011, demand for offshore operations and maintenance services totalled \$52.5B, having grown at a compound rate of 6.3% over the past 5 years. Over the next 5 years, a greater compound growth of 8% is expected as the market recovers from the effects of the global downturn of 2008-2009.

### Lucy Lawless arrested following Shell Arctic drillship occupation

The occupation of an Arctic-bound Shell drillship by six Greenpeace activists, including actress Lucy Lawless, ended today after police climbed the ship's drilling tower and arrested the group. The protest was into its fourth day and the activists had spent 77 hours on top of the 170ft drilling tower.

### Caley upgrades Woods Hole A-frame handling system

Marine handling systems specialist, Caley Ocean Systems, is upgrading the Woods Hole Oceanographic Institution's (WHOI) R/V Atlantis research vessel's A-frame handling system to handle the new "Alvin" deep submergence vehicle.

The Caley A-frame handling system was originally designed and installed in 1983 to launch and recover the WHOI submersible "Alvin" from the RV Atlantis II. It was approved by the American Bureau of Shipping (ABS) in accordance with U.S. Naval Sea Systems Command (NAVSEA) requirements. The original Alvin submersible weighed was 35,000lbs (15,909kg). This was later upgraded to 40,000lbs (18,182kg) when the A-frame was overhauled and moved to RV Atlantis in 1996.



The latest mechanical, hydraulic, and electrical upgrade of the Caley A-frame is for the launch and recovery of the new "Alvin" submersible weighing 50,000lbs (22,727kg). Part of the project involves the installation of a larger winch, high performance synthetic ropes, and light tension control system, providing accurate handling control of Alvin. The project is being executed in two phases: A-frame system engineering at Caley's Glasgow facility and commissioning and testing in the U.S. The project is scheduled for completion by May 2012.

For more information, visit [www.caley.co.uk](http://www.caley.co.uk).

### OTC announces 2012 Spotlight on New Technology award recipients

The Offshore Technology Conference (OTC), which takes place in Houston, has announced 13 technologies that will receive the 2012 Spotlight on New Technology Award, recognizing innovative new products that provide significant impact for offshore exploration and production.

The Spotlight on New Technology program gives exhibitors an opportunity to gain visibility for their latest and

most advanced hardware and software technologies at the world's largest event for the development of offshore resources.

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; and
- Significant Impact: provides significant benefits beyond existing technologies.

Spotlight Recipients and Products for 2012 include the following:

- Baker Hughes–TeleCoil™ Downhole Communication System
  - Baker Hughes–MaxCOR™ Large-Diameter Rotary Sidewall Coring Service
  - ClampOn–ClampOn Subsea Corrosion-Erosion Monitor
  - Dockwise–Dockwise Vanguard
  - FMC Technologies–Pazflor Subsea Separation System
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  - Shawcor LTD.–The ShawCor Simulated Service Vessel (SSV)™
  - Tesco Corporation–Directional Liner Drilling System
  - Versabar, Inc.–The Claw
- For more information, visit [www.otcnet.org/2012](http://www.otcnet.org/2012).

### Liquid Robotics gliders break world record

Liquid Robotics®, an ocean data services provider and developer of the first wave-powered Wave Glider® marine robot, is proud to announce that the PacX Challenge Wave Gliders® have broken the Guinness Book of World Records record for distance by an unmanned wave powered vehicle.

Arriving in Hawaii on the first leg of their 9,000nmi journey across the Pacific, they have traveled over 3,200nmi breaking the previous world distance record of 2,500nmi.

Launched on 17 November 2011 from San Francisco Bay, the Wave



Gliders® have survived 8m (26ft) waves in a gale force storm, defied turbulent mid-ocean currents, all while transmitting real-time ocean data and staying on course to their first destination: the Big Island of Hawaii. After a short check-up, the PacX Wave Gliders® will embark on their final journeys to Australia and Japan. During this portion of the record-breaking, scientific expedition, the first team of Wave Gliders® will cross the Mariana Trench and battle the Kuroshio Current on their way to Japan. The second team will cross the equator on their way to Australia. It is anticipated the arrivals will occur in late 2012 or early 2013.

For more information, visit [www.liquidr.com/pacx/](http://www.liquidr.com/pacx/).

### BOEM solicits comments on proposed oil and gas lease sales

The Bureau of Ocean Energy Management (BOEM) announced it will open a comment period and hold a series of public scoping meetings to gather information to be used in preparing an Environmental Impact Statement (EIS) for two proposed oil and gas lease sales in the Gulf of Mexico's Eastern Planning Area. As the President discussed in his State of the Union address, BOEM has issued a Proposed Outer Continental Shelf Oil and Gas Leasing Program for 2012–2017 that would make more than 75% of undiscovered technically recoverable oil and gas estimated on the OCS available for development. The Proposed Program schedules two sales (Lease Sales 225 and 226) in the Eastern Planning Area.

The area for the proposed sales includes 657,905acres that are more than 120mi offshore Alabama and Florida, where there are currently active leases and there is known or anticipated hydrocarbon potential. Other areas in the Eastern Gulf of Mexico — including the Straits of Florida — are not included in the proposed 5-year leasing program because they are under a congressionally mandated leasing moratorium until 30 June 2022.

For more information, visit [www.boem.gov](http://www.boem.gov).

**Cal Dive awarded second Pemex contract for 2012**

Cal Dive International, Inc. has been awarded a contract by Pemex Exploración y Producción for the installation of a 20in. subsea pipeline located in the Abkatun Pol Chuc Field in 73m of water. The contract is expected to generate total revenue of approximately \$46M and will utilize two of the company's key assets. The offshore construction is expected to commence in the second quarter 2012.

For more information, visit [www.caldive.com](http://www.caldive.com).

**Technip awarded subsea contract for the Hadrian South development in the Gulf of Mexico**

Technip has been awarded a contract by Exxon Mobil Corporation for subsea equipment on the Hadrian South natural gas project in the Gulf of Mexico in approximately 7,500ft (2,300m) of water.

The project consists of a subsea tie-back to the planned Anadarko operated spar platform, Lucius.

Technip's operating center in

Houston, Texas will execute the contract. The flowlines will be welded at Technip's spoolbase located in Mobile, Alabama. The Deep Blue, a deepwater pipelay vessel from the Technip fleet, will install the subsea equipment in 2013.

For more information, visit [www.technip.com](http://www.technip.com).

**New environmental noise prediction software**

Scantek, Inc. is pleased to announce the new prediction software for environmental noise produced by industry, wind farms, and mechanical equipment.

Olive Tree Lab - Terrain™, outdoor sound propagation calculation software is for small-scale projects as opposed to large mapping software. It addresses mostly fixed noise sources within a small area where one has control over most of the parameters involved in the calculations.

OTL Terrain-Solver (engineering level) is for engineers who want to have results without dealing with the details. Certain parameters are fixed, enabling the user to "cruise on auto pilot."

OTL Terrain-Analyser (advanced level) is aimed at professionals who wish to have extensive information and be able to manipulate calculations. It places the user in the "driver's seat."

For more information, visit [www.otlterrain.com](http://www.otlterrain.com).

**A new era for The Netherlands Hydrographic Service**

The Royal Netherlands Navy has successfully executed the final contractual tests of its System for Hydrographic Information Processes – Part 2 (SHIP2) project. The SHIP2 project was implemented to produce a new production system for the Netherlands Hydrographic Office. The project will deliver a solution for source and bathymetric data management with the production of paper charts and various digital products and will also include geospatial web publishing capabilities.

For more information, visit [www.caris.com](http://www.caris.com).

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**exactEarth and GSTS sign vessel monitoring and management agreement**

exactEarth Ltd., a leading provider of global maritime vessel data, announced a new agreement with Global Spatial Technology Solutions Inc. (GSTS), a provider of Intelligent Maritime Solutions, for the provision of shipping data. Under this agreement, exactEarth will provide its global shipping data feed, exactAIS® to GSTS to aid in the creation of a maritime vessel management capability that will enhance the overall marine logistics efficiency and reduce the carbon footprint of vessels chartered by Resolute Forest Products to ship their goods. This capability will be achieved by the analysis of vessel movement from port to port through the use of space-based vessel tracking data provided by exactEarth. Funding from the Government of Canada through the Fed Dev Enterprise program has supported the development of this capability through an award to GSTS.

**Performance Team opens on-terminal transload operation at Port of Charleston**

One of the nation's leading logistics providers is opening a container transloading facility at the Port of Charleston to speed its customers' supply chains. Performance Team is leasing space at the Wando Welch Terminal's container freight station, where the company will transload cargo from ocean-going shipping containers to trucks for distribution to its network of customers throughout the Southeast. "We are excited to be able to offer our customers on-port transload and distribution services," said Cliff Katab, president of Performance Team. "The service will greatly improve turn times and allow their supply chains to be more flexible with increased speed." The Wando site is expected to handle both import and export cargo as the company continues to expand in the Southeast. Transloading the goods on-site allows for greater efficiencies, reduced cost, and faster speed to market for retail imports.

**The world's first hybrid ferries with Voith Schneider propeller**

In summer 2013, the world's first two ferries with a hybrid propulsion system will be put into service. Owned by CMAL, they are being built by Ferguson Shipbuilders in Glasgow. Each hybrid vessel will be equipped with two Voith Schneider Propellers (VSP) with an input power of 375kW per propeller. With its hybrid concept, the shipyard aims to reduce the ferry's CO<sub>2</sub> emissions by up to 20%. The vessels will be the first of their kind to combine a diesel-electric propulsion system with lithium ion battery technology. The ferries will operate on various routes in the Scottish waters, which are characterized by strong currents and heavy winds. Both double-ended ferries are powered by two Voith Schneider Propellers each, which support the environmentally-friendly ferry concept with their high degree of efficiency and low draft. In addition, they provide the vessels with excellent performance characteristics and safe maneuvering even under the most difficult operating conditions.

**Dubai municipality upgrades its visibility forecasting and early warning system**

Unique Maritime Group (UMG), one of the world's leading integrated turnkey subsea and offshore solution providers, announced that it has completed the upgrade of Dubai Municipality (DM) forecasting and early warning system. The original system established by UMG in January 2010 that has been providing Dubai Municipality and Dubai Police with visibility forecasting, includes of mix of terrestrial, coastal, and offshore monitoring nodes with centralized data collection, post-processing, and model implemented.

The upgrade of DM's visibility forecasting and early warning system was commissioned to UMG to improve the existing shore tide and met monitoring network consisting of five Aanderaa AWS-2700 weather stations.

Umm Suqeim, Jebel Ali, Jadaf, Hamriah (Mamzar), and Dhow Wharfage Stations were all upgraded with equipment consisting of IP-camera, housing with electronics, and solar panel assembled on a new stainless steel mast permanently fixed on concrete foundation. Meteorological data and camera images are successfully integrated into the new Visibility Forecasting Network and updated on the associated website accordingly. The coastal tide-met stations were upgraded with the latest GPRS communication, additional web servers were installed allowing public web access to the system, and the visibility system was extended to incorporate satellite data.

Eman Ahmed Al khatibi Al falasi, Head of Section, Geodesy & Hydrographic Survey Section, Survey Department, Dubai Municipality, said, "Our main goal is the safety of our community, and with the new upgraded visibility forecasting and early warning system, motorists in Dubai can now be alerted of foggy conditions 6 hours in advance to prevent road accidents due to poor visibility. These stations give live updates of air temperature, relative humidity, rainfall, sea water level, wind direction and wind speed in different areas, thus helping surface traffic safety on the roads and marine navigation."

Training was also conducted at Dubai Municipality premises by UMG staff in order to help DM personnel enhance their knowledge and capabilities to better operate the recently upgraded system.

For more information, visit [www.uniquegroup.com](http://www.uniquegroup.com).

## **Successful sea trials for new Kongsberg K-Master equipped multi-purpose supply vessel**

Sea trials testing the sophisticated Integrated Control System (ICS) developed by Kongsberg Maritime for Olympic Commander, a new Multi Purpose Supply Vessel (MPVS) built at Kleven Yard in Norway, have been successfully completed.

The ICS aboard Olympic Commander features an innovative new one-touch control system for ballast and cargo tank operations as part of the KONGSBERG K-Master workstation on board, which also integrates KONGSBERG K-Pos and C-Joy Dynamic Positioning, K-Thrust thruster control, and K-Chief automation— all of which can be controlled by a seated operator.

The new one-touch control for ballast and cargo tank operations simplifies operation for all cargo systems, including Drybulk, FO cargo, FW cargo, Liquid Mud, Brine, Methanol, Special Product, and Ballast/Drillwater. Other systems under K-Master control aboard Olympic Commander include VHF/UHF and deck lighting.

Olympic Commander is the first of three MPSVs under construction for Olympic Shipping at Kleven Yard that feature the KONGSBERG K-Master aft-bridge workstation as the platform for an ICS. Kleven Yard has so far ordered integrated systems based on K-Master for nine vessels.

For more information, visit [www.kongsberg.com](http://www.kongsberg.com).

## **First Damen fast crew supplier built in Ecuador**



For the first time, a Damen Fast Crew Supplier 1605 will be built in Ecuador by Astilleros Navales Ecuatorianos (ASTINAVE) Shipyard. Damen is supplying the complete, pre-fabricated Shipbuilding Material Package Kit to ASTINAVE. The yard's

technical staff are responsible for the construction, together with Damen Technical Cooperation (DTC). The DTC concept enables customers to build Damen vessels of their choice locally, according to specific requirements.

The Fast Crew Supplier will be delivered to PetroEcuador in September of this year. "Damen will do everything in its power to ensure that ASTINAVE can accomplish this tight deadline,"

says Ezequiel Najmias, Damen Sales Manager Americas. Negotiations with ASTINAVE are already going on for the possibility of more Fast Crew Suppliers and other vessels. State-owned oil company PetroEcuador is the end user of the new Fast Crew Supplier, which will be deployed to transport executives to oilfields.

For more information, visit [www.damen.nl](http://www.damen.nl).

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### Advanced vessel design by BMT for Turbine Transfers

BMT Nigel Gee Ltd, a subsidiary of BMT Group Ltd, has announced further collaboration with Turbine Transfers, one of the leading providers of Windfarm Support Vessels (WSVs), on its latest unique development—the design of a 19m WSV utilizing the Voith Linear Jet.

The Voith Linear Jet (VLJ) is an innovative propulsor unit developed by Voith that provides considerable advantages to the operator over both conventional propellers and waterjets. Voith has undertaken extensive numerical modeling and model testing of the propulsor, but this will be the first application in a vessel. The VLJ is an advanced ducted

propeller with a stator positioned in the duct aft of the propeller, in a similar arrangement to that of a waterjet. For the same installed power, the VLJ is expected to provide a bollard pull approximately 50% higher than that of a waterjet and in excess of 30% higher than conventional propellers.

For more information, visit [www.ngal.co.uk](http://www.ngal.co.uk).

### GMC Pride devilered

The NJSC Chornomornaftogaz Modular Pipelay Barge, GMC Pride, recently departed the Hidrodinamik Shipyard (Tuzla, Istanbul, Turkey), following pipelay conversion and is currently en route to the Black Sea to commence work on its first pipelay project.

The conversion of a flat deck barge into a modern pipelayer was completed over a period of 8 months. Its design is based on GMC's innovative modular pipelay barge concept – all equipment is standardized in construction with "Plug and Play" electrical systems to allow rapid mobilization and demobilization.

GMC's scope of work included the engineering of the barge and pipelay sys-

tem, supplying all equipment, and providing on-site shipyard management for the barge conversion and commissioning. The barge will be operated by NJSC Chornomornaftogaz, with GMC providing ongoing operational support.



The GMC Pride's first project is the installation of a pipeline from an existing platform to a new build jacket in the Odessa gas field in the North Western part of the Black Sea.

GMC is currently expanding its worldwide operations and has recently established a new office in London, near Heathrow to support its European business.

For more information, visit [www.gmcltd.net](http://www.gmcltd.net).

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**U.S. Coast Guard announces final rule for living organisms in ships' ballast water**

The Coast Guard announced the final rule for standards for living organisms in ships' ballast water discharged into waters of the United States. The Coast Guard is amending its regulations on ballast water management by establishing a standard for the allowable concentration of living organisms in ballast water discharged from ships in U.S. waters. The Coast Guard is also amending its regulations for engineering equipment by establishing an approval process for ballast water management systems. A public inspection copy of the final rule is available online at [www.archives.gov/federal-register/public-inspection](http://www.archives.gov/federal-register/public-inspection).

**Ocean acidification rate may be unprecedented**

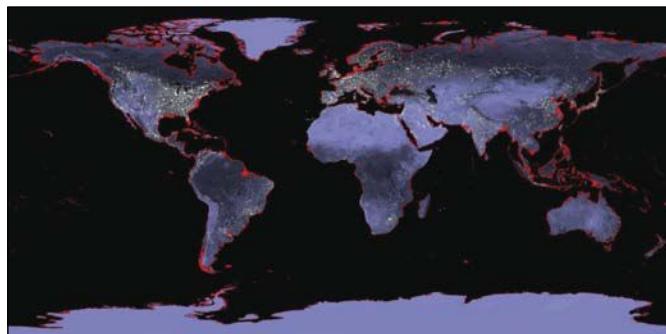
The world's oceans may be turning acidic faster today from human carbon emissions than they did during four major extinctions in the last 300 million years, when natural pulses of carbon sent global temperatures soaring, says a new study in *Science*. The study is the first of its kind to survey the geologic record for evidence of ocean acidification over this vast time period. The oceans act like a sponge to draw down excess carbon dioxide from the air; the gas reacts with seawater to form carbonic acid, which over time is neutralized by fossil carbonate shells on the seafloor. But if CO<sub>2</sub> goes into the oceans too quickly, it can deplete the carbonate ions that corals, mollusks, and some plankton need for reef and shell-building.

**NOAA science supports New York's offshore energy planning**

A newly released NOAA study will help New York State officials make advances in managing their coastal waters and guiding future development of offshore wind energy projects. The study, A Biogeographic Assessment of Seabirds, Deep Sea Corals and Ocean Habitats of the New York Bight, will help the State identify favorable wind energy development sites in the Atlantic and protect critical offshore bird and fish habitats. Ultimately, siting decisions will be streamlined, spurring development of wind energy industry jobs in the region. The report is the result of a 2-year collaboration between the New York Department of State's Ocean and Great Lakes Program and NOAA's National Centers for Coastal Ocean Science (NCCOS) to compile and interpret existing ecological information the State needed for offshore renewable energy planning. The report will help coastal managers better understand the interactions between renewable energy development and natural resources and reduce uncertainties for investors in renewable energy projects.

**Industry vessels urged to report tsunami marine debris**

Information from vessels transiting between Japan and North America is critical to tracking the debris from the tsunami that devastated Japan on 11 March 2011. Ships are encouraged to submit observations and photos of marine debris – as well as reports of “no debris observed” – to NOAA, which is leading efforts to collect data, assess the debris, and reduce possible impacts to natural resources and coastal communities. “Information from vessels operating in the North Pacific will provide vital documentation of the movement of the tsunami debris, and we appreciate the World Ocean Council's help in reaching out to the ocean industry and vessel operators who can assist with gathering this data,” said David Kennedy, NOAA assistant administrator for the National Ocean Service.

**Global sea level likely to rise as much as 70 feet**

Even if humankind manages to limit global warming to 2°C (3.6°F) as the Intergovernmental Panel on Climate Change recommends future generations will likely have to deal with a completely different world—one with sea levels 40 to 70ft higher than at present, according to research results published this week in the journal *Geology*.

The scientists, led by Kenneth Miller of Rutgers University, reached their conclusion by studying rock and soil cores taken in Virginia, New Zealand, and the Eniwetok Atoll in the north Pacific Ocean.

They looked at the late Pliocene epoch, 2.7 million to 3.2 million years ago, the last time the carbon dioxide level in Earth's atmosphere was at its current level and when atmospheric temperatures were 2°C higher than they are now.

“The difference in water volume released is the equivalent of melting the entire Greenland and West Antarctic Ice Sheets as well as some of the marine margin of the East Antarctic Ice Sheet,” said H. Richard Lane, program director in the National Science Foundation’s Division of Earth Sciences, which funded the work.

“Such a rise of the modern oceans would swamp the world's coasts and affect as much as 70% of the world's population. “You don't need to sell your beach real estate yet, because melting of these large ice sheets will take centuries to millennia,” Miller said.

“The current trajectory for the 21st century global rise of sea level is 2 to 3ft due to warming of the oceans, partial melting of mountain glaciers, and partial melting of Greenland and Antarctica.”

Miller said, however, that the results highlight the sensitivity of Earth's great ice sheets to temperature change, suggesting that even a modest rise in temperature would result in a large sea-level rise.

“The natural state of the Earth with present carbon dioxide levels is one with sea levels about 70ft higher than now,” he said. Imagine what the future may well look like on a very blue planet.

For more information, visit [www.nsf.gov](http://www.nsf.gov).

**Cables spanning Pacific Ocean seafloor to give ocean science a new edge**

Marine scientists and a commercial telecommunications company are exploring partnerships that could dramatically advance scientists' ability to observe and study ocean

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processes, provide early alerts for potential disasters, and study deep Earth geodynamics.

Scientists from Scripps Institution of Oceanography at UC San Diego and engineers at NOAA's Pacific Marine Environmental Laboratory (PMEL) are in the initial discussion stages with Morristown, New Jersey-based TE SubCom, a TE Connectivity Ltd. company and an industry pioneer in under-sea communications technology, to integrate scientific instruments onto thousands of miles of seafloor communication cables across the Pacific Ocean. The data collected will be open and available to the global scientific community.

"This is the first time a commercial telecommunications company's cable installations will be deployed with embedded science sensors," said John Orcutt, a distinguished professor of geophysics at Scripps and one of the leaders of the project. "It provides us with a whole new world of capability."

The exploratory partnership between Scripps researchers, NOAA, and TE SubCom is in the formative stages seeking funding for engineering and operations and looking at new approaches to collect high-bandwidth ocean data from the seafloor.

For more information, visit [www.scrippsnews.ucsd.edu](http://www.scrippsnews.ucsd.edu).

## WRI and Google release video series on threats to coral reefs

The World Resources Institute (WRI), with the support from a Google Earth grant, have created virtual tours of six critical reef eco-regions based on the findings from WRI's 2011 Reefs at Risk Revisited report.

The videos focus on the Caribbean, Middle East, Indian Ocean, Southeast Asia, Australia, and Pacific as well as a global-level introduction and conclusion. The journey to each region provides a brief overview of the biodiversity of reef ecosystems, their importance to people and local economies, and the threats that reefs face—illustrated with footage of both healthy and degraded reefs.

You can watch the videos at [www.youtube.com/user/WorldResourcesInst](http://www.youtube.com/user/WorldResourcesInst).

## Chum cam captures sharks on video

A team of scientists, led by the Institute for Ocean Conservation Science at Stony Brook University, used video cameras to count Caribbean reef sharks (*Carcharhinus perezi*) inside and outside marine reserves on the Mesoamerican Barrier Reef in the Caribbean Sea. Using survey data collected from 200 baited remote underwater video (BRUV) cameras, nicknamed "chum cams," the scientists compared the relative abundance of these reef sharks in two marine reserves with those in two areas where fishing is allowed, and demonstrated that the sharks were more abundant in the reserves.

The purpose of the study, conducted from 2005 through 2010, was to test the hypothesis that carcharhinid shark species, which include requiem and whaler sharks, are more abundant inside no-take marine reserves where fishing for sharks and their prey is prohibited. The authors tested the hypothesis by using BRUV surveys to determine the reef sharks' numbers and combined these results with acoustic monitoring to measure their site fidelity (remaining within the same local area) in Glover's Reef Marine Reserve, Caye Caulker Marine Reserve, and two reefs where fishing is allowed, all located in Belize.



"Nearly four times as many chum cam deployments in the marine reserves recorded reef sharks than on similar fished reefs. These areas provide the sharks and other coral reef species a respite from fishing, which means decreased fishing mortality for the sharks and more prey for them to eat," said Mark Bond, lead author and doctoral student at Stony Brook University.

For more information, visit [www.oceanconservationscience.org](http://www.oceanconservationscience.org).

## BP is exclusive oil & gas corporate supporter for the PacX Challenge

Liquid Robotics®, an ocean data services provider and developer of the Wave Glider®, the first wave-powered marine robot, is pleased to announce BP has agreed to be the exclusive oil and gas industry supporter of the PacX Challenge. Designed to gain greater knowledge and

understanding of our oceans, the PacX Challenge is a year-long, scientific journey of four Liquid Robotics' Wave Gliders® across the Pacific Ocean.

While on their treacherous expedition over remote parts of the Pacific Ocean, these marine robots are collecting, transmitting, and making available an unprecedented array of scientific data from ocean winds, wave heights, weather, oxygen, and currents to barometric pressure. These data are being made available free by Liquid Robotics to anyone who registers on <http://www.liquidr.com/pacx/pacxdata>.

As part of the PacX Challenge, Liquid Robotics and BP have established a two-part grand prize that will be awarded to the person(s) whose research "best represents the spirit of exploration and discovery embodied by this journey." The grand prize consists of a \$50,000 BP PacX Research Grant and 6 months of free Wave Glider® data services from Liquid Robotics. The supporting \$50,000 grant offered by BP will be given to the winner to subsidize managing the six-month Wave Glider mission and analyzing the collected data. Together, this prize provides scientists, educators, and students around the world an unparalleled opportunity to advance ocean science and exploration.

## Fewer icebergs, more ships in the Arctic

As Arctic sea ice melts, Alaska's whales, walruses, and polar bears may face a new obstacle as they navigate local waters: traffic. According to an assemblage of Alaska Native groups and WCS, the rapid increase in shipping in these formerly frozen waterways poses a heightened risk to the region's marine mammals and the local communities that rely on them for food, security, and cultural identity.

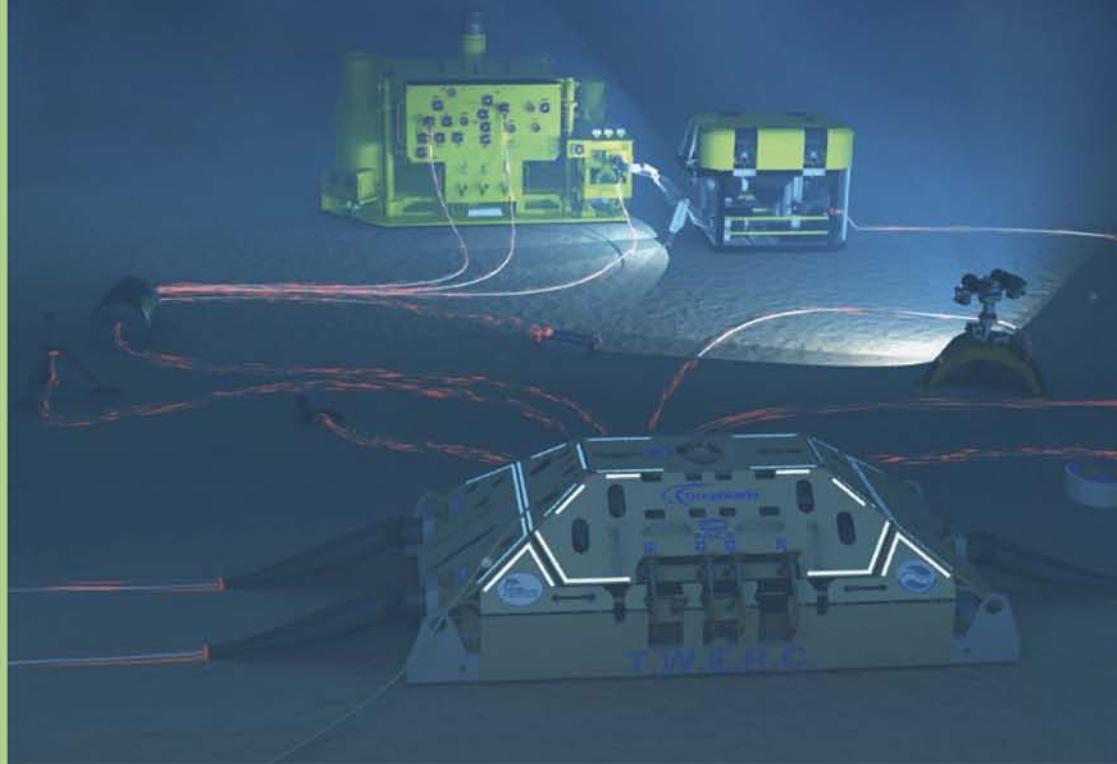
The groups recently convened at a workshop in Anchorage, Alaska to examine these potential impacts. At issue is the effect of climate change on Arctic waters, which have become increasingly ice-free during summer and fall over the last few decades. The lengthening of the open-water season has led to new industrial developments, including oil and gas activities and a rising number of large maritime vessels. The ships transit either the Northern Sea Route over the Russian Arctic from Europe, or the Northwest Passage through the Canadian Arctic from the Atlantic. Both routes require passage through the Bering Strait, the only gateway to the Pacific and a key migratory pathway for marine mammals heading to and from the Arctic Ocean.

For more information, visit [www.wcs.org](http://www.wcs.org).



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## Deep Down, Inc. - Steel Infield Umbilicals

By Ron Smith, President / CEO Deep Down, Inc.

A Subsea Distribution System (SDS) consists of a conduit providing the subsea control supplier a pathway to manage and deliver chemicals to a subsea tree. At the surface, the control supplier connects their Master Control Center (MCC), Hydraulic Power Unit (HPU), and chemical injection skid to the SDS to access the tree and Subsea Control Module (SCM) commonly known as the "POD."

Deep Down manufactures and supplies more SDS components than any other company. This gives them the advantage of being able to control deliveries, interfaces, and installation procedures for the entire system—reducing time, cost, and risk.

For 12 years, Deep Down has focused on lengthening flying leads in an endeavor to eliminate infield umbilicals and use only main umbilicals and flying leads. Deep Down has been successful in redefining the flying lead by making them up to 10,000ft long. This advancement has been significant considering the short fall in EFL and OFL capabilities, but has not been fully realized.

Some remaining challenges are:

1. EFLs and OFLs are limited to lengths of 800ft to 1,000ft to be effectively installed with existing subsea deployment frames.
2. It is not practical to insert electrical and optical components into loose steel flying leads (LSFLs) over a few thousand feet, leaving a gap in services.
3. Infield umbilicals can be up to 6mi long and, thus, greater than the water depths and flying lead ranges.
4. These longer lengths would result in flow assurance issues requiring larger tubes in the bundle, going beyond the flying lead tubing size range.

The ongoing need for infield umbilicals led us to develop a new concept, allowing Deep Down to build full-size steel infield umbilicals and add Deep Down SUTAs or LSFLs



Deep Down installs an acoustic doppler current profiler and back to back riser monitoring umbilical.



*Gas lift umbilical being installed by Deep Down.*

attached to the ends, making it much easier than previous methods. The recently patented Deep Down NHU™ (Non-Helical Umbilical) combines its experience of making miles of LSFLs, terminating conventional steel umbilicals, and observing installation behavior of all umbilicals. Multiple tubes on either reels or sticks are fed into the patented Deep Down manufacturing mechanism, bundled, then the umbilical is extruded with a HDPE jacket. Umbilicals are not torque balanced on their own, so rather than expending resources to balance them and incredible stresses to helically wind them, the Deep Down NHU™ uses the imbalance to its advantage, resulting in a standard bundle. The umbilicals are super duplex of standard number and size, equipped with electrical and optical components, and intended for either static or short-term dynamic service applications. The concept is portable and easily transported for setup anywhere in the world where full-sized steel tube infield umbilicals can be manufactured up to 6mi in length, incorporating appropriate percentages of local content, and installed from smaller vessels located in the vicinity of the subsea fields using compact Deep Down equipment.

A Deep Down SUTA can be added as a standard end termination or tubing can be reduced or simply pulled out of the bundle and joined with a 50ft long Deep Down LSFL over hose then to the Deep Down Moray® termination. This allows a 6mi long single tie back with J-plate connection for a faster, cost-effective step out.

The result is a steel infield umbilical in any standard configuration of electrical, optical, or hydraulic up to 6mi long, fabricated anywhere in the world more economically and in less time, especially when considering transportation and logistics.

For more information visit [www.deepdowninc.com](http://www.deepdowninc.com) or email us at [info@deepdowninc.com](mailto:info@deepdowninc.com).

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**Energy Department announces \$180M for new initiative to deploy U.S. offshore wind projects**

As part of President Obama's all-out, all-of-the-above approach to developing every domestic energy resource, Energy Secretary, Steven Chu, announced the start of an ambitious initiative to capture the potential of wind energy off American coasts. As part of a planned 6-year \$180 million initiative, an initial \$20 million will be available this year as the first step in supporting up to four innovative offshore wind energy installations across the U.S. These offshore wind projects will accelerate the deployment of breakthrough wind power technologies that will help diversify our nation's energy portfolio, promote economic development, and launch a new industry in America.

**Investments in North American wind energy installations to total \$145B through 2017**

Although the North American wind energy industry lags in key areas compared to Europe and Asia, falling costs and larger, more efficient turbines are helping give rise to a sense of cautious optimism. Home to the second largest wind market in the world – the U.S. – the region saw a total of 5,784MW of wind capacity installed in 2010. Although 2011 was another difficult year for the industry, today the region accounts for more than 22% of the world's total installed wind capacity. According to a recent report from Pike Research, installations in the region will pass 125GW by 2017 – more than doubling from 2011 to 2017 – with onshore installations accounting for more than 97% of that total. Overall, the cleantech market intelligence firm forecasts that approximately \$145 billion will be invested in onshore and offshore wind energy installations between 2011 and 2017 in North America.

**BOEM and Hawaii launch offshore renewable energy task force**

The Bureau of Ocean Energy Management held its first offshore renewable energy task force meeting with the State of Hawaii. This inter-governmental task force was established to facilitate communication between BOEM and State, local, Native Hawaiian, and Federal stakeholders concerning renewable energy leasing for research activities and commercial development on Federal submerged lands, known as the Outer Continental Shelf (OCS), offshore Hawaii. The task force includes State government officials designated by the governor and officials from relevant Federal agencies as well as local government officials.

**Fugro Seacore to install Rampion met mast**

Fugro Seacore announced that it has signed a contract relating to the design, build, and installation of an offshore met mast to record and monitor site conditions on the proposed Rampion Offshore Wind Farm site in the English Channel, 13km off the coast of Sussex, UK. Fugro is subcontracting the design of the met mast structure and steel fabrication to preferred experienced suppliers.

**Inocean forms joint venture with ABB for offshore wind power engineering**

Inocean, a leading Norwegian naval architect company, has signed an agreement with ABB to set up an engineering services joint venture specializing in offshore wind integration projects.

ABB will have a majority shareholding in the new entity, ABB Inocean AB, which will be located in Gothenburg, Sweden, a region with a shipbuilding history and recognized as a resource base for offshore industry expertise. The new entity will undertake design, engineering, and project management activities, including fabrication supervision of platforms required for offshore wind connections supplied by ABB. The move is aimed at accelerating the build-up of offshore competence to support ABB's growing offshore wind power integration business.

Offshore wind power is a fast-growing sector with significant potential and is estimated to contribute as much as 100GW of additional renewable capacity between 2011 and 2025, with Europe accounting for around 70%. Many of these offshore wind farms will be located far from shore to benefit from higher wind speeds, lack of obstructions and minimum aesthetic impact. This requires the power generated by wind mill turbines out at sea be collected on offshore platforms and then transmitted through cable connections to onshore stations for further distribution.

ABB has already been entrusted with four large offshore wind connection projects—BorWin 1, DolWin1, Dolwin 2, and Thornton Banks—and is positioned with a complete in-house manufacturing portfolio that includes power semiconductors, high voltage sea and land cables, and AC and DC converter stations.

"Offshore wind power is a growing business for us and this joint venture will further strengthen ABB's competence and expertise in this area," said Martin Gross, head of ABB's Grid Systems business, within the company's Power Systems division. "This joint venture and our recent cable and semi-conductor expansion investments reinforces our leading technology and market position and reiterates our commitment to support the increasing contribution of renewable energies aimed at minimizing environmental impact."

For more information, visit [www.inocean.no](http://www.inocean.no).

## ORPC to begin installing first tidal energy power system

Ocean Renewable Power Company (ORPC) announced that it will begin the installation of its first grid-connected, commercial TidGen™ Power System at a 60 acre site in Cobscook Bay near Seward Neck, Lubec in Maine. The company hopes to begin on-water deployment of its Cobscook Bay Tidal Energy Project following issuance of a license by the Federal Energy Regulatory Commission (FERC).

The company plans to install the project over 2 years. Beginning in May, a single device TidGen™ Power System will be installed at the Cobscook Bay project site. A buried, underwater power and data cable will connect the TidGen™ device through the inter-tidal zone with an onshore station that will be constructed on private property at the end of North Lubec Road. Bangor Hydro Electric will also be upgrading the adjacent service line to facilitate electricity distribution to Maine customers.

Once the single-device TidGen™ Power System is in operation, likely in June, ORPC will conduct performance testing of the system and collect and analyze data on its design, performance, and interaction with the marine environment. Environmental monitoring and fish studies will continue in partnership with the University of Maine's School of Marine Sciences.



In mid 2013, ORPC plans to install four additional TidGen™ devices, creating a five-device power system with a rated capacity of 300kW, enough to power approximately 75 to 100 homes.

For more information, visit [www.orpc.co](http://www.orpc.co).

## EMEC to support development of Japanese Marine Energy Center

Scotland's world-leading marine and tidal energy development facility, the European Marine Energy Centre (EMEC) announced a major international collaboration to develop Japan's first marine energy test center.

EMEC has signed a Memorandum

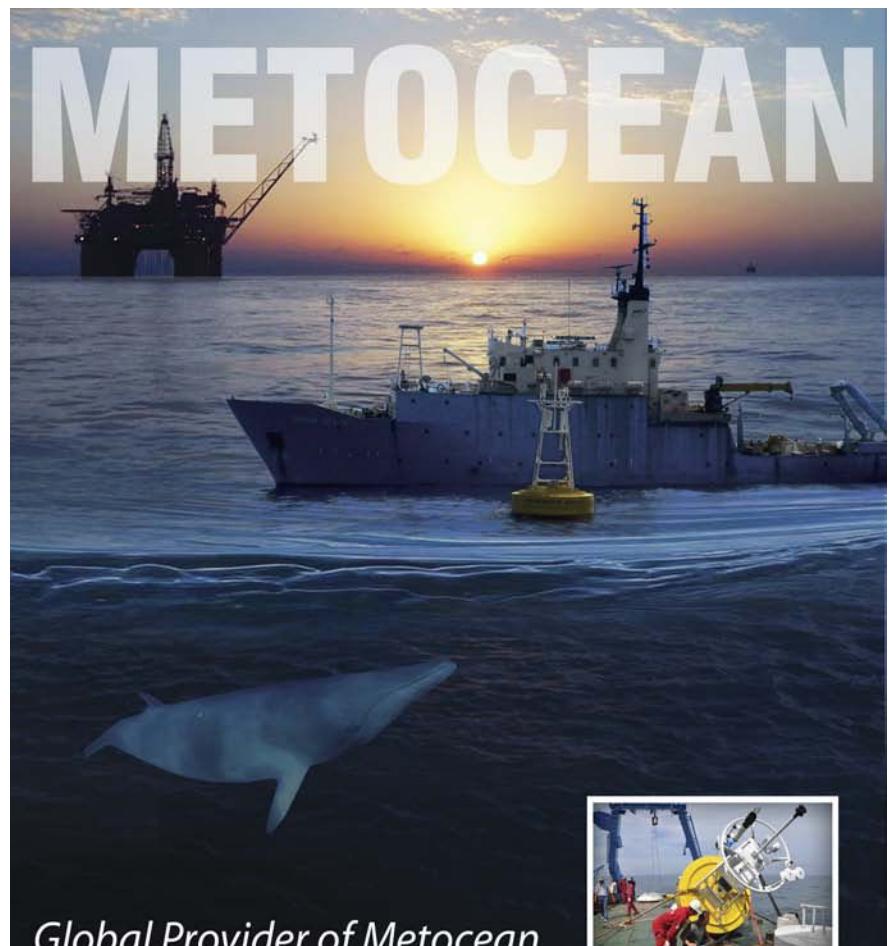
of Understanding with the Ocean Energy Association of Japan (OEAJ), with the potential for EMEC to provide advice and support on the design, set up, and operation of the Japanese Marine Energy Centre (JMEC).

The partnership will play an integral role in Japan's focus on developing viable alternative major energy generation schemes to traditional fossil and nuclear power methods in the wake of the Fukushima disaster, which

had a major impact on the country's industrial landscape.

EMEC's involvement in the development further strengthens the close working relationship already established between Scotland and Japan, which has in the last year seen Kawasaki Heavy Industries confirm that it will test a newly developed tidal energy system at EMEC.

For more information, visit [www.emec.org.uk](http://www.emec.org.uk).



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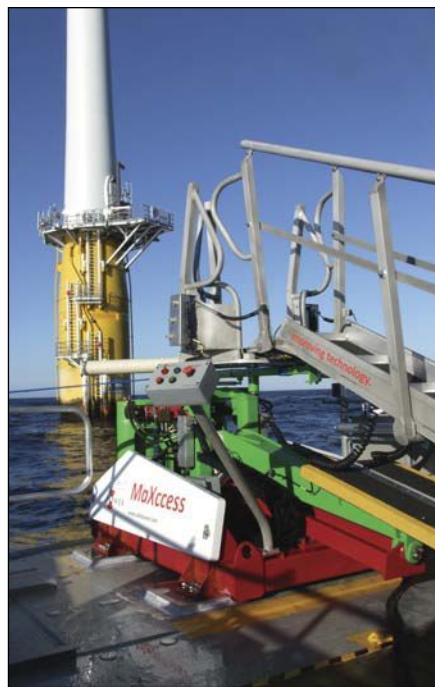


### OSBIT Power's MaXcess system begins trials in Norway

UK-based, OSBIT Power (OP) announced it has begun offshore trials of its innovative offshore wind access system, MaXcess. OP has agreed with Siemens Wind Power and Statoil to conduct trials at Statoil's Hywind demo floating wind turbine in Norway.

The MaXcess system has been developed by OP, with the first production MaXcess unit, MX11/01, being completed in summer 2011. Following an extensive review of offshore access solutions, Siemens Wind Power and Statoil have chosen to support trials of MaXcess, believing it shows great potential to provide significant benefits to both safety and productivity of their offshore projects—a safe step forward in offshore access. OP will be outlining details of the development of MaXcess at Windpower Monthly's Offshore Vessels and Access forum.

As the trend in offshore wind farms continues towards larger and more complex projects located further from shore in deeper waters and at sites that are exposed to severe sea and wind



conditions, improvements in access are vital for continued project success. Lack of access due to weather delays has a direct effect on lost time during construction and interruptions in ser-

vice and maintenance activities. Most importantly, as projects become larger in scale and located at sites exposed to harsh wind and sea conditions, safety of personnel can be greatly improved by the use of the MaXcess system.

The MaXcess system provides a stable platform from which personnel can transfer to and from the boat landing ladders mounted on turbine foundation structures. This stable platform is achieved through the elegant engineering solution OP has developed. A friction based clamp connects the vessel to one of the boat landing tubes by a carefully engineered, patented, linkage geometry that ensures that the bow of the vessel is held stationary while the vessel is allowed to roll, pitch, and yaw freely.

MaXcess has been installed on the wind farm service vessel, Bayard 3 operated by Fred Olsen Windcarrier. A programme of trials to thoroughly test MaXcess in offshore conditions is now underway, being conducted from Statoil's operations base at Skudeneshavn, Norway.

For more information, visit [www.osbitpower.com](http://www.osbitpower.com).

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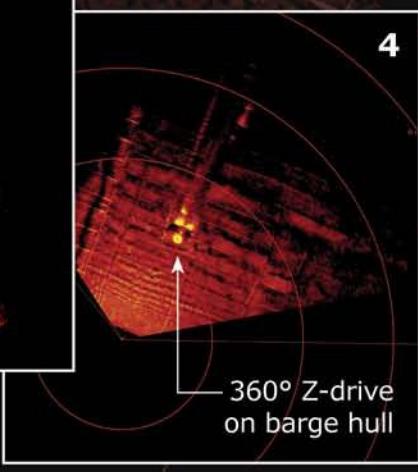
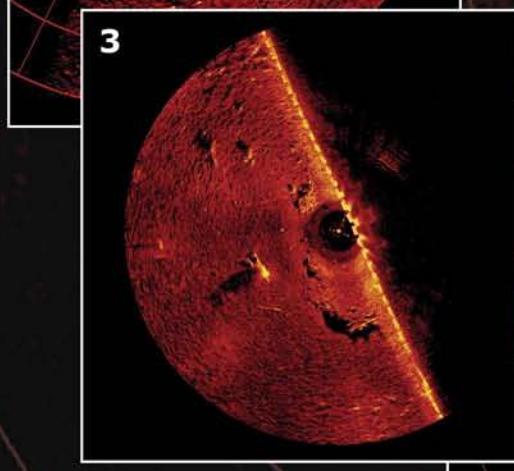
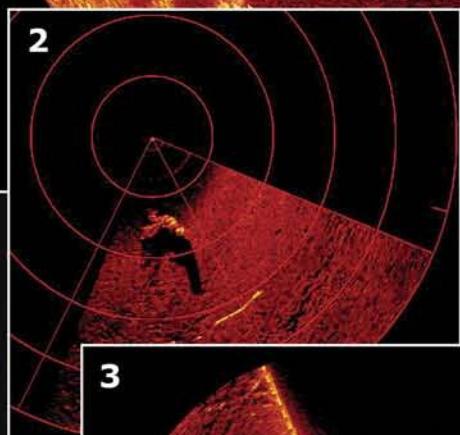
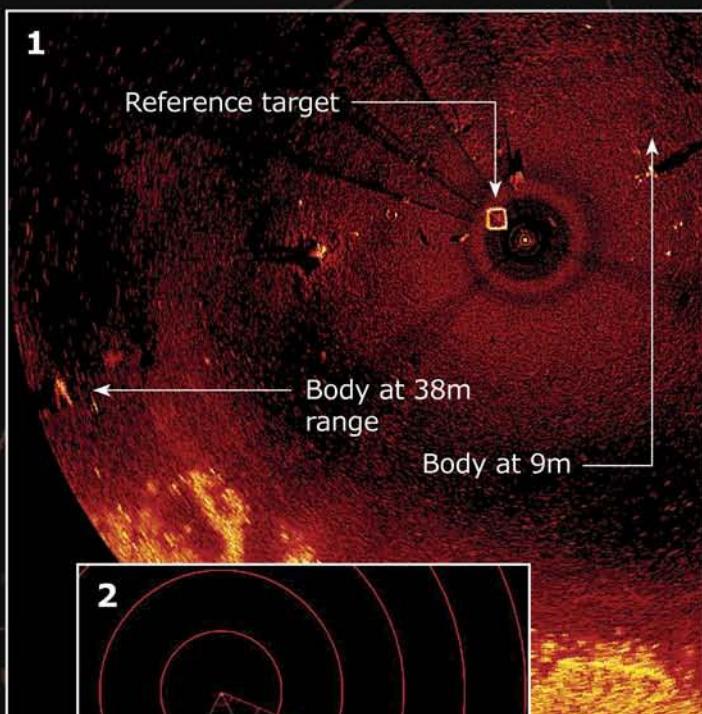
FMGT is available as a standalone module with QINSy, or as part of any Fledermaus Bundle.

[www.qps.nl](http://www.qps.nl)



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THE FULL PICTURE

# OPTI-EX Semi-submersible FPS

## First Approved Post-Macondo

By ON&amp;T Staff

On 9 December, 2011, LLOG Exploration successfully initiated production from the *Who Dat* development in Mississippi Canyon. LLOG is currently producing at a rate of about 14Mbbl/d of oil and 37mmcf/d of gas from the three existing wells. The development plan for the field calls for the company to drill nine additional wells, which would fully utilize the 60Mbbl/d of oil and 150mmcf/d of gas capacity of the floating production system (FPS).

This development represents a number of firsts: first time that a private company will own an FPS; first time the OPTI-EX semi-submersible FPS will be used; first time an FPS has been approved for installation post-Macondo; first time an FPS has been built on speculation; and first time a field has gone from concept selection to installation of a new FPS in less than a year. The project's accelerated schedule created challenges since numerous items were on critical path, including items that are typically nowhere near critical path.

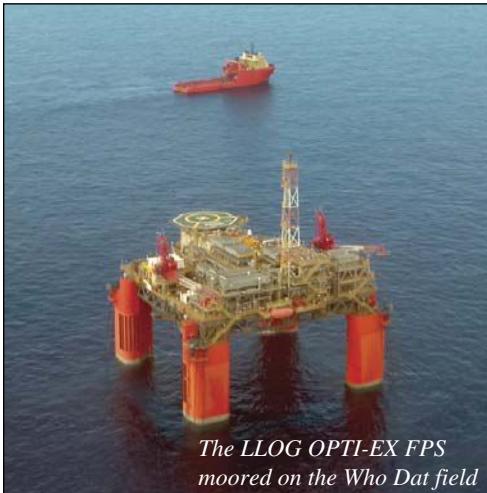
A foremost advantage of the OPTI-EX design is that it is a field installation-friendly unit requiring no offshore derrick lifts for mating deck to hull. The lightweight yet strong topsides deck allowed installation of the majority of topsides equipment, including of installation of interconnecting piping, instrumentation and control systems, and pre-commissioning same at grade level in the fabrication yard. A subsequent shore side single lift-and-set operation installed the nearly completed deck onto the hull.

Another significant advantage was that the unit's pontoon displacement had sufficient reserve transit freeboard that, when coupled with its transition draft stability, allowed for a simple tow out and offshore hookup to mooring, risers, and umbilicals. This advantage allowed loading equipment and rigging for mooring line hookup, riser, and umbilical pull-in at quay side before tow out.

OPTI-EX hull lightship weight to topsides deck weight ratio was another big advantage. The ratio EXMAR achieved (approximately 1:1) means the unit cost less to build than an equivalent production capacity platform because significantly less material was needed. Naval architectural design considerations of hull/topsides environmental drag, deck load capacity, air gap, stability, motions in a seaway, mooring performance, global strength, and fatigue strength were all designed in light of post-Katrina requirements.

OPTI-EX designers also achieved high value in performance of production equipment operational availability (up-time), and cost to operate over the life of the unit. Reserve deck area capacity of 1,000tonnes and reserve deck load and 3,300sq.ft. was designed into the unit for possible future changes. Reliability, Availability, and Maintainability (RAM) analysis of this tried and true equipment puts its long-term availability within 1% to 2% of alternates. When these features are costed out and extrapolated over the unit's productive life, the return is commensurate with, if not superior to, the alternatives.

The above mentioned flexibility of accommodating future changes in production/process needs is also matched by flexibil-



*The LLOG OPTI-EX FPS moored on the Who Dat field*

ity in terms of accommodating present and future field architecture needs.

OPTI-EX was designed to accept 20 risers: production, import, and export located along three of its four sides (ultimately, the OPTI-EX was fitted with 14 riser porch slots for *Who Dat*). The field is located in the Mississippi Canyon protraction area of the Gulf of Mexico in blocks 503, 504, and 547 and is being developed using the OPTI-EX semi-submersible FPS, delivered by EXMAR last July at a cost of over \$400 million. The *Who Dat* discovery is primarily oil and consists of 10 stacked, amplitude-supported reservoirs in a salt withdrawal mini-basin. Three wells have been drilled to date penetrating over 700ft

of net pay in nine distinct reservoirs ranging in depth from 12,000ft to 17,000ft TVD. The field will be developed with 12 subsea wells (i.e., wet trees) flowing to three subsea manifolds and subsequently to the FPS via two infield flowloops using flexible risers. For the oil export, since *Who Dat*'s oil is light-medium sour, Shell's Mars Pipeline system represented the best overall fit. Mars had an existing tie-in point at MC718, which is 19mi west-southwest of the *Who Dat* location.

A 14in. pipeline ensured the oil pipeline capacity would be adequate to match the topsides capacity of 60,000bbl/d under the worst expected blended viscosity. An 11.5in ID flexible riser was used, which was the smallest flexible riser that would allow for pigging of the oil export. Steel Catenary Risers (SCRs) were not an option for any of the risers (export or infield) due to hull motions in the water depth of about 3,100ft.

For the gas export, Enterprise's Independence Trail is in close proximity to the OPTI-EX and had adequate firm capacity and revenue per unit. The Independence Trail had a connection point in MC553 about 17mi east of the *Who Dat* field. A size of 10in. would match the topsides design capacity of 150mmcf/d at the highest expected pipeline pressures. A 9.5in. ID flexible riser was used.

Scott Guterman, president and CEO said, "Installation of the OPTI-EX is a significant milestone, since this is the first FPS installed in the Gulf of Mexico since the Macondo incident and is the first time that the U.S. Coast Guard has approved an existing FPS for installation. We believe this is the first privately owned FPS in the world."

Offshore Magazine named LLOG Exploration's *Who Dat* Project as one of the Top 5 projects in the world in 2011, based on best use of innovation in production methods, application of technology, resolution of challenges, safety, environmental protection, and project execution.

LLOG Exploration Company L.L.C. is a privately operated and owned oil and gas firm with corporate headquarters in Covington, Louisiana and offices in Lafayette, Louisiana and Houston, Texas. LLOG is the largest privately owned oil and gas company operating in the Gulf of Mexico.

For more information, visit [www.llog.com](http://www.llog.com).

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**General Dynamics Bath Iron Works awarded contract to build additional destroyers**

The U. S. Navy has awarded General Dynamics Bath Iron Works a \$663 million modification to a previously awarded contract to construct DDG 116, an Arleigh Burke-class guided missile destroyer. DDG 116 is the fourth ship in the Navy's Arleigh Burke-class construction-continuation program. Bath Iron Works is also under contract for the construction of DDG 115, the third ship in the program. DDG 51 multi-mission guided missile destroyers operate in support of carrier battle groups, surface action groups, amphibious groups, and replenishment groups. The combination of the ships' Aegis combat system, vertical launching system, advanced anti-submarine warfare system, two embarked SH-60 helicopters, advanced anti-aircraft missiles, and Tomahawk anti-ship and land-attack missiles make the Arleigh Burke class the most powerful surface combatant ever put to sea.

**Austal awarded contract for JHSV 8 and 9**

The U.S. Navy has exercised contract options funding the construction of the eighth and ninth Joint High Speed Vessel (JHSV) as part of a 10-ship program potentially worth over \$1.6 billion. The construction contract for these vessels is valued at approximately \$321.7 million. The Austal JHSV team includes platform systems engineering agent General Dynamics Advanced Information Systems, who is responsible for the design, integration, and test of the ship's mission systems, including internal and external communications, electronic navigation, and aviation and armament systems.

**SAIC awarded contract by U.S. Space and Naval Warfare Systems**

Science Applications International Corporation (SAIC) has been awarded a prime contract by the U.S. Space and Naval Warfare Systems Center Pacific (SSC Pacific) to provide a full range of systems engineering, software development, test and evaluation, and program management services in support of ocean surveillance systems. The multiple-award indefinite-delivery/indefinite-quantity (IDIQ) contract has a 3-year base period of performance, one 2-year option, and a potential contract value of approximately \$72 million if all task orders and the option are exercised. Work will be performed primarily in San Diego, California.

**Bluefin receives subcontract award for phase II of DARPA's Deep Sea Operations Program**

Bluefin Robotics, a leader in the design and manufacturing of Unmanned Underwater Vehicles (UUVs), has been awarded a Phase II subcontract from Applied Physical Sciences Corp. (APS) for the Deep Sea Operations (DSOP) Technology and System Development Program sponsored by the Defense Advanced Research Projects Agency (DARPA). Bluefin Robotics will assist in developing systems of configurable technology to address Anti-Submarine Warfare (ASW) surveillance needs over large, operationally relevant areas. The system(s) will operate with sensors or sources near the ocean bottom; exploit the advantages of distributed nodes; configure to a range of operations, environments, and time scales; and adapt to the mobility of surface assets or evolving threats. Additionally, the program will provide the ability to achieve long-range detection and classification, the means to communicate underwater over long distances, and the ability to manage energy to endure in the extreme operating conditions of the deep ocean.

**U.S. Coast Guard to retrofit Icebreakers Healy & Polar Sea**

Measurement Technology NW (MTNW) announced it has received an award from the National Science Foundation (NSF) to upgrade winch monitoring technology for the Coast Guard Icebreakers Healy and Polar Sea. This award brings new MTNW hardware and software technology to the support of winch operations, which are mission critical to these Arctic research vessels.

MTNW Line Control Instruments (LCI) produces a wide range of precision line control products, including the LCI-90i and LCI-80 (winch displays), WinchDAC (winch monitoring software), running line tensiometers (cable line riders), and much more.

NSF and the Coast Guard are working with MTNW because the Line Control Instruments' monitoring and control system provides advanced technology for on-deck safety, reliability, and research accuracy. "The recent change in the operating safety standards for NSF-funded vessels has required a technology upgrade on active vessels," said Tom Rezanka, Managing Director of MTNW. "Our winch technology exceeds the newly-adopted standards and will both increase safety for personnel and enhance marine research in the Arctic."

Rezanka explained that having winch technology that continuously monitors line tension, allows trending, alarm evaluation, data collection with peak load capture at high sample rates—locally at the winch operator station, in the control room, on the bridge and remotely through the PC—increases the safety factor beyond other currently available systems.

"The selection of MTNW as a primary technology provider for this icebreaker fleet reflects our 20 years of commitment to supporting the oceanographic research community," said Matt Mostad, VP of sales & marketing for MTNW.

For more information, visit [www.mtnw-usa.com](http://www.mtnw-usa.com).



## Enterprise departs on final deployment

The aircraft carrier USS Enterprise (CVN 65) departed Norfolk Naval Station 11 March on the ship's 22nd and final deployment.

Enterprise is slated to deploy to the U.S. Navy's 5th and 6th Fleet areas of operation as part of an ongoing rotation of U.S. forces supporting maritime security operations in international waters around the globe.

For Enterprise, the Navy's first nuclear-powered aircraft carrier, the deployment represents the culmination of more than 50 years of distinguished service.

Commissioned in 1961, she is both the largest and oldest active combat vessel in the Navy. Throughout its storied history, Enterprise has played a role in the Cuban Missile Crisis, Vietnam, Operations Enduring, and Iraqi Freedom and was one of the first Navy assets deployed following the terrorist attacks of 11 September 2001.

Enterprise was designed in the late 50s for a 25-year lifespan, and the Nimitz-class carriers were designed for 50 years. "To effectively double the service life of a ship as complex as Enterprise speaks volumes about the design strengths of the world's first nuclear-powered carrier, the Navy's commitment to cost effectiveness, and our Sailors' hard work and innovation throughout the last half-century to keep her going strong," said Capt. William C. Hamilton, Commanding Officer of Enterprise.

Enterprise is scheduled for deactivation and eventual decommissioning following its anticipated return later this year, marking the end of the carrier's legendary 50-plus years of service.



## Austal and General Dynamics to pursue additional defense business

Austal has enhanced its positioning for Australian and international defense programs by entering into an agreement with mission system integrator General Dynamics Advanced Information Systems.

The companies aim to combine Austal's shipbuilding, systems, and support capabilities with General Dynamics Advanced Information Systems' expertise in systems integration to support future shipbuilding and sustainment programs.

Austal's chief executive officer, Andrew Bellamy, said the agreement would enable the companies to provide the best value offerings to the marketplace.

The agreement builds upon existing arrangements between the companies including those for the Littoral Combat Ship Independence-variant and Joint High Speed Vessel programs. Austal is the prime contractor for those ships, while General



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Dynamics Advanced Information Systems designs, integrates, and tests the electronic systems, including the combat system, networks, and seafire control.

General Dynamics Advanced Information Systems, a business unit of General Dynamics, has extensive experience with both surface ships and submarines. The company's innovative open architecture approach to systems integration allows for easy insertion of new technology advancements over the life-cycle of the ship, reducing overall costs.

For more information, visit [www.austal.com](http://www.austal.com).

### **Boeing delivers first P-8A Poseidon aircraft to the U.S. Navy**

Boeing officially delivered the first production P-8A Poseidon aircraft to the U.S. Navy in Seattle. The P-8A is the first of 13 anti-submarine warfare, anti-surface warfare, intelligence, surveillance, and reconnaissance aircraft that Boeing will deliver as part of a low-rate initial production (LRIP) contract awarded in 2011.

Following delivery in Seattle, Navy pilots flew the first production P-8A,



LRIP1-1, to the Naval Air Station Jacksonville, Florida., where it will be used for aircrew training.

The Poseidon team is using a first-in-industry inline production process that draws on Boeing's Next-Generation 737 production system. All P-8A unique aircraft modifications are made in sequence during fabrication and assembly.

A derivative of the Next-Generation 737-800, the Poseidon is built by a Boeing-led industry team that includes CFM International, Northrop Grumman, Raytheon, Spirit AeroSystems, BAE Systems, and GE Aviation.

The Navy plans to purchase 117 Boeing 737-based P-8A aircraft to replace its P-3 fleet. Initial operational capability is planned for 2013.

### **OceanWorks International awarded Canadian Department of National Defense contract**

OceanWorks International has been awarded a contract by the Canadian Department of National Defence for a key piece of equipment that will enable submarine rescue cooperation and interoperability with the U.S. Navy. The A-Frame Template Kit is designed to work along with the Ship Interface Template Set (SITS) previously delivered to the Department of National Defence by OceanWorks International in March of 2010.

Together, the A-Frame Template Kits and SITS will allow the Royal Canadian Navy to host the U.S. Navy's Submarine Rescue Diving and Recompression System's (SRDRS) Pressurized Rescue Module System (PRMS) rescue vehicle and associated Launch & Recovery System, also built and supplied to the U.S. Navy by OceanWorks International, which can drastically reduce the response time required to reach a disabled submarine.

For more information, visit [www.oceanworks.com](http://www.oceanworks.com).

An advertisement for Valeport's VA500 Altimeter. The top half features the Valeport logo with a stylized wave graphic and two images: one of the altimeter device and another of a dolphin leaping out of water. The bottom half contains text about the product and contact information.

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## Coastal Power Systems – A Leader in the Circuit Breaker Sales and Service Industry

Coastal Power Systems (CPS) has been a leader in the circuit breaker sales and service industry for 17 years. First opening their doors in 1995 in a 2,000sq.ft facility equipped only with decades of knowledge and a small inventory, they have now grown into a 30,000sq.ft facility with a circuit breaker inventory into the thousands – as well as retrofill breakers, motor control components, contactors, switchgear, and many other low voltage devices.

The drive behind Coastal Power Systems is simple, quality products that go above and beyond the industry standards, from plating and powder coating all metal components during the refurbishment process to doing “whatever it takes” throughout the course of a job. They promise a line of products that will not only meet specification, but will exceed customer expectations.

As a GE OEM, one of their more recent endeavors has been providing direct replacement, low-voltage breakers for typical oilfield obsolete gear. Some of these include direct replacements for both drawout and bolt-on GE Power Break II to replace the GE Power Break I series. They can accommodate any style

drawout, the slot machine Plainville drawout, the Houston Style, and the TC series drawouts – all able to be directly replaced with an up-to-date, current production Power Break II, and with very little downtime needed to install. Bolt on applications are also included and can be retrofitted just as easily.

Coastal Power Systems understands the need to get a job done efficiently and the need for customers to be up and running as soon as possible with a durable, reliable product. For this reason, CPS offers a massive inventory of ready-to-go items, including the remaining stock of factory new GE Power Break Is.

CPS is also able to replace 2,000amp and below bolt-on Merlin Gerin Master Pacts with a GE Power Break II for Ross Hill System setups. Various other custom designs have been done as well, such as retrofills for the ITE HP3B/M1200s, GE High Pressure Contact switch retrofills, and many more.

Additionally, breaker repair and custom builds are another way CPS has made a mark in the industry. Clients range from oilfield to the manufacturers themselves. Their technicians are some of the best in the world at finding the



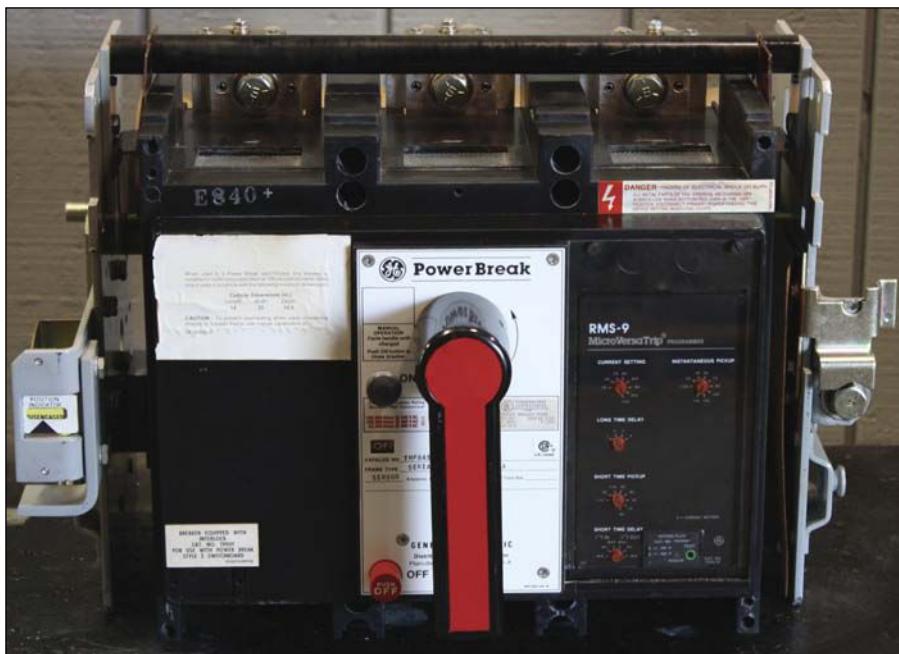
*GE PowerBreak II Retrofit for PowerBreak 1*

cause of a low-voltage issue and correcting it. With the ability to build custom control panels, SCR Bays, Mud Pumps, and ATOs, they emerge as a leader in the oil and gas field.

The knowledge of the products used out in the field and how they operate down to the last nuts and bolts is why customers trust their equipment with the sales group and service technicians. Coastal Power Systems is now able to provide offshore/on-site low-voltage breaker testing and certification, including traveling the globe to come aboard rigs and service and test breakers using portable primary and secondary injection test methods to ensure the rig meets all Coast Guard and international requirements.

Combining expert knowledge of product with their “whatever it takes” attitude has proven to be an effective mix for success, as well as providing products such as low-voltage equipment, circuit breakers, repair services, and on-site testing as well as retrofill breakers to help the oil field get their gear up to date. Coastal Power Systems is a small company doing big things in the oil and gas industry.

For more information please visit [www.coastalpowersystems.com](http://www.coastalpowersystems.com).



*GE PowerBreak I with Houston Style drawout*

# The “Wright” Approach to Deploying a Riser from a Vessel of Opportunity

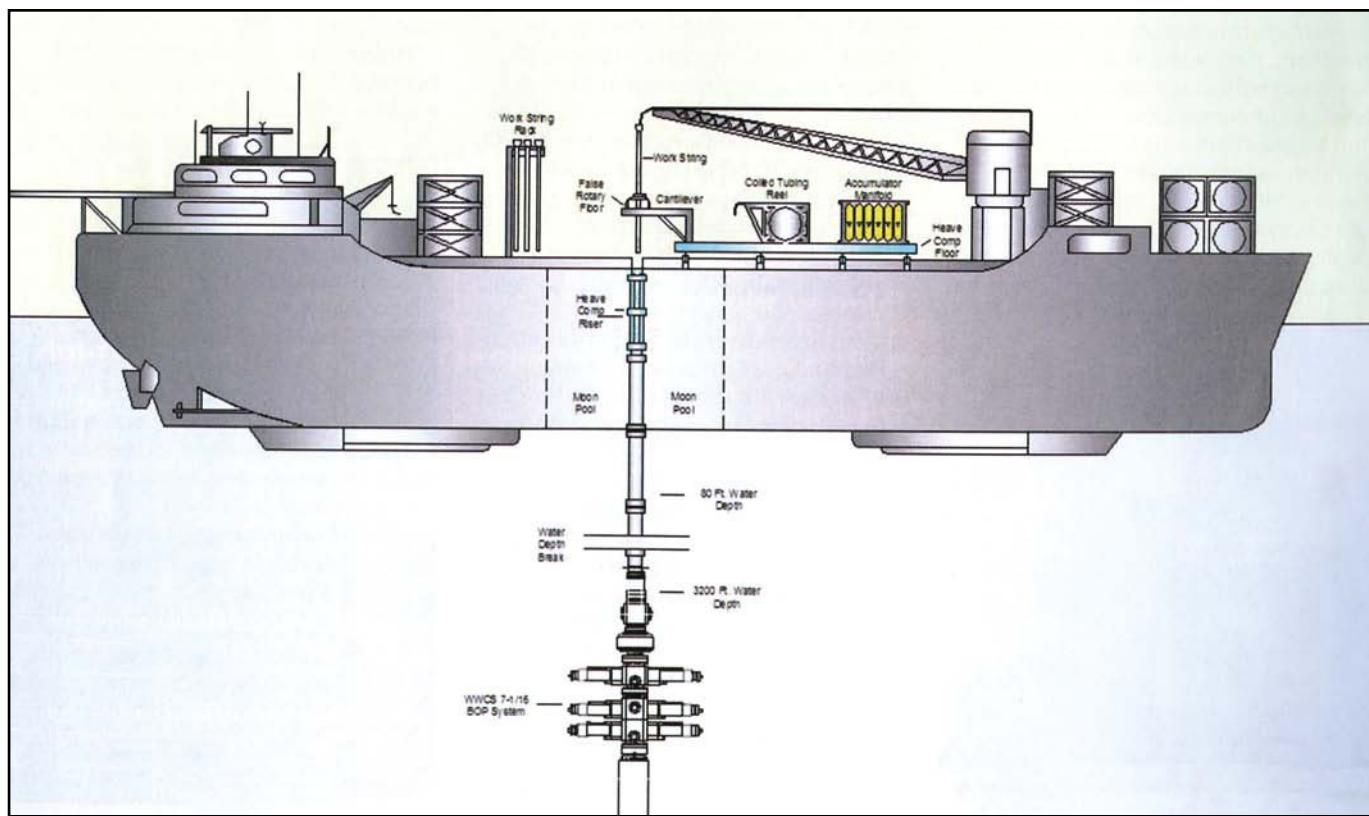
By Wright's Well Control Services

*Offshore technology inventor and Wright's Well Control Services president, David Wright, asks the question “Why does rigless also have to be riserless?” His answer: a heave-compensated system that stabilizes itself via a nitrogen-filled, dual-cylinder assembly. This self-contained kit, along with a heave-compensated vessel floor, could soon enable using risers for running coiled tubing or wireline from a vessel of opportunity.*

“Our team is experienced in rigless and riserless interventions, including acid injection and stimulation, P&As, decommissioning, and hydrate remediation. As a result, we are familiar with running rigless equipment, subsea packages, coiled tubing, and deepwater tools overboard from a vessel, and we have learned valuable lessons in running operations through an MSV’s moonpool,” says Wright. “However, as I looked to expand the services that are currently offered from a boat, I questioned the age-old subsea intervention paradigm that rigless and riserless have to be wedded concepts. Why were we

limiting ourselves simply because that’s the way it had always been done it in the past? Why couldn’t we have the stability and performance offered by a rig while running a riser?”

The answer came to Wright in the form of a new heave-compensation system. He envisioned running coiled tubing, wireline, or other equipment while two cylinders worked in unison against heave from the surface and subsea. He designed it on his computer, sent it to Parker that day to double check the engineering, and it is now in production with a few operators considering utilizing the system for its first deployment.



Wright's Well Control Services heave-compensated riser connected to a WWCS 7-1/16in. BOP

The WWCS Heave-Comp System further breaks with convention by offering a central longitudinal conduit extending through the center of its cylinders. Where other rig-based kits externally stabilize a riser, the WWCS device is machined from its midpoint with a 6in. ID pathway to allow tools to run through the center of the mechanism. "We offer a higher degree of riser management from a vessel during bad weather scenarios, allowing for continued abandonments, workovers, completions, and production operations," says Wright.

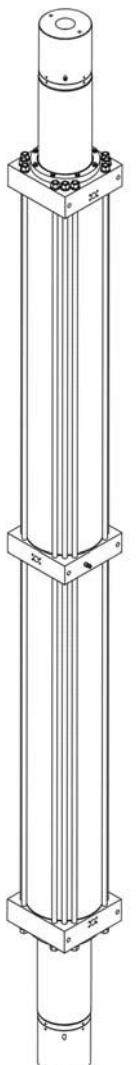
The heave comp is designed for a 150,000lb tension load and has 20ft of total stroke. "Once you throw your bowls and slips in a false rotary floor, set the tension, rig up on top of it, and attach the riser to a BOP, we can run coiled tubing through the moonpool or off the stern of a vessel via a secondary cantilever in 10,000ft WD or deeper depending on riser weight," says Wright. "When that coiled tubing is only moving 3in. to 4in. you have all the benefits of both a riser and a rig."

The system has two cylinders that are aligned internally, share a common central head or base plate, and are housed in the same exoskeleton. "After looking at a number of options, a fluid solution made up mostly of nitrogen gas became the medium of choice for pressurizing the heave comp's cylinders," says Wright.

These nitrogen-filled cylinders are in fluid communication, working in tandem to exert force against each other. While the lower cylinder absorbs the force of the surge subsea on the riser, the upper cylinder compensates for the wave motion experienced by the deployed vessel. The opposite ends of these cylinders – the top of the upper cylinder and bottom of the lower cylinder – travel through the central cavity and move up and down against a common base plate.

Wright is also applying his new stabilization design directly to the vessel itself. Nitrogen-filled cylinders, similar to those used to heave comp the riser can be applied to a heave-compensated floor attached to the vessel deck. "When the heave-comp riser is coupled with the heave-comp vessel floor, you are offering additional means to achieve rig-based performance, but is not my intention to replace rigs for P&As and subsea interventions," says Wright. "We are just building on the principle of a rig's ability to stabilize equipment, either when running through a riser or when stabilizing the floor on which that equipment sits."

The WWCS system is engineered with a 2:1 safety ratio where the tolerances for the riser and floor are adjustable to a predetermined pressure by manipulating the amount of nitrogen in the cylinders. Depending on multiple factors, expected load, motion, type of ship, the weight of the riser, water depth, season, and changing weather conditions, the cylinders are pressured for optimal performance. The cylinders extend or retract to provide the desired length for the field conditions encountered. "The heave-comp riser can also serve as a redundant system for a rig, providing an additional layer of safety," says Wright.



*Cylinder assembly  
for WWCS Heave-  
Compensation  
System*

"Nitrogen enhances the safety of the heave-comp system. It is environmentally friendly, is less likely to leak, and through a series of relief valves can provide a fluid response to force within milliseconds," says Wright. Between 40 and 80 gallon bottles of nitrogen can be pre-charged and do not need to be placed directly next to the cylinders for effective pressurization. He also notes safety is further reinforced with a hybrid emergency quick disconnects (HEQD), which allow for the system to eject from the riser for contingent or unplanned operations.

### **Wright's Rigless R&D**

Wright has used his rigless ideas for equipment to get work ever since he founded the company. "The ability to think of ways to work off a boat has set us apart and with the cost savings our equipment brings to the table has helped us to win jobs," says Wright.

"However, we are much more than some offshore think tank," says Wright, noting that after he has the idea for a new piece of kit, he and his colleagues are tasked with building it and successfully deploying it. "We learn lessons from each new invention's operational success that help turn around the development and execution of the next idea that much faster." For example, Wright took his experience working with EQDs to design those used on the WWCS Hydrate Remediation System. He will now reconfigure the same EQDs and make some improvements for the heave-comp system. "Just think of the R&D time and cost we saved by carrying over that one piece of equipment from one idea to the next."

WWCS rigless repertoire includes the Wright's Intervention Subsea Equipment (WISE) BOP system that allows the opening of the well bore for plug & abandonments and interventions. Wright is also credited with conducting the Gulf of Mexico's deepest rigless wireline intervention from a MSV in 3,500ft WD, increasing gas production by 800% and oil production by 300%. For this job, the company used its own proprietary class 1, division 2 explosion-proof wireline units. These Wright designed units have interchangeable wire-drum sizes allowing for switching between .108in., 7/32in., 9/32in., 3/16in., and 5/16in. wires in 45min by pulling four pins. Another Wright accomplishment was the Gulf's first ever acid job on a subsea well from a DSV in 450ft WD.

"It gives me great satisfaction in taking a new idea from inception, design, fabrication, and testing to its inaugural deployment. Watching a new kit hit the splash zone for the first time and knowing all the creativity and hard work that went into getting there is one of the things that still makes me tick," says Wright. With a delivery date later this year, Wright is optimistic about how this technology is taking shape. "The other fun part is seeing what new twist we will learn from this system's deployment, giving us a leg up on the design and build of the next invention after that."

For more information, visit [wwcs911.com](http://wwcs911.com).



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# OFFSHORE INDUSTRY

## IEA reduces 2012 oil demand forecast, warns of further cuts

The International Energy Agency (IEA) cut its forecast for global oil demand in 2012 after consumption fell in the fourth quarter for the first time since the credit crunch 3 years ago, warning it may reduce estimates further.

Worldwide crude consumption is expected to increase by 1.1mmbbl/d this year, or 200,000 less than previously estimated, to 90mmbbl, the IEA predicted in its monthly market report. A portion of Iran's exports will probably be denied to customers in developed economies in the second half of the year, as European Union leaders prepare tougher sanctions to deter the country's nuclear program, the agency said.

Oil demand will shrink in developed nations in 2012 as Europe's sovereign debt crisis crimps growth, according to the IEA. Still, Brent crude futures have advanced by 4% this year as concern of a recession are balanced by risks that Iran will retaliate against an EU ban on its crude exports. The demand assessment may be reduced further, depending on economic growth revisions from the International Monetary Fund and other institutions, the IEA said.

## Oil, gas industry created 9% of new U.S. jobs in 2011: WEF report

A booming U.S. oil and gas sector was responsible for generating some 9% of all new jobs last year, with three indirect jobs for every one directly involved in the industry, a World Economic Forum (WEF) report released last month found.

The report said the oil and gas industry contributed 37,000 direct jobs in 2011, which led to the creation of an additional 111,000 indirect jobs during the same period. It said the multiplier effect for solar and wind energy was lower during operation, but higher at up to 3.3 times during construction.

"We always suspected that energy had a vital role to play in the economic recovery, but we were still surprised when the data uncovered the magnitude of the sector's multiplier effects," Roberto Bocca, head of energy industries at the World Economic Forum, said in a statement. The WEF report also said the energy sector's highly skilled workforce

is well paid compared to other sectors, with compensation per worker about twice the average in Germany, Norway, the United Kingdom, and the U.S. and four times the average in Mexico and South Korea.

## Subsea engineers paid highest salary in petroleum industry

Subsea, piping, and drilling engineers are paid the highest salaries among oil and gas industry professionals, according to a recent study. The Oil and Gas Global Salary Guide 2012 surveyed more than 14,000 industry professionals in 24 disciplines across the globe. It was produced by Hays Oil & Gas, a global specialist recruiting group, along with the jobsite Oil and Gas Job Search.

Subsea engineers were the highest paid of all disciplines surveyed and can expect average salaries of between \$105,200 and \$146,900, depending on levels of skill and experience.

Drilling engineers, in particular, have seen effective year-on-year salary gains, with senior professionals now averaging salaries of \$98,000 per annum, while the survey found that manager level staff can expect to earn around \$142,500.

Reservoir and petroleum engineers also commanded impressive salaries, with senior level practitioners earning an average annual wage of \$97,800 and manager level professionals in this area receiving \$123,400.

## API study concludes that U.S. oil boom could be much, much bigger

The current U.S. oil boom could be much, much bigger if every piece of Federal land—excluding national parks—was open for drilling, according to a study commissioned by the American Petroleum Institute (API).

North America could produce an additional 10mmbbl/d by 2030, the study says, noting that at today's consumption level, that would eliminate the need for any other imports. Moreover, the additional drilling would create 1.4 million jobs and \$800 billion in tax revenue, according to the study.

"It's time our national energy policy let America take advantage of this opportunity," API president, Jack Gerard ,said in a statement.

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## U.S., Mexico sign deal for oil and gas exploration along maritime border

The U.S. and Mexico have reached an agreement to cooperate on oil and gas development in the Gulf of Mexico. The agreement would set a process that U.S. companies and Mexico's state-owned Pemex could use to jointly develop waters that straddle the nations' maritime border.

It also would provide for the U.S. and Mexican governments to jointly review applications and safety inspections in cases of drilling in the boundary-straddling waters, where oil spills could affect both nations.

The agreement would give companies easier access to areas—including 1.5 million acres on the U.S. outer continental shelf—considered attractive for oil and gas development, but long unexplored because of legal uncertainties over who has rights to the resources.

U.S. Interior Secretary, Ken Salazar, said the agreement will help the government to responsibly expand its domestic energy development. "U.S. companies can now move forward with legal certainty, which has been missing in this area," he said.

U.S. companies will now have the option to partner with Pemex in drilling, under the terms of the new agreement. If the nations cannot agree on exploitation deals, they can take their share unilaterally.

The deal allows more cooperation to develop uniform safety guidelines for offshore energy development to avoid spills, which could affect both nations. This is inline with a previous agreement reached between U.S. President Barack Obama and Mexican President Felipe Calderon in 2010.

It will also remove a moratorium on waters in a buffer area known as the Western Gap. The area was put off-limits by both the nations in 2000.



### UK investment outlook is bleak without incentives, survey claims

The long-term outlook for investment in UK offshore fields is less than bright, according to Oil & Gas UK's 2012 Activity Survey. Production last year saw a record drop, exploration halved, and business confidence remained sluggish despite an average oil price of \$111/bbl.

The survey found that UK oil and gas production fell by 18% last year to 1.8mmboe/d, due to a combination of unplanned stoppages at producing fields and the sector's lowest-ever volumes of new production coming onstream.

Although production in 2012 is expected to rise slightly to 1.85 mmboe/d, the overall picture for the next 5 years remains depressed. Nevertheless, last year's total investment of \$13.47 billion to bring new reserves into production was at the top end of Oil & Gas UK's expectations in light of the budget changes.

Aside from new large projects, the main driver was the substantial capital expenditures needed for maintenance to prolong the life of aging assets. These factors will continue to drive capex in 2012, forecast to reach \$18.2 billion.

The survey shows that although up to 24Bbbl could still be extracted from UK fields, current plans will likely lead to only around 10Bboe being developed. And only 15 exploration wells were drilled last year on the UK shelf, the lowest annual total in the sector's history.

To increase activity, the association calls for stabilization of the UK's fiscal regime, with clarity over tax relief on decommissioning costs and extension of the field allowance structure to promote further field developments. These measures could yield an additional 3Bboe of production.

### Slight majority of voters favor using reserves to cut gas prices

More than half of likely voters think the Federal government should release oil from the U.S. Strategic Petroleum Reserve to bring down rising gasoline prices. Roughly 51% of respondents think the Obama administration should release the oil, while 40% think it shouldn't and 10% percent are unsure, according to The Hill Poll.

Those numbers mirror the results from a poll conducted for The Hill nearly 1 year ago, on 9 March 2011. At that time, 50% said the White House should dip into the reserves, 35% said no, and 15% weren't sure.

Gasoline prices usually rise as the weather gets nicer and people use their



*The U.S. Strategic Petroleum Reserve*

cars more, but analysts say the recent spike is likely due to concerns that world supplies could be reduced as the West confronts Iran over its nuclear program through sanctions and possibly war.

The poll showed a gender gap, with 58% of women saying the U.S. should release oil reserves and 31% opposing the move, while 50% of men opposed the release and 42% favored it.

Pulse Opinion Research conducted The Hill Poll of likely voters on 1 March, with a margin of error of plus or minus 3%.

### BP agrees to pay \$7.8B to settle economic loss and medical claims

BP has reached an estimated \$7.8B settlement with the Plaintiffs' Steering Committee (PSC) to resolve the substantial majority of legitimate economic loss and medical claims from the Deepwater Horizon accident and oil spill. Under the proposed settlement, class members would release and dismiss their claims against BP. The proposed settlement is not an admission of liability by BP.

The settlement, subject to final written agreement, is expected to be paid from the \$20billion trust and includes a \$2.3 billion commitment the company made to help resolve economic loss claims related to the U.S. Gulf seafood industry. The proposed agreement to resolve economic loss claims also includes the fund to support continued advertising that promotes Gulf Coast tourism.

The proposed agreement to resolve medical claims involves payments based on a matrix for certain currently manifested physical conditions as well as a 21-year medical consultation program for qualifying class members. It also provides that class members claiming later-manifested physical conditions may pursue their claims through a mediation-litigation process.

BP would also provide \$105 million to improve the availability, scope, and quality of healthcare in Gulf communities. This healthcare outreach program

would be available to all individuals in those communities. The program would include expanding capacity to address community health needs, including primary care, mental health services, access to environmental health specialists, and enhanced training and education-related to Gulf Coast health issues.

### Aker Solutions designs world's largest spar platform for Statoil

Aker Solutions was awarded a front-end engineering and design (FEED) contract from Statoil to design the world's largest spar platform for the Aasta Hansteen field development in the Norwegian Sea. With a total hull length of 193m and a draft of 170m, the Aasta Hansteen (formerly named Luva) spar platform will be the largest of its kind.

Aasta Hansteen will be the first Spar platform on the Norwegian continental shelf (NCS) and also the world's first spar platform with condensate storage capacity – a so-called "Belly-Spar."

The Belly-Spar concept is an exclusive Aker Solutions design. The belly refers to the increased diameter on part of the circular shaped hull, where the condensate storage tanks are located. This gives the Aker Solutions' Belly-Spar its characteristic shape.



*Aker illustration of 'Belly-Spar' concept*

"The Aasta Hansteen Spar will be the first production platform on the NCS with steel catenary risers. With a water depth of 1,300m, this is probably the only riser technology that can meet the challenges on the Aasta Hansteen field," said Henning Østvig, head of front-end and technology in Aker Solutions.

The steel catenary risers are made of self-supporting steel pipes in a bow shape between the platform and the seabed. The shape helps the risers compensate for the motions on the floating facility.

## Chain manipulator wins prestigious industry award

Cargotec's MacGregor Chain Wheel Manipulator has won Offshore Support Journal's Innovation of the Year award. The award was announced in February at the Annual Offshore Support Journal Conference in London.

The Offshore Support Journal innovation award recognizes a product, system, or service considered to have made a significant impact on the design, build, and operational aspects of offshore support vessels in service during the previous calendar year.

Anchor handling tug-supply vessels (AHTS) must be able to handle the variety of chain sizes employed in subsea mooring operations, so they carry a range of interchangeable chain wheels that can weigh up to 12tons. Cargotec developed the MacGregor Chain Wheel Manipulator in response to an approach from STX. The shipbuilder required a solution for five STX OSV design AHTS vessels under construction for DOF by STX Norway Offshore's subsidiary STX Offshore Brazil. These vessels are intended for operations some distance off the Brazilian coast under long-term contracts from Petrobras, which specified that it should be possible to change chain wheels at sea.

"Changing a chain wheel was previously complicated and labor intensive, and any movement of the vessel caused by wind or waves made it unacceptably hazardous, forcing a vessel to return to port and change the wheel alongside," said Frode Grovan, director, sales and marketing, advanced load handling.

He added, "The trend offshore is to introduce remote-controlled devices that keep crew members clear of potentially hazardous operations while also improving a vessel's profitability. Cargotec developed the Chain Wheel Manipulator to meet both of these objectives. It is designed in accordance with Det Norske Veritas's rules for certification of lifting appliances and can accommodate chain wheels of various sizes, covering all anchor-handling demands likely to be made of any AHTS."

The first installation of Cargotec's MacGregor Chain Wheel Manipulator was for DOF's 95m anchor handling tug-supply vessel (AHTS) Skandi Amazonas, which also features a MacGregor offshore crane.



*The Chain Wheel Manipulator enables an anchor handler to safely change chain wheels at sea, an operation that previously meant returning to port*

## Conoco to sell Vietnam business unit to Perenco subsidiary for \$1.29B

ConocoPhillips has entered into an agreement to sell its Vietnam business unit for a total of \$1.29 billion plus customary working capital adjustments.

ConocoPhillips entered into definitive agreements with a subsidiary of Perenco to sell its three wholly-owned subsidiaries that separately hold its 23.25% participating interest in Block 15-1, 36% participating interest in Block 15-2, and 16.3% participating interest in Nam Con Son Pipeline. The transaction was anticipated to close in the first half of 2012.

"The sale of our Vietnam business unit is an important component of our \$15-20 billion 2010-2012 asset divestiture program. ConocoPhillips has conducted business in Vietnam for more than

15 years, and we are pleased that Perenco has recognized the value of these quality assets," said Al Hirshberg, senior vice president, planning and strategy, ConocoPhillips.

For 2010-2011, ConocoPhillips' asset divestiture program yielded \$10.7 billion in proceeds, in addition to \$9.5 billion from Lukoil share sales, giving total dispositions of \$20.2 billion over this period.

## ATP Oil & Gas Corp. wins NOIA 2012 Safety-in-Seas Award

The National Ocean Industries Association (NOIA) named E&P independent ATP Oil & Gas Corp. the recipient of the 2012 Safety-in-Seas Award as the association marked its 40th anniversary at its annual meeting in Washington, D.C. ATP was recognized for its outstanding contribution to the safety of off-

shore energy workers as well as for the ATP Titan, a deepwater drilling and production facility in the Gulf of Mexico.

ATP's award-winning nomination was selected by a panel of judges from the U.S. Coast Guard, the National Academy of Science's Marine Board, and the U.S. Department of Interior's Bureau of Safety and Environmental Enforcement.

"ATP's initiative, which preceded the Macondo blowout by 3 years, demonstrates the type of safety commitment, risk assessment and mitigation, and close collaboration with the regulators that is critical to the long-term success of the offshore oil and gas industry," NOIA president Randall Luthi said.

## Alaska DNR alters lease terms for Cook Inlet sale May 16 in Anchorage

To promote a shorter time from lease sale to production, the Alaska Department of Natural Resources (DNR) is offering leases for the next Cook Inlet sale under terms that differ from previous years. Along with the Alaska Peninsula sale, the Cook Inlet offering is scheduled to begin at 9 a.m. Wednesday, 16 May, at the Dena'ina Civic and Convention Center in Anchorage.

"Over the past year, we've seen a renaissance of oil and gas activity in Cook Inlet," said DNR commissioner Dan Sullivan. "The terms of this lease sale are meant to encourage diligent operators who are interested in producing off their leases."

The lease rental rate for all Cook Inlet tracts will be \$10/acre through year 7, and \$250/acre in years 8 through 10. If a lessee can demonstrate reasonable diligence to explore and develop the lease, DNR may allow the rental rate to remain at \$10 per acre in the last three years of the primary term.

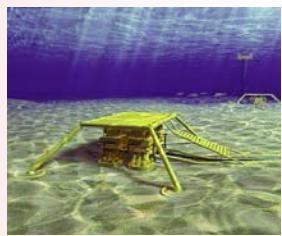
Royalty rates will remain at the minimum level of 12.5%, and minimum bid is set at \$25/acre. Together, the primary lease term and rental schedule provide the lessee with a decision point in year 7 to produce, pay higher rents, or relinquish the lease, DNR said.

To incentivize new exploration and production in the State's four-million acre Cook Inlet lease sale area, the State offers tax credits for new exploration and production wells and for seismic work. Operators pay a reduced royalty for the first 10 years on any new discovery in Cook Inlet, and they pay no production tax on oil.

Terms for the Alaska Peninsula lease sale will remain unchanged from previous years, DNR said.

**Cal Dive awarded 2nd Pemex contract for 2012**  
 Cal Dive International, Inc. was awarded a contract by Mexico's Pemex for the installation of a 20in. subsea pipeline located in the Abkatun Pol Chuc Field in 73m of water. The contract is expected to generate total revenue of approximately \$46 million and will utilize two of the company's key assets. The offshore construction is expected to commence in the second quarter 2012. It is Cal Dive's second contract win in Mexico for 2012. "Mexico is shaping up to be a very active market in 2012 as expected," Quinn Hébert, president and chief executive officer of Cal Dive, said, noting that Cal Dive so far has been awarded contracts in Mexico with aggregate expected revenue in 2012 of approximately \$70 million compared to revenues generated from Mexico projects in 2011 of about \$30 million.

**Ezra gets installation contract for Fram field**  
 Ezra Holdings subsea construction division, EMAS AMC, has secured a contract for marine installation and pipe lay from Norwegian firm Statoil. The company will supply subsea, umbilical, risers, and flow line equipment to Statoil's Fram-H Nord underwater development for \$55 million. It is located in the Troll C/Fram area in the northern part of the North Sea. Fram H-Nord will be developed with one satellite well, tied back to the existing infrastructure at Fram Vest A2 template through twin flow



lines. It will also have a control and service umbilical. Under the terms of the agreement, EMAS will engineer, procure, transport, and install one 10in. flexible production flow line and one 4in. gas injection flow line for the project. EMAS will also carry out all activities necessary for the installation of the integrated template structure and manifold as well as a 5.3km subsea control umbilical and any nearby protection structures.

**Fugro GEOS to provide pipeline monitoring**  
 Fugro GEOS has won a contract to provide Qatar Shell with round-the-clock support and maintenance support for a seabed water temperature monitoring system. The new equipment, which Fugro GEOS designed and installed, is part of the Pearl GTL (gas-to-liquids) project in Ras Laffan, jointly developed by Qatar Petroleum and Shell. It helps manage flow assurance problems in pipelines linking the two Pearl offshore platforms with the onshore plant. Through use of acoustic telemetry, data are sent from the seabed to the platforms and the system interfaces in real-time with the platform's control system. When the seabed water temperature reaches a pre-determined level, an alarm triggers, allowing action to be taken to manage and maintain the flow of gas through the pipelines. Pearl GTL involves exporting natural gas under pressure over a distance of 37mi from the unmanned platforms.

## U.S. Gulf's first FPSO begins work at Cascade

Brazilian state-run energy giant Petrobras has started pumping oil from the first of two deepwater oil fields in the U.S. Gulf of Mexico. It is the first field development in the U.S. Gulf to use a floating production, storage, and offloading (FPSO) system to transport oil production ashore.

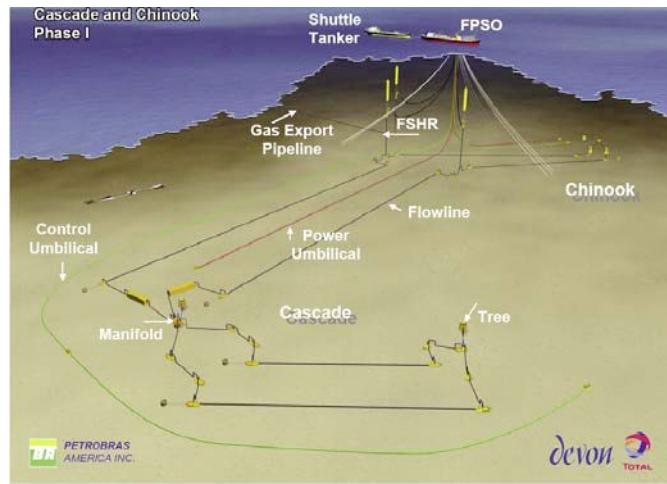
Output at the Cascade field started in late February, when the Cascade 4 well was connected to the BW Pioneer. Petrobras uses FPSOs extensively as production platforms at Brazilian offshore fields. At Cascade, oil will be shipped to the coast using shuttle tankers, while natural gas will be transported via a conventional pipeline system.

Cascade and a sister field, Chinook, are part of an ultra-deepwater oil reserve discovered about 180mi off the coast of Louisiana. Cascade lies in about 8,200ft of water. Petrobras had originally expected to start output at the Cascade and Chinook fields in 2010, but the project was delayed after the U.S. government banned offshore drilling in the wake of the Macondo spill disaster. After receiving approval by the U.S. Department of the Interior to use the FPSO in March 2011, production was delayed once again after an equipment failure.

The BW Pioneer has installed production capacity of 80,000bbl of crude oil and 500,000cm of natural gas per day. The vessel can also store 500,000bbl onboard. The FPSO can be disconnected from its anchoring system, allowing it to be moved out of harm's way in the event of a hurricane or severe storm.

Both Cascade and Chinook are located in the Lower Tertiary region of the U.S. Gulf, an ultra-deepwater area that shares some similarities to the pre-salt region recently discovered off the coast of Brazil.

Cascade and Chinook are located in the Walker Ridge block. Petrobras holds a 100% stake in the Cascade field. At Chinook, Petrobras is lead operator with a 66.7% stake, while a unit of France's Total (TOT), Total E&P, holds the remaining 33.3%.



Conceptual diagram of the planned Cascade/Chinook subsea architecture with FPSO  
 Courtesy Petrobras

### **Shell encounters additional oil at its Appomattox discovery in GoM**

Shell has encountered oil at its Appomattox discovery in the deep waters of the Gulf of Mexico in the Mississippi Canyon block. Shell said it found roughly 150ft of oil pay in an appraisal well in about 7,257ft of water.

"This well supports our continuing appraisal efforts to progress this to a new hub class development," David Lawrence, an executive vice president of exploration at Shell, said in a statement.

In 2010, Shell drilled a discovery well in the region that encountered roughly 530ft of oil pay. A 25,950ft appraisal sidetrack encountered roughly 380ft of oil pay.

### **ATP's 4th well at Telemark yielding in excess of 7,000boe per day**

ATP Oil & Gas Corp. (ATP) said initial production rates at its Mississippi Canyon block 942 A-3 (#2) well was in excess of 7,000boe/d, of which 85% is oil. When drilled, the A-3 well encountered 239ft of net pay.

The A-3 well is located on the Morgus Field and is the fourth well brought on production at the Telemark Hub location utilizing the ATP Titan floating drilling and production platform. ATP operates the deepwater Telemark Hub in approximately 4,000ft of water with a 100% working interest and holds a 100% ownership in ATP Titan LLC, which owns the ATP Titan and associated pipelines and infrastructure.

### **Strategic American Oil says ST 9-12A #4 in Trinity Bay a success**

Strategic American Oil Corp. said it successfully drilled the ST 9-12A #4, its first well in the Fishers Reef Field in Trinity Bay, Texas, to the target depth of 9,720ft. Based on analysis of open hole and field data, the company decided to complete the well and ready it for production.

The target geological interval is referred to as the Tex II Sand and is in the lower part of the overall Frio trend, which has been one of the most prolific productive intervals along the Texas Gulf Coast. According to open-hole log evaluation and core analysis, the ST9-12A #4 encountered about 50ft of gross pay, resulting in 44ft of net pay capable of producing hydrocarbons. The well encountered the productive horizon in a favorable structural position as originally predicted.

"The successful drilling of this well represents a major milestone in our operational plans for the fields in Trinity Bay and Galveston Bay. We are strongly encouraged by what we see and look for-

ward to releasing the production results once obtained," noted Jeremy G. Driver, president and chief executive officer of Strategic American Oil.

### **Technip secures Tubular Bells contract in Mississippi Canyon**

Technip has secured a contract from Hess Corp. for the development of the Tubular Bells field, located in the Mississippi Canyon area of the Gulf of Mexico. The scope of the work covers

the design, engineering, fabrication, and subsea installation of 45km of flow lines, steel catenary risers, pipeline end terminations, piles, and structures. Technip will manage the project, located at depths of 4,500ft, from its operating center in Houston, Texas, while the flow lines and risers will be welded at the company's spool base in Mobile, Alabama. Offshore installation is scheduled to be complete during the first half of 2013.

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**Seadrill Ltd. orders ultra-deepwater drillships from Samsung for \$1.2B**

Seadrill Ltd. has entered into turnkey contracts with Samsung for the construction of two ultra-deepwater drillships at \$600 million each.

Construction of the drillships is scheduled for completion in the second and third quarters 2014. The price includes a turnkey contract with the yard, project management, drilling and handling tools, spares, capitalized interest, and operations preparations. Seadrill also has a fixed price option to order an additional drillship for delivery in 2014.

The drillships are the same design as the three previous dual-derrick drillships Seadrill ordered from Samsung late 2010 and early 2011, with increased water depth, technical capabilities, and accommodation capacities.

These dynamic positioning drillships will have a hook load capability of 1,250tons and a water depth capacity of up to 12,000ft. targeting operations in areas such as the Gulf of Mexico, Brazil, and West and East Africa.

In addition, these units will be outfitted with seven ram configuration of the BOP stack and with storing and handling capacity for a second BOP. In making the decision to order the vessels, Seadrill cited a surge in long-term demand for ultra-deepwater drilling rigs as well as tender rigs driven by high oil prices and deepwater exploration successes.

**Brazil's Petrobras approves 26 offshore drilling rig contracts**

Brazil state-owned Petrobras approved contracting of 21 offline rigs with Sete Brasil and five dual-activity rigs with Ocean Rig. All the rigs, which have local content of 55% to 65%, are due for delivery in 48 to 90 months. The project also includes construction of new shipyards as well as use of existing infrastructure.

The agreement with Sete carries an average daily rate of \$530,000. The Ocean Rig contract averages \$548,000 per day. The offers are for charter and operation.

**Floatec Victory booked for Clair Ridge construction support**

BP contracted Floatec International to provide the accommodation and construction support vessel Floatec Victory for the Clair Ridge development, 41mi west of the Shetland Isles in the UK sector.

The charter will start in June 2015 for a firm period of 12 months, with an option for BP to extend the contract. Floatec Victory is a newbuild DP 3 semi-submersible that should be delivered from Keppel FELS Shipyard in February

2014. Its design complies with the latest UK HSE rules and regulations. When not in DP mode, it can be stationed offshore using a 10-point chain mooring system.

The large payload and deck area, combined with dual cranes able to support the host facility, are all suited to support new construction, maintenance activities or decommissioning projects offshore, Floatec claims. The vessel will have accommodation for 500 crew members.

**GeoGlobal awaits rig Homer Ferrington for Israel commitments**

GeoGlobal Resources expected to receive the drilling rig Noble Homer Ferrington by late March or mid-April. The rig is currently working in Israeli waters and has been contracted for a campaign on GeoGlobal's Myra license.

However, the timing of its arrival will depend on the completion of its current obligations, which could include a testing program at its current location.

Noble Homer Ferrington is a 4th Generation Enhanced Pacesetter semi-submersible capable of drilling in water depths of up to 7,000ft.



*The Noble Homer Ferrington*

GeoGlobal said the 16.6sq mi. of 3D seismic acquired last summer on the Samuel license has been processed. Submission of the preliminary report to Israel's Ministry of Infrastructure was due to be completed by 1 February 2012. Interpretation of the data was expected to be finished by end-March.

ION Geophysical in Houston has been hired to process the data, which will help determine drilling locations on the license.

**Baker Hughes to bring fracturing, stimulation vessel to North Sea**

Baker Hughes has chartered a new state-of-the-art pressure pumping vessel that will provide offshore stimulation services to Maersk Oil in the North Sea. Upon completion, scheduled for late 2013, the Blue Orca will become the eighth vessel in the Baker Hughes fleet.



*The stimulation vessel Blue Tarpon*

The Blue Orca will be rated to 15,000psi and will offer among the largest fluid and proppant carrying capacities in the world. It will provide 15,000 hydraulic horsepower pumping capacity and the ability to pump at rates well in excess of 60bpm. Engineering work on the marine and stimulation systems has already begun.

"Stimulation of long horizontal wells is one of Maersk Oil's key technologies and vital for economic development of our tight chalk reservoirs," said Mary Van Domelen, Maersk Oil's stimulation team leader.

The Blue Orca will join Baker Hughes' other stimulation vessels, including the company's newest additions to the Gulf of Mexico: Blue Tarpon and the Blue Dolphin. The vessels support offshore completion operations and will be equipped to support high-rate and high-volume multi-zone fracturing operations.

**Jurong Shipyard to build well intervention rig for Helix Energy**

Sembcorp Marine's subsidiary Jurong Shipyard has secured a \$385.5 million order to build a semi-submersible well intervention rig for Helix Energy Solutions Group.

The rig is expected to be delivered by January 2015 and will be built based on Bassoe Technology's naval architectural design with Helix's equipment layout.

"This rig is Jurong Shipyard's first specialized platform with well intervention and subsea capabilities and represents a significant advance for us in this growing new market segment," said Don Lee, Jurong Shipyard's offshore division senior general manager.

"We are committed to build on this new partnership with Helix and to meet their stringent standards of quality, safety, and reliability."

The new unit will be able to carry out conventional and extended top hold drilling, subsea construction, decommissioning well intervention, coiled tubing operations, and twin ROV deployment.

It will have the capability to operate in deepwater operations worldwide, including the Gulf of Mexico, off the coast of Brazil, and West of Africa.

## Production

### **Oil production building at Aseng field offshore Equatorial Guinea**

Oil production from the Aseng field off Equatorial Guinea is at more than 50,000bbl/d, according to partner PA Resources. Operator Noble Energy brought the field online in November 2010, 7 months ahead of schedule and 13% below budget, with the first oil shipment offloaded to a tanker in December. Four of the five subsea wells were in service.

The focus was on commissioning the fifth production well and the gas re-injection compression facilities. Aseng's infrastructure will additionally serve as a hub for tieback of other fields, starting with the current program on the Alen field in Block I. This is on schedule to start up late 2013.

The Alen wellhead jacket has been installed, and the production platform was 25% complete. Drilling of the subsea and platform wells started late last year, using the semi-submersible Atwood Hunter and the jack-up Atwood Aurora.

### **Nexen delivers two UK North Sea offshore development tiebacks**

Nexen says its UK central North Sea Blackbird production came onstream 7 weeks ahead of schedule in November as a tieback to the Ettrick field FPSO. Production from Blackbird during the fourth quarter was roughly 5,000boe/d.

In February, Nexen completed the Telford TAC tieback to the Scott platform in the same sector. Another planned tieback, Rochelle, should come onstream around the end of this year.

The company added that fabrication has started on facilities for its newly launched Golden Eagle development, using many of the team that managed the construction of its Buzzard platforms.

Work is proceeding on time and budget, and Nexen expects first production from Golden Eagle in late 2014. The complex will have throughput capacity of 70,000boe/d.

In late March, Nexen expected to spud an exploration well on the North Uist prospect west of the Shetland Islands.

### **Iran outlines oil production plans for two Persian Gulf fields**

National Iranian Offshore Oil Co. (NIOOC) expects oil output from the Forouzan field in the Persian Gulf to rise by 20% over the next 14 months. The field is shared between Iran and Saudi Arabia. Exploration and production activ-

ities started more than 40 years ago, under international law regulations. NIOOC's managing director Mahmoud Zirakchianzadeh told Iranian news service Shana that a development plan for the Esfandiar oil field was nearing completion, with a contract to have been signed some time in March.

In the South Pars field in the Persian Gulf, gas extraction from Phases 17 and 18 should start this June. Full output should be reached in October.

### **Usan sees first oil production, with 180,000bbl/d FPSO capacity**

First oil is flowing from Usan field into its FPSO offshore West Africa, Nexen said. Production rates depend on factors, including ramp-up, well additions, and well performance. The FPSO has a production capacity of 180,000bbl/d and a storage capacity of 2mmbbl. Usan is in Block OML138 about 62mi southeast of the Nigerian coast.

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## **Statoil, ExxonMobil make large gas discovery offshore Tanzania**

Statoil and partner ExxonMobil made a large gas discovery offshore Tanzania in the first exploration well in block 2.

Statoil said the partnership encountered indications of natural gas in the Zafarani exploration well in the block 2 license. The logging results now show that the discovery is a high impact discovery, so far proving up an estimated 5Tcf of gas in-place.

The well reportedly encountered 120m of excellent quality reservoir with high porosity and high permeability. The gas-water contact was not established and drilling operations continued.

The discovery was the first Statoil-operated discovery in East Africa and considered an important event for the future development of the Tanzanian gas industry. "This discovery could potentially be a catalyst for large-scale natural gas developments in Tanzania," said Yona Killaghane, managing director of Tanzania Petroleum Development Corp.

## **Ireland offshore oil appraisal well said to exceed expectations**

Provident Resources discovered light oil with its first appraisal well on the Barryroe structure, 31mi offshore southern Ireland. The semi-submersible GSF Arctic III drilled well 48/24-10z in 328ft of water depth in North Celtic Sea basin in license 1/11.

The well was drilled to a final TD of 7,550ft TVDSS, encountering the primary basal sandstone reservoir interval within the anticipated depth. Reservoir development at this level is better than expected, with strong correlation of the overall sand packages with the offset 48/24-3 well.

During drilling there were indications of hydrocarbons. Results from wire-line logging have confirmed the presence of 41ft of net pay, with an average 15% porosity and 87% hydrocarbon saturation and no sign of a hydrocarbon-water contact.

Pressure data over this interval have revealed oil and gas-bearing zones, with the oil gradient suggesting a light, 40° API crude. Reservoir oil samples have been recovered and taken to the UK for laboratory analysis. Analysis of the pressure gradient suggests the oil-water contact in the basal sandstone could be significantly down-dip from the well.

Provident and its partner Lansdowne Oil & Gas next planned a well flow test program. Initially, a production liner will be set, prior to flow testing the well over a period of up to 10 days.



## **NPD draws up plans for Barents Sea resource mapping in sector**

The Norwegian Petroleum Directorate (NPD) plans to map the geology in the northeast of Norway's newly agreed section of the Barents Sea. Last September, Norway and Russia signed an accord relating to maritime demarcation and cooperation in the Barents Sea and Arctic Ocean.

According to the Norwegian government's plan, seismic surveys will start this summer and continue into 2013, with the aim of providing data on potential oil and gas resources in this area.

"We have very little knowledge concerning the geology in the northeastern Barents Sea. In order to know more about the resource potential, we need more data," said Sissel Eriksen, NPD's exploration director.

The government has also started an opening process with a view to awarding production licenses in the southeastern part of the Barents Sea. Geological mapping started last summer and will continue this summer.

Earlier this year, NPD agreed contracts for two vessels to acquire seismic data in the southeastern sector of the Barents Sea, the sea area around Jan Mayen, and in the Nordland IV and V offshore regions this summer.

"The plans to also map the northeastern sector of the Barents Sea mean that we need more capacity to acquire seismic. This assignment has been submitted for tender," Eriksen said.

## **Anadarko has drilling successes off Sierra Leone, Mozambique**

Anadarko Petroleum Corp. said it made a discovery offshore Sierra Leone. The Jupiter-1 discovery well encountered 98ft net of hydrocarbon pay in Upper Cretaceous-age reservoirs. Additionally, the company announced its latest appraisal well offshore Mozambique, Lagosta-3, encountered about 577 total ft net of natural

gas pay in multiple zones.

"The Jupiter-1 well is a successful test that has been preserved for possible re-entry, as the area will likely require additional evaluation," said Bob Daniels, Anadarko senior vice president, worldwide exploration. "We are planning potential drillstem testing (DST) in the basin, following the Mercury appraisal well, to provide additional information regarding reservoir quality and deliverability."

The Jupiter-1 well in block SL-07B-11 is located more than 15mi from the Mercury-1 discovery well. Jupiter was drilled to a total depth of 21,212ft in water depths of 7,215ft in the Sierra Leone-Liberia Basin. Once operations are complete at Jupiter, the company will mobilize the rig to drill the Mercury-2 appraisal well in the same block. Anadarko operates the block with a 55% working interest.

The Lagosta-3 well offshore Mozambique is located about 2mi west of the Lagosta-1 discovery well and 9mi south of the Camarão-1 well. It was drilled to a total depth of 13,715ft in water depths of 4,606ft and will be suspended while the rig is mobilized to drill the Barquentine-4 appraisal well.

## **Tap Oil begins drilling exploration well offshore Western Australia**

Tap Oil has started drilling works at the Tallaganda-1 exploration well in the Carnarvon Basin off the Western Australia coast. Semi-submersible drilling rig Atwood Eagle is being used to drill the well in the WA-351-P permit and target 0.8 to 1.3Tcf of gas.

"The Tallaganda-1 well has the potential to deliver a resource multiple times larger than Tap's current 2P reserves," Tap Oil CEO, Troy Hayden, said.

Drilling is expected to test the gas potential of sandstones in the prolific Triassic age, Mungaroo Formation, in a well-defined horst block seen in modern 3D seismic data. Atwood Eagle will drill the vertical well in a water depth of 1,141m and was expected take over a month to drill, with a projected total depth of 4,250m.

Tap Oil's drilling cost is estimated at \$10 million, following Tap's farmout of 25% of its participating interest in the permit to BHP Billiton Petroleum last year. BHP Billiton, the operator of the well, owns a 55% stake. Apache Northwest holds 25%, and Tap (Shelfal) owns 20%.



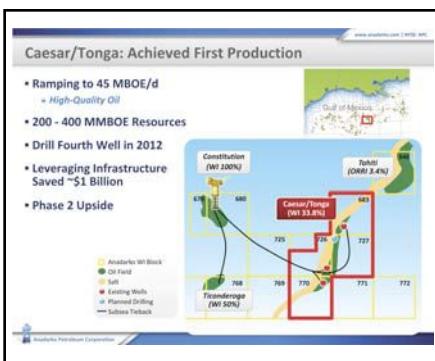
**Bob Daniels**

## Production

### First production achieved at U.S. Gulf's Caesar-Tonga development

After years of development, first production has been achieved at the Caesar-Tonga complex in the Green Canyon area of the deepwater Gulf of Mexico. With an estimated resource base of 200 to 400mmboe, Caesar-Tonga is expected to ramp up to about 45,000boe/d from the first three subsea wells. A fourth development well was expected to be drilled and completed later this year, as part of the planned Phase I development.

Field operator Anadarko Petroleum Corp. began producing high-quality oil



from the Caesar-Tonga development on March 7. "Our ability to safely achieve cost savings of almost \$1 billion by leveraging our existing, operated infrastructure in the deepwater Gulf of Mexico continues to demonstrate the value of our hub-and-spoke approach to exploration and development," said Al Walker, Anadarko's president and chief operating officer.

In addition to using Anadarko's 100%-operated Constitution spar floating production facility, the Caesar-Tonga development also included the first application of steel lazy wave riser technology in the Gulf of Mexico.

The Constitution spar is located in Green Canyon block 680 in about 5,000ft of water. It began production in 2006 with a capacity of 70,000bbl/d and 200mmcf of natural gas per day. In 2009, Anadarko began making modifications to the topsides of the Constitution facility to accommodate production from the Caesar-Tonga area, approximately 10mi to the east.

"Caesar-Tonga fits well with our strategy to significantly grow Gulf of Mexico production over the next several years," said Jason Nye, senior vice president, U.S. offshore, development and



Anadarko's Constitution production spar

production North America for Statoil, a partner in Caesar-Tonga. "And it's a great example of using existing infrastructure in the deepwater Gulf to achieve cost savings. The project teams worked well together on this."

Anadarko holds a 33.75% working interest in the Caesar/Tonga development. Co-owners in the development include Statoil Gulf of Mexico LLC, with a 23.55% working interest; Shell Offshore Inc., with a 22.45% working interest; and Chevron U.S.A. Inc., with a 20.25% working interest.

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## Petrobras declares deepwater oil fields commercial in Santos basin

Petrobras has sent a declaration of commerciality for Tiro and Sidon fields in the southern Santos basin offshore Brazil to the National Petroleum, Natural Gas, and Biofuels Agency.

In the proposal, these new accumulations were named Bauna and Piracaba, corresponding to Tiro and Sidon, respectively. These oil fields are in block BMS-40, in shallow waters of Santos basin, 124mi off São Paulo state.

Petrobras has a 100% stake. Total recoverable volumes are estimated at 113mmboe for Bauna field and 83mmboe for the Piracaba field. Both contain light oil (34° API for Bauna and 32° API for Piracaba), in sandstones reservoirs located above the salt layer.

At the same time, Petrobras confirmed a find in ultra-deepwater Santos basin block BM-S-9, also in presalt. Well 3-BRSA-1023 (3-SPS-85), named Carioca Sela, is in 1-SPS-50 (Carioca) at nearly 3mi from the discovery well.

Sampling at a well depth of 17,224ft recovered 27° API oil. The water depth is 7,050ft. Petrobras (45%; operator), BG Group (30%), and Repsol Sinopec Brasil (25%) hold the tract.

## Oman offshore field development enters new drilling phase

A new phase of development drilling is said to be under way on the Bukha field offshore Oman. Bukha is one of the Middle East-North Africa assets formerly operated by RAK Petroleum that recently transferred to DNO under an agreed merger.

A total of three development wells are planned on offshore Block 8. The first well (West Bukha-5) should be completed this spring.

Another of the transferred assets is a non-operated stake in the Hammamet license offshore Tunisia. DNO is pursuing other opportunities in the country and has opened an office in Tunis.

## Platform construction under way in Russian sector of Caspian Sea

Construction is under way on offshore oil and gas facilities for Lukoil's V. Filanovsky field in the Russian sector of the Caspian Sea. Memorial tablets were fixed upon the base sections of a riser block, living quarter module (LQM-1), and ice-resistant fixed platform No.1 (IRFP-1). Krasnye Barrikady shipyard is building the riser block and LQM-1 living-quarter module; OAO Obyedinyonnaya Sudostroitechnaya Korporatsiya will deliver the ice-resistant fixed drilling and production platform IRFP-1.

# Statoil says new jack-up rig concept to improve recovery



*Artist's renderings of category J jack-up rig (left) and category D semi-submersible (right)*

Statoil is preparing an invitation to tender for a new type of drilling rig for mature fields on the Norwegian continental shelf (NCS). The new rigs, known as category J, will be jack-ups designed by the industry on behalf of Statoil. Statoil will propose for license groups to take on ownership of the rigs.

In order to realize the full potential of the NCS, increasing drilling activity on mature fields is important. Lower rig rates, greater drilling efficiency, and access to rigs are key factors to meet this challenge. The new rig concept is designed to meet these requirements.

"The key to maintain today's production level on the NCS towards 2020 is improved recovery from existing fields and fast and effective development of new fields. We need to drill more wells to deliver on our production ambitions," said Øystein Arvid Håland, head of drilling and wells in Statoil.

Meanwhile, Norwegian offshore drilling operator Songa Offshore was awarded contracts from Statoil worth \$2.66 billion to build two new category D semi-submersible rigs. The structures are also specially built to increase rig capacity for mature fields on the NCS. They are capable of operating in water depths of 100 to 500m and drilling to a depth of 8,500m.

The new category J rigs will be able to operate at water depths from 70 to 150m and drill wells down to 10,000 meters. It is a tailor-made jack-up rig for operations in harsh environments on both surface and subsea wells in the shallow-water segments on the NCS. It will be a tool primarily for drilling and completion of production wells.

"Statoil has the capacity and competence to drive technology and innovation to drill more efficiently and rejuvenate the rig fleet on the NCS. The new category J rigs will deliver wells 20% more efficient than conventional rigs. We aim to achieve reduced cost and time per well with safe and efficient operations," Håland said.

The rig design is currently being developed in collaboration with various industry players, like hull designers, topside suppliers, construction yards, and drilling contractors.

"Statoil is continuously working to secure a rig fleet with the right capacities and capabilities to suit our needs. However, upgrade and adaptions on many of the existing rigs appear too costly for our requirements and challenges on the NCS. We are, therefore, taking steps to rejuvenate the rig fleet and ensure that the right rigs meet the right requirements," said Jon Arnt Jacobsen, Statoil's chief procurement officer.

Statoil plans for invitation to tender for minimum two category J rigs to be issued in July and for the contracts to be awarded in the second half of 2012. The rigs are to be delivered in the second half of 2015, the company said.

One of the two category D rigs would be used on the Norne, Heidrun, and Asgard licenses, with the second set up for year-round operations in the Barents Sea. Songa Offshore said that Statoil has granted bridge financing for the 20% down payment to Daewoo Shipbuilding and Marine Engineering Co. The first two units are scheduled for delivery in 2014, with the other two to follow in 2015.

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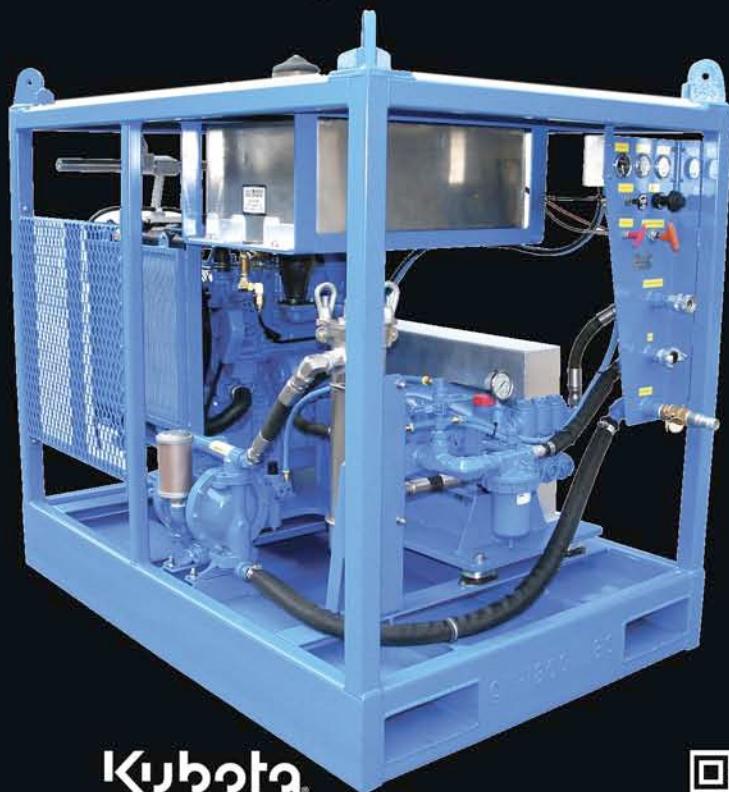
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### Boart Longyear introduces the 10UMX™ diamond coring bit

Boart Longyear has launched the 10UMX™ bit, the latest addition to the patented Ultramatrix™ (UMX) family of diamond coring bits. The 10UMX is a high-performance diamond coring bit with the freest-cutting matrix available, enabling the bit to penetrate the very hardest rock formations in extreme conditions, the company said.

"The 10UMX diamond coring bit completes the product range for our award-winning family of UMX bits, providing a bit for any type of ground condition encountered," said Matt Baird, global product manager for Boart Longyear. "We have tested these bits in all regions of the globe and take great pride in providing drillers the most advanced line of diamond bits in the industry to maximize their productivity."

UMX bits are engineered to outperform existing bit technology in a wide range of drilling conditions and ground formations. UMX bits use advanced metallurgical formulas to provide increased penetration capabilities, turning easily from one ground formation to another. The optimized life of the UMX bits translates to less tripping and increased productivity.



UMX bits also utilize Boart Longyear's patented Stage™ waterway design. The geometry of these windows sustains the integrity of the bit through its entire life, allowing for a variety of crown heights, including the original 25mm, and providing maximum bit life. The Twin-Taper™ design dramatically improves surface flushing, forcing debris through the windows while keeping the bit face clear and reinforcing the inner diameter.

The unique Razorcut™ protrusions on the face of the bit contain diamonds that enable the bit to begin cutting right out of the box. The arrangement of these protrusions also improves the tracking and balance in the hole when drilling begins. To learn more about the 10UMX, visit [www.boartlongyear.com/10umx](http://www.boartlongyear.com/10umx). Case studies with quantitative data from clients are also available at <http://www.boartlongyear.com/umx-bit-case-studies>.



### HB Rentals unveils new laundry pavilion and skid for offshore fleet

Offshore accommodation specialist HB Rentals, a Superior Energy Services company, has introduced a new 6ft x 10ft laundry pavilion and skid to its offshore fleet.

The steel skid comes with three stacked washer and dryer units, a sink, electricity, plumbing, vents, overhead lights, and a fire extinguisher. Cognizant of space, the new steel skid takes up less deck space than the typical enclosed building and weighs significantly less, at around 5,500lbs. The skid runs using 208V, three-phase electric power, and a 100 amplifier hookup.

The steel skid has one open side so it is not considered an enclosure, and is equipped with forklift pockets, padeyes, and slings for lifting.

"The new skid is an innovative design that allows our customers to have an on-site laundry facility, even when space is limited," said John Nagel, HB's director of domestic offshore operations.

For more information, visit the company website at [www.hbrental.com](http://www.hbrental.com).

### Fugro-Jason releases latest version of Jason software for geoscientists

Fugro-Jason, a leader in reservoir characterization technology for the oil and gas industry, has released version 8.3 of Jason™ reservoir characterization software. Jason™ brings the most advanced technology to the geoscientist's desktop with new functionality, particularly suited for managing assets in challenging environments such as shale oil and gas plays, thin bed reservoirs, and subsalt formations.

"During the development phase of their field evaluation programs, operators need a clear picture of their reservoirs to make good drilling decisions and manage their assets for the best return. The biggest challenge is gathering information from different disciplines and making sense of it in time to maximize a

field's profitability," said Eric Adams, Fugro-Jason managing director.

"Jason's™ new functionality and performance enhancements help solve specific geoscience problems by integrating all available information into a detailed, consistent model of the reservoir so those crucial decisions can be made quickly and with confidence."

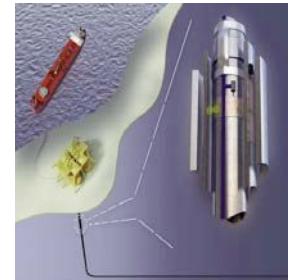
Jason™ addresses a wide variety of geologic settings and challenges with powerful geostatistical reservoir characterization, wavelet estimation and well to seismic ties, and 2D and 3D seismic inversion. In shale oil and shale gas plays, Jason™ can play an important role in building an effective hydraulic fracturing program. Significant enhancements in geostatistical reservoir characterization improve detail in areas where reservoir formations are vertically thin and difficult to detect and correlate.

For additional information, visit <http://www.fugro-jason.com>.

### New wireless tool from Emerson measures pressure behind casing

Emerson Process Management has developed the Roxar Downhole Wireless PT Sensor System—Annulus B instrument. It measures online and in real-time previously inaccessible pressure and temperature information behind the casing in sub-sea production wells, providing operators with an important new tool for well integrity monitoring.

The annulus of an oil well is the space between two concentric objects, such as between the wellbore and casing or between casing and tubing, where fluid can flow. In a completed well, there are normally at least two annuli. The A annulus is the space between the production tubing and the smallest casing string, with the B annulus located between different casing strings.



Cement seals behind the wellbore casing provide a barrier against the high pressures encountered deeper in the well. Poor or deteriorating cement sealing or casing collapse (the casing will heat up and thermally expand due to the production flow); however, can lead to a loss in casing integrity, allowing oil or gas to migrate vertically towards the surface along the outside of the casing. This can result in potentially hazardous situations, especially during workover operations.

For more information, visit the company website at [www2.emersonprocess.com](http://www2.emersonprocess.com).

**Oilfield Equipment****Market intelligence leader Quest Offshore offers three new reports**

Three new market reports are now available from Quest Offshore: Quest Deepwater Insight, Quest Deepwater Review: Gulf of Mexico, and Quest Floating Rig Commitments Report. Quest has also created one of world's largest data repositories detailing forecast and active deepwater projects worldwide, focused on subsea, floating production, deepwater pipelines, umbilicals, risers, drilling prospects, and marine contracting. Information on how to acquire the latest reports is available at [www.questdf.com](http://www.questdf.com).

**Stork launches industry-first hot bolt clamp system technology**

Stork Technical Services (Stork), a global provider of knowledge-based asset integrity management services for the chemical, oil and gas, and power sectors, has launched an industry-first hot bolt clamp system that enables the safe removal and replacement of corroded bolts on live flanged connections that have eight bolts or less.



*Stork Technical Services' industry-first hot bolt clamp technology during live operations*

The system has been extensively field-tested and was successfully utilized by Stork operatives for a recent project on a Chevron North Sea Limited-operated asset in the North Sea.

Fraser Coull, operations support director for Stork Technical Services, said, "Corroded and substandard bolts can seriously impact on an asset's integrity and lead to hydrocarbon releases. Our innovative hot bolt clamp system provides a safe, efficient, and cost-effective method of rectifying this issue which can be delivered out with a traditional shutdown period."



*Stork's hot bolt clamp system enables the safe removal and replacement of corroded bolts on live flanged connections that have eight bolts or less*

The system hydraulically clamps pressurized bolted pipeline flanges together so that corroded stud bolts can be safely removed without exerting additional force to the gaskets. Once all of the bolts have been replaced, the hot bolt clamps are de-pressurized and removed. Change out of the bolts is achieved without taking the flanges out of operation, disruption to the standard line pressure, or danger of hydrocarbon release.

The hot bolt clamp system removes

the potentially time-consuming activity from planned or unplanned shutdown programs, thereby reducing downtime and minimizing personnel required onboard when bed space is at a premium.

Most importantly, the clamp system improves the safety for offshore operatives and the asset as a whole by reducing the likelihood of hydrocarbon releases that can have a devastating impact offshore.

For more information visit [www.storktechnicalservices.com](http://www.storktechnicalservices.com).

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Subsea Survey IRM continues to explore current and new technologies and their role in an expanding global marketplace. The conference is seeking original case studies and presentations on projects, including subsea field development, pipeline installation and infield fiber optic networks.

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## Forum Subsea Technologies launches new Tomahawk™ ROV

Forum Subsea Technologies, a world-leading manufacturer and supplier of subsea equipment, has officially launched Tomahawk™, the latest addition to its class-leading range of multi-role ROVs.

Tomahawk™ has been built to be fast and agile, and it shares the same 35kw power system and thrusters as Forum's largest electric, the Comanche. It is manufactured by Sub-Atlantic, a product line of Forum Subsea Technologies, at its facility in Aberdeenshire, Scotland.

Forum's Sub-Atlantic product range includes the class-leading Comanche, Mohican, Super Mohawk, Mohawk, Mojave, and Navajo Electric ROV Systems and subCAN high-speed communications data network system. Forum Subsea Technologies is also the leading propulsion supplier to work-class ROV builders, globally providing Sub-Atlantic hydraulic thrusters, hydraulic power units, valve packs, compensators, and pan and tilt units.

Mick Jones, senior vice president of Forum Subsea Technologies, explained, "The Tomahawk™ has been designed and built in response to customers' needs for a dependable and adaptable multi-role ROV that can deploy and operate in demanding environments."



*Forum Subsea Technologies senior vice president, Mick Jones, with the company's latest multi-role ROV, Tomahawk™*

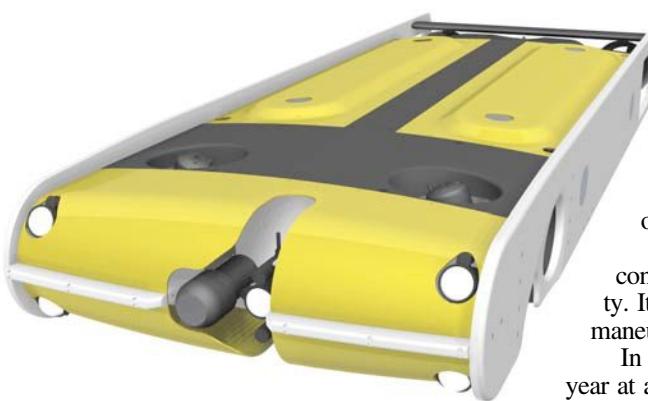
Tomahawk's™ open deck space and payload are supported by a large buoyancy area, which provides a very stable platform. It is rated to a depth of 3,000m, which makes it ideal for deep-water operations such as the Gulf of Mexico, West Africa, and Brazil. It is also well suited to a variety of uses, including survey, well intervention, and drilling support tasks.

Relative to electro-hydraulic work-class systems, Tomahawk™ reduces the quantity of personnel and the level of specialism required to operate it. In addition, it requires less vessel deck space and minimal capital.

The Tomahawk™ is also equipped with Coarse Wave Division Multiplexing (CWDM) and dual gigabit Ethernet options and communication junction box to easily integrate the operators' own equipment, which can be monitored, controlled, and diagnosed by Forum Subsea's Sub-Atlantic subCAN system. Combined with Sub-Atlantic's 3,000v, 400Hz small-diameter tether technology makes the Tomahawks™ speed and agility ideal for live-boating operations. It can also be equipped with a 10kW hydraulic power unit for running heavy-duty manipulators, tools, and work skids.

For more information, visit [www.f-e-t.com](http://www.f-e-t.com).

## Saab Seaeye double-hulled Sabertooth AUV/ROV



The new double-hulled version of the Saab Sabertooth offers twice the operational duration of the single-hulled Sabertooth launched last year. It can have a range of over 40mi, has 14hr duration, and can be depth rated to 3000ms.

The unique Sabertooth concept combines the technologies of both AUV and ROV into a single unified resource, with the range and maneuverability of an AUV and the tooling capability of a light-work ROV.

Three operational modes are possible: autonomous roaming; attached fiber-optic cable, and umbilical for power and communications.

It can embark on long-range programmable missions or under operator control around set targets, with obstacle avoidance and precise maneuverability. It can work down deep tunnels or inside complex structures where its 360° maneuverability allows it to orientate into any position—even directly up or down.

In places where access is seasonally restricted, it can remain underwater for a year at an isolated location ready to be deployed as needed. Tooling packs can be stored at its docking station; batteries can be re-charged, data and video downloaded, and fresh instructions uploaded.

For more information, visit [www.seaeye.com](http://www.seaeye.com).

### Unique Maritime Group launches new umbilical supplied rebreather

Unique Maritime Group (UMG) is bringing about a revolution in the diving industry with the launch of a new exclusive system – the Umbilical Supplied Rebreather (USR). In May 2011, UMG entered into an agreement with Technip Norge (TNOR) to commercialize this product, with UMG assuming responsibility for the worldwide sales, support, and manufacture of the product. As a part of the contract, Technip Marine Offshore Services (TMOS) will take delivery of a number of USR systems during 2012 on completion of successful diving trials. The principle for the development of the USR is to enhance safety, efficiency, and simplify saturation diving operations through the use of rebreather technology.



The USR is a complex piece of equipment that has dual redundancy in the data chain. The rebreather has quad redundancy at an electronics level for safety-related functions and uses two independent rebreather controllers operating in parallel. Each rebreather controller is dual redundant via the use of two different control technologies and rigorous cross-checking between these. Only the counter-lungs and breathing loop have no redundancy and failure of these is guarded against by reverting to open circuit and free-flow options as per current equipment. The electronics unit mounted in the backpack constantly monitors the mixture of gas in the breathing loop.

The current breathing loop for a commercial DSV reclaim-based diver could be up to 1km in length, comprising of the following sections: diver to bell, bell to DSV – around the DSV gas storage system – DSV to bell and bell, to diver. In comparison, by using USR the breathing loop is reduced to approximately 1m in length. The USR also becomes the primary life-support system for the diver and secondary life-support system should there be a loss of umbilical supplied gas to the diver. The bell and the DSV become the secondary life-support system should there be a failure of the rebreather loop.

The USR system comprises a number of different units. On board the vessel are a topside control unit, a data network server, and supervisor's PC. Sub-surface, there is a bell box and termination box and the diver's own equipment made up of a backpack (USR base unit) containing the breathing loop, electronics unit, bail-out cylinders, a helmet fitted with bail-out valve (BOV) and heated visor, and an optional electrically heated suit for use with a dry-suit.

UMG is currently in the process of manufacturing units for sale while supporting the diving trials with the prototype units at NYD in Oslo, Norway. The production units are expected to be completed in Q2 2012.

For more information, visit [www.uniquegroup.com](http://www.uniquegroup.com).

### Hydroid delivers REMUS 6000 system to WHOI

Hydroid, Inc., a subsidiary of Kongsberg Maritime, the leading manufacturer of AUVs has delivered a REMUS 6000 AUV system to the Woods Hole Oceanographic Institution (WHOI) to be used by the U.S. Navy in deep ocean operations.

The REMUS 6000 AUV is the deepest member of Hydroid's growing family of AUVs. It was designed under a cooperative program involving the Naval Oceanographic Office (NAVOCEANO), the Office of Naval Research (ONR), and WHOI in support of deep-water autonomous operations. The vehicle boasts the same proven software and electronic subsystems found in Hydroid's highly successful REMUS 100 AUV, with a depth rating, endurance, and payload that allow for operations in up to 6,000m of water.

Although the vehicle was purchased by WHOI as the primary AUV platform for new sensor and system integration,

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## Underwater Intervention

the ultimate end user for this REMUS 6000 is NAVOCEANO, which acquires and analyzes global ocean and littoral data and provides specialized and operationally significant products and services to all elements within the Department of Defense. This most recent vehicle procurement by WHOI will eventually operate as part of the existing fleet of REMUS 6000 vehicles that the Navy utilizes for deep ocean operations, thus increasing their overall operational capabilities.

For more information, visit [www.hydroid.com](http://www.hydroid.com).

### New MIT algorithm for AUVs determines best route

Sometimes the fastest pathway from point A to point B is not a straight line; for example, if you're underwater and contending with strong and shifting currents. But figuring out the best route in such settings is a monumentally complex problem — especially if you're trying to do it not just for one underwater vehicle, but for a swarm of them moving all at once toward separate destinations.

A team of engineers at MIT, led by Pierre Lermusiaux, the Doherty

Associate Professor in Ocean Utilization, developed a mathematical procedure that can optimize path planning for AUVs, even in regions with complex shorelines and strong shifting currents. The system can provide paths optimized either for the shortest travel time or for the minimum use of energy or to maximize the collection of data that is considered most important.

The team's simulations have successfully tested the new algorithms in models of very complex environments, including an area of the Philippines amid thousands of islands with convoluted shorelines, shallows, and multiple shifting currents. They simulated a virtual fleet of 1,000 AUVs, deployed from one or more ships and seeking different targets. Adding to the complication, the system they devised can even account for "forbidden" zones that the craft must avoid, and fixed obstacles that affect both the underwater craft and the flow of the currents, and even moving obstacles, such as passing ships.

For more information, visit [web.mit.edu](http://web.mit.edu).



### RRC Robotica adds Schilling Robotics HD systems

Schilling Robotics, LLC announced the order of HD ROV systems by Brazilian operator RRC Robotica Submarina. The order was for two 150hp, 3,000m-rated HD™ ROV systems that are scheduled for delivery in the second quarter of 2012. These ROVs will be installed on two separate vessels for work offshore Brazil.

José Ramos, general manager for RRC-Robotica Submarina, stated, "RRC is very pleased to acquire two HD ROV Systems from Schilling. The Brazilian market and its clients will now experience the use of the very high quality and reliable equipment. Together, with our management innovation and full local support from Schilling, we are 100% sure that the results will impress our clients."

For more information, visit [www.schilling.com](http://www.schilling.com).

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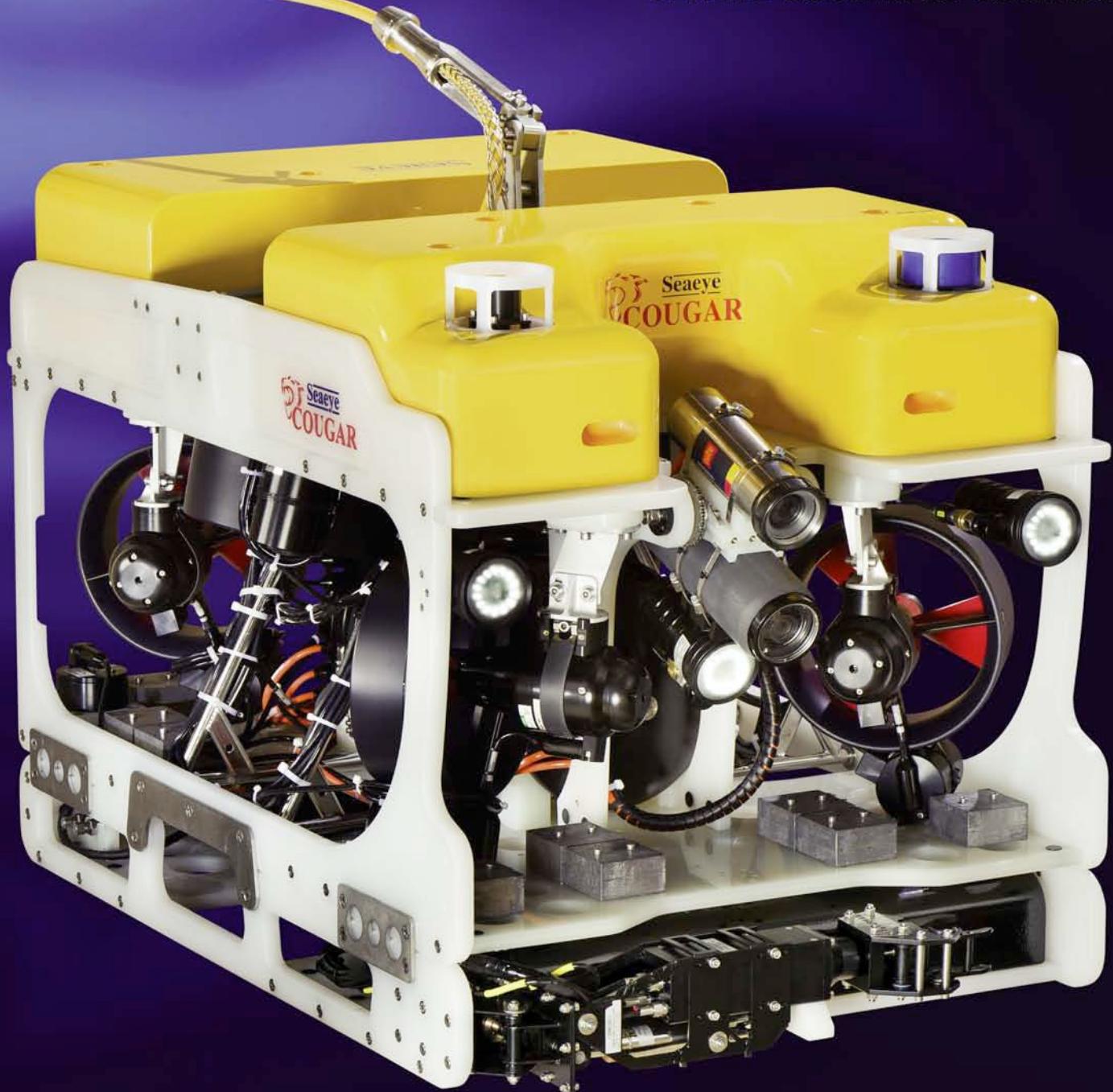
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**Maritime satellite communications market growth tops 5.5%**

Euroconsult, an international research and analysis firm specializing in the satellite and space sectors, forecast that the number of satellite communications terminals in the global maritime market will nearly double over the next decade, with a compound annual growth rate (CAGR) of 7% over the 10-year period. While MSS terminals are still expected to account for the majority of terminals deployed over the decade, VSAT service providers should gain significant market share in terms of revenue in the coming 10 years. Euroconsult said the number of terminals used for global maritime satellite communications grew about 6% in 2011, while revenues at the satellite operator level increased by over 7%. The total size of the market reached about 317,000 active terminals in 2011 that generated more than \$1.4 billion in revenue at the service provider level. Established MSS services, especially the emerging VSAT business, contributed to the overall growth of the maritime satellite communications market.

**Norwegian Cruise Line awards contract to MCP**

Maritime Communications Partner (MCP) has strengthened its foothold in the U.S. cruise market through a major telecommunications contract with Norwegian Cruise Line. The contract includes the entire fleet and two large new builds. MCP's contract with Norwegian Cruise Line covers cellular telephony and prepaid services to passengers and crew in the existing fleet and the two yet-to-be launched cruise ships. All the ships will be equipped with a state-of-the-art network enabling future migration to 3G and LTE technologies.

**New strategic alliance between LinkScape and KNS**

LinkScape has announced its strategic partnership with KNS, the worldwide designer and manufacturer of high-grade antennas. This new combination allows for a simple two-cable installation, with a single 1U below deck unit with no other external components, and provides shared and dedicated bandwidth for yachts, commercial vessels, and cruise ships. This newly combined functionality within the two companies provides robust Ku and C-band coverage across the Americas, Caribbean, Europe, Asia, and extended coverage worldwide. It's the fastest Internet on the market, with an extensive virtual office, phone, fax, e-mail, web, and data service offerings that are fully monitored and managed by a team of seasoned industry professionals. Customized term options are also available.

**Princess Cruises selects MCP for the new ships**

Princess Cruises has again selected Maritime Communications Partner's (MCP's) wireless communications service, this time for the new Royal Princess and her sister being built at Fincantieri shipyard in Italy. The service has already been implemented on Princess Cruises' 16 vessels and offers the most reliable end-to-end wireless service available. Princess Cruises' latest contract with MCP means that passengers on the new vessels can stay connected while onboard with global roaming capabilities for voice, text, and mobile Internet conveniently billed to their home carrier. Additionally, the contract includes the provision of CrewSIM, a service that allows crew members to make and receive voice calls, texts and mobile internet at discounted rates. The new vessels, due for delivery in 2013 and 2014, will get a future-proof, state-of-the-art modern antenna network enabling an eventual migration to 3G and future technologies.

**Telstra connects the world to dive to bottom of the ocean**

Australians were among the first to join Oscar-winning Hollywood director and explorer James Cameron on his historic journey to discover what lies at the ocean's deepest point 11km below the surface in the Mariana Trench.

Telstra's technology connected the world to images of James Cameron's DEEPSEA CHALLENGE expedition, a joint scientific project by Cameron, the National Geographic Society, and Rolex to conduct deep-ocean research and exploration, in a submersible built in Australia.

The global expedition has a strong Australian connection. The submersible was built in Leichhardt, Sydney; has Aussie crew members on board, including the ship's doctor; and test dives were conducted in Jervis Bay on the New South Wales South Coast. The expedition embarked from Sydney Harbour.

As Global Telecommunications Partner, Telstra's technology provided the 70-strong crew with connectivity to the outside world, connectivity that's critical to enabling the smooth running of the expedition. This includes:

- Satellite phones;
- Wireless Internet and VoIP telephone communications system with international direct dial; and
- Full high-definition video broadcast transmission system, enabling live transmission of footage and images on demand.

The on-ship satellite dish is a specialized marine grade dish, the cover "housing dome" measuring 3.65m in diameter.

The radome antenna houses a transmitter and receiver dish, measuring 2.4m in diameter. With an enclosed high power amplifier and air-conditioning unit, it also houses an automatic stabilizing system suitable for sea-to-land communication.

The receiving satellite dish is at Telstra's International Teleport facility located in Sydney where the dish size is 18m in diameter.

For more information, visit [www.telstra.com.au](http://www.telstra.com.au).

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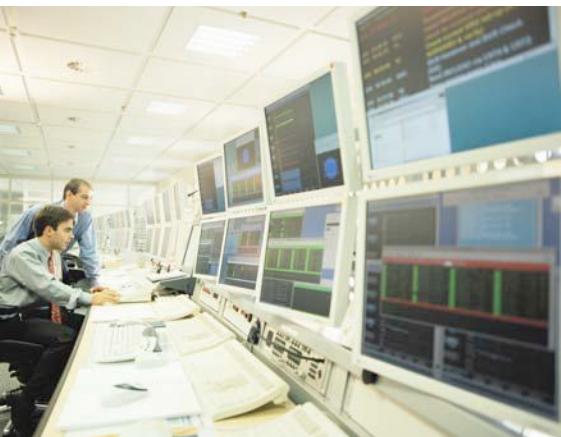
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### ITC Global meets rising demand in Gulf of Mexico

SES announced that ITC Global, an international provider of satellite communications services to remote mining, oil and gas, and maritime operations, has renewed a capacity deal to deliver connectivity to rigs and vessels throughout the Gulf of Mexico region.

Under the multi-year, multi-million-dollar agreement, ITC Global is utilizing 42MHz on SES' AMC-9 satellite to deliver high-speed broadband and secure

corporate network solutions to crews on ships at sea and remote oil drilling platforms. ITC Global provides satellite-delivered, enterprise-grade communications services around the world.

For more information, visit [www.ses.com](http://www.ses.com) or [www.itcglobal.com](http://www.itcglobal.com).

### V.Ships selects KVH mini-VSAT Broadband

In a move recognizing the growing demand for enhanced data applications in the commercial shipping industry, V.Ships, the world's largest independent ship manager serving a fleet of over 1,000 vessels, has selected the mini-VSAT Broadband(sm) service from KVH Industries, Inc., as its preferred satellite communications solution. V.Ships intends to promote KVH's TracPhone® onboard terminals and the global mini-VSAT Broadband service to its customers through SeaCom Electronics Ltd., a fellow member of V.Group, V.Ships' parent company.

The mini-VSAT Broadband service is unique in that it uses ArcLight® spread spectrum technology developed by KVH's satellite technology partner

ViaSat. The service offers a broad seamless web of multi-megabit service created by 14 Ku-band satellite transponders and will soon cover 95% of the earth with overlayed coverage from three global C-band transponders. In most regions, vessels enjoy redundant coverage to assure robust connectivity. The spread spectrum technology enables use of antennas as small as 37cm for the Ku-band service and as small as 1m for the combined C/Ku-band coverage. KVH is the only maritime VSAT provider to manufacture its own fully integrated onboard terminal, own and operate a global VSAT network, and provide worldwide 24/7/365 after-sale support.

Installation and technical support for V.Ships' customers will be handled by SeaCom Electronics Ltd., a leading supplier of communication, navigation, and entertainment solutions for the merchant fleet, including the cruise, ferry, and yacht industries. SeaCom will distribute KVH TracPhone® satellite communications systems and the mini-VSAT Broadband service as well as KVH's TracVision® satellite TV systems. SeaCom will be supported by KVH's key account manager,

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Niels Reuther, from the company's EMEA headquarters in Denmark.

For more information, visit [www.kvh.com](http://www.kvh.com).

#### **MTN Government Services announces "at sea" television**

MTN Government Services (MTNGS), a subsidiary of MTN Satellite Communications (MTN), announced the availability of MTN Worldwide TV for government vessels. Taking advantage of the MTN global satellite network and advanced technology, seafarers can now enjoy watching diverse news and entertainment programming from major international television networks without interruption. In addition, customers can integrate their internal networks to MTN Worldwide TV for comprehensive and customizable news and information.

MTN Worldwide TV is the first fully digital, multi-channel television service for the maritime industry delivering programming from seven major U.S. and international television networks, including BBC World News, CNBC, Fox News, MSNBC, Sky News, Sky Sports News, and E! Entertainment Television. Leveraging MTN's global Next Generation Network, this service uses three overlapping satellite beams that integrate seamlessly with a vessel's existing C-band Television Receive-Only (TVRO) antenna and onboard video distribution system to make installations quick and easy. By managing the satellite network and the content, MTNGS ensures viewers at-sea receive reliable, uninterrupted service.

For more information, visit [www.mtnsgs.com](http://www.mtnsgs.com).

#### **Comtech receives order to support maritime fleet upgrade**

Comtech Telecommunications Corp. announced that its Tempe, Arizona-based subsidiary, Comtech EF Data Corp., received a \$2.0 million equipment order

for a Vipersat-powered network from a managed network solutions provider. The equipment will support the network upgrade of a global maritime fleet.

The order included the supply of a Vipersat-powered network, specifically the CDM-570L Satellite Modems, the CDD-564L IP Demodulators, the Vipersat Management System, and the Roaming Oceanic Satellite Server (ROSS). With its innovative architecture and support for advanced capabilities, the

IP Module-equipped CDM-570L will allow for efficient networking and transport over satellite. The header and payload compression capabilities significantly reduce bandwidth requirements and the multi-level Quality of Service functionality enables priority treatment of mission-critical applications and the reduction of jitter and latency for real-time applications, such as ship monitoring systems.

For more information, visit [www.comtechefdata.com](http://www.comtechefdata.com).

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**ABB wins submarine cable order for offshore wind farm**

ABB has won an order worth around \$15 million from E.ON UK to supply the power export cables for the Humber Gateway offshore wind farm. ABB will design and supply 2km x 14km circuits of 132kV three-core AC submarine cable, with integrated fiber optics to connect Humber Gateway, one of the UK's largest offshore wind farms, to the mainland grid. Delivery of the cable is scheduled for 2013. When completed in 2015, Humber Gateway will consist of a 73-wind turbine array that will generate up to 219MW of electricity, enough to power up to 170,000 homes. The wind farm will be located 8km off the East Yorkshire coast, just north of the mouth of the river Humber.

**Milestone renewable contract for Expro's C&M team**

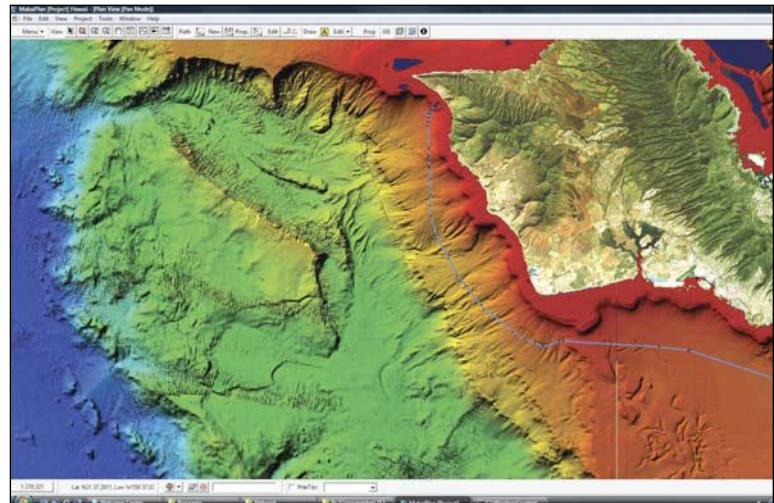
Expro Connectors & Measurements (C&M) has been awarded an important order by Alstom to develop a cable connection and management system to be deployed on one of Alstom's ocean energy projects, thus contributing to Alstom's development of clean technology solutions to harness the energy potential of the world's oceans. Expro will be supplying its market-leading SpecTRON, DigiTRON, and FoeTRON wet mateable products alongside a cable connection system and termination head as well as cable protection and aftermarket services for site cable termination. This system will provide the sub-sea connection between the power export cable and the energy converter device.

**BLME announces deal with Global Marine**

Bank of London and The Middle East plc (BLME), the largest Islamic bank in Europe, has signed a £14 million leasing deal with Global Marine Systems Ltd., the largest independent provider of submarine cable installation, maintenance, and engineering services worldwide. Under the terms of the agreement, BLME will support Global Marine in the purchase and refit of an offshore power cable installation barge. Once completed, the barge will be uniquely suited for the installation of a full range of subsea power cables. The increased demand for this type of cable installation barge is directly tied to the growth of offshore electricity transmission being constructed to connect the off-shore wind farms now being built throughout the North Sea and surrounding waters.

**Emerald Networks signs supply contract**

Emerald Atlantis Limited (Emerald Networks) announced the selection of TE SubCom and the signing of a system supply contract. The execution of the contract, bringing it into force, enables the construction of the Emerald Express Trans-Atlantic Cable System. The first phase will provide both low-latency and ultra-high bandwidth capacity between New York and London, with additional fiber connectivity to Iceland and Dublin. This advanced submarine fiber optic system will be 6,700km in length and achieve the ultra-high transatlantic capacity rates of 100 wavelengths at 100Gbps per wavelength. A significant portion of the marine cable route survey has already been completed, with the balance to be conducted in 2012, supporting the Emerald Express system to be ready for service in late 2013. In addition, the Emerald Express system consists of a high-capacity connection to Iceland, enabling ultra-low latency connections to Europe and North America, with future expansion provided by a stubbed branching unit positioned off Ireland for direct connectivity into Portugal.

**MakaiPlan® 5.0 released**

Makai Ocean Engineering, Inc. announced the release of MakaiPlan® 5.0. With over 250 licenses sold worldwide, MakaiPlan® has become the telecommunications industry standard software tool for creating submarine cable routes, defining cables and inline bodies, editing routes, defining and adjusting slack, and instantly creating RPLs and SLDs.

This announcement represents a major release that includes many new significant features, such as:

- Support for alternative datums;
- User-defined buffer zones surrounding paths and bodies;
- Displaying X,Y grid coordinates in the RPL;
- New tool to merge paths; and
- Performance increase,

For more information, visit [www.makai.com](http://www.makai.com).

**CeltixConnect goes live**

Sea Fibre Networks announced that CeltixConnect, a major fiber gateway that connects Dublin to London and Manchester, is live. This 144-fiber submarine cable network enables businesses with the lowest latency solution between Ireland and the UK and onward to Europe. A milestone for modern telecommunications, CeltixConnect will satisfy extreme demands for capacity and low latency driven by the digital and financial services industries in Ireland.

Online financial trading requires a high-speed, high-capacity, and low-latency connection. CeltixConnect will enable high-frequency traders to transmit millions of orders at lightning speed. Powerful algorithms – “algorithms,” in industry parlance – execute millions of orders a second and scan dozens of public and private marketplaces simultaneously. They can spot trends before other investors can blink, changing orders and strategies within milliseconds. A 5msec delay transmitting an automatic trade can cost a broker up to 1% of its flow, up to \$4 million/msec. CeltixConnect will reinforce and replace existing, aged networks in the Irish Sea as Internet capacity doubles every year.

Sea Fibre Networks is a carrier neutral, subsea telecom provider. The company is owner and operator of CeltixConnect, Europe's most advanced subsea telecom network. Sea Fibre Networks delivers the innovation and flexibility businesses need to stay ahead in the market place.

It provides network solutions tailored to specific needs with the most efficient service. All products are supported by industry leading Service Level Agreements, which are further enhanced with proactive management and monitoring of the subsea cable system.

For more information, visit [www.celtixconnect.com](http://www.celtixconnect.com).

### E-marine expands facility to match rising demand

E-marine, the Persian Gulf's leading submarine cable installation, maintenance, and repair company, announced the completion of expansion of their Salalah Depot facilities in the Port of Salalah-Oman.

To meet the rising demand for bonded storage facilities for the wet plants, E-marine has expanded its storage area capacity by almost 40%, adding 420sq.m, which became operational in January 2012.

E-marine provides sophisticated storage facilities for submarine cable and accessories in a controlled environment and in accordance with highest

international standards along with testing and jointing by qualified testers and jointers. These storage facilities guarantee longer cable life.

E-marine's facility in Salalah, Oman is designed to provide safe and sound storage of highly sensitive undersea cables and accessories. The depot now occupies a total area of around 1,560sq.m with nine cable tanks and has a total cable storage capacity about 2,000cu.m. The depot not only has a huge capacity for repeaters and spares storage, but is also well equipped with laboratory and fiber optic workshop, forklifts, hauling machines, and ancillary equipment.

For more information, visit [www.emarine.ae](http://www.emarine.ae).

### Pacific Fibre, TE SubCom complete permitting study

Pacific Fibre and TE SubCom have announced the completion of their Californian and Australian landings Desktop Study (DTS) and Californian permitting study for the 12,950km two-cable Pacific Fibre submarine fiber optic cable system that will link Australia,

New Zealand, and the U.S.

The permitting study, conducted by TE SubCom, identified all necessary permits needed along the route for the Californian landing as well as appropriate agencies, timetables, and dependencies required for approvals. During the study, TE SubCom's permitting experts met with permitting authorities and affected fisheries to introduce the project, gain preliminary approvals, and obtain input on the route. With initial approvals attained, the project is now set to move forward with the marine route study.

Scheduled to be finalized in 2014, the Pacific Fibre system will meet the increasing demand for international bandwidth in Australia and New Zealand. Upon project completion, the system will be the highest-capacity-per-fiber-pair system longer than 10,000km, boasting a significantly higher cross sectional capacity than any other transpacific cable.

For more information, visit [www.pacificfibre.net](http://www.pacificfibre.net).

**Whatever It Takes**

**Circuit Breakers**

Coastal Power Systems has been in the Circuit Breaker business for over 12 years. We specialize in General Electric Power Break I and II Circuit Breakers. We also carry Cutler Hammer, Westinghouse, ITE, Siemens and Square D Circuit Breakers.

**Repairs**

Coastal Power Systems offer Repair, Reconditioning and Testing on most Insulated Case, Molded Case and Air Circuit Breakers. Normal turn around for a reconditioned breaker is 5 to 7 business days. Our Reconditioning process sets us apart from other Electrical Component Reconditioning Companies. We go the extra mile to ensure that our Reconditioned products do the same for our Customers.

**Power Break I**

**Molded Case**

**Power Break II**

**Motor Control**

Coastal Power Systems has a wide variety of Motor Control Buckets. We have General Electric 7700 and 8000 line of Motor Control Buckets as well as complete line-ups. In addition, we carry Westinghouse Type W and 2100 series buckets.

**MCC Bucket**

**DC Contactors**

Coastal Power Systems is an expert in the reconditioning of DC Contactors including General Electric, Cutler Hammer and Westinghouse. Single Pole and reversing contactors can be reconditioned and returned within 5 to 7 business days. We are also your source for replacement Contact Kits and renewal parts for these Contactors.

**Crab Contactor**

**DC Contactor**

[www.coastalpowersystems.com](http://www.coastalpowersystems.com) - 211 Blue Bell Rd.-Houston Texas 77037 - Phone: 281-445-9280-Fax: 281-445-3311 - Email: [cpsInfo@coastalpowersystems.com](mailto:cpsInfo@coastalpowersystems.com)

**Israel-Europe cable completed**

Tamares Telecom, a privately-held telecommunications service provider based in Israel, has completed a submarine fiber optic network to Europe and is now carrying commercial traffic.

The new network runs from Haifa, Israel to Marseille, France with terrestrial connectivity to Paris, Frankfurt, Amsterdam, and London. It provides a new, direct path from Israel to Western Europe, offers ultra-low latency – 48 to 50msec between Israel and Europe—and the highest capacity, 42Tbps based on six fiber pairs.

The cable's higher operational efficiency allows for significant cost savings and competitive prices for telecom and hosting services providers in both Israel and Europe, including:

- Competitive prices for communication service providers;
- Hosting services in all terrestrial stations – Haifa, Paphos, Marseille, Paris, Frankfurt, and London (with the possibility for additional hosting stations in other locations); and
- End of the monopoly and open-

ing up of the local market after 15 years of dependence on a single provider.

Tamares Telecom offers a system and services that propel telecom companies and communication services providers to a stronger market position via value propositions that address the challenges of today and tomorrow. The solutions offered by Tamares Telecom make it possible to improve and significantly increase the international traffic going through the network and efficiently cope with the changes and fast growth of the communications market.

The variety of services provided by Tamares Telecom includes superior communications and Internet infrastructures, along with high-capacity bandwidth and unprecedented speeds, all of which comply with high technological standards.

For more information, visit [www.tamarestelecom.com](http://www.tamarestelecom.com).

**AJC upgrades with Ciena 40G Coherent WaveLogic technology**

Ciena® Corporation has been selected by Australia Japan Cable (AJC) to expand its subsea cable route spanning

approximately 12,700km between Sydney, Guam, and Japan. Ciena's market-leading coherent 40Gbps optical networking solutions will equip AJC to address exponential growth in demand being fueled by high-bandwidth services and applications in the Asia-Pacific region. The upgraded network will also play an important role supporting Australia's international connectivity, benefiting businesses and consumers across Australia.

AJC is a submarine cable directly connecting Australia and Japan, via Guam. To enable onward connectivity, the AJC network provides access to high-capacity, high-volume, and low unit cost trans-Pacific and intra-Asia cables via Guam and Japan.

AJC will deploy Ciena's® 6500 Packet-Optical Platform with 40G technology that will allow AJC to cost-effectively and expeditiously address surging bandwidth demands on routes supported by AJC. Leveraging Ciena's® industry-leading WaveLogic™ coherent optical processors, the upgraded submarine cable network will add a total of



*-Jack Fisher,  
President*

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## Subsea Telecom

560Gbps of capacity. The deployment will also give AJC the ability to scale to 100G wavelengths as bandwidth demands evolve.

The 6500 platform's OTN capabilities also allow AJC to accommodate new OTN-based wholesale services into the market. AJC is also deploying Ciena's® OneControl Unified Management System, which will provide a comprehensive solution to manage mission operations for rapid service turn-up, unsurpassed visibility through protocol layers for troubleshooting, and efficient use of assets and bandwidth.

For more information, visit [www.ajcable.com](http://www.ajcable.com) or [www.ciena.com](http://www.ciena.com).

### **GBI, TE SubCom achieve ready status for service for cable system**

Gulf Bridge International (GBI), the Middle East's first privately owned, regional cable operator, and TE SubCom, a TE Connectivity Ltd. Company and an industry pioneer in undersea communications technology, have achieved the status of ready for service for the GBI undersea cable sys-

tem. The system, which will deliver much-needed capacity to the Gulf region, connects Qatar, the UAE, Iraq, Kuwait, Bahrain, Oman, and Saudi Arabia in a ring configuration with onward connectivity to India and Europe and additional connectivity to follow in the coming months.

The GBI cable system will enable future network expansion. With a capacity of at least 5.18Tbts, the system will encourage a greater sophistication of telecommunications service offerings. Further, the system's configuration as a self-healing ring will provide a high quality of service.

For more information, visit [www.gbiinc.com](http://www.gbiinc.com) or [www.subcom.com](http://www.subcom.com).

### **Cable laying begins in Netherlands Antilles**

Rijksdienst Caribisch Nederland started laying a submarine fiber optic cable on Saba, St. Eustatius, and St. Kitts in the Dutch Caribbean. In February, groundwork was carried out at locations where the cable will come ashore.

The laying of the fiber optic cable is a first important step to improved Internet services on Saba and St. Eustatius. In addition, the fiber optic cable is necessary for the execution of government tasks.

The plan is to also let the cable come ashore on St. Maarten. By doing so, Saba and St. Eustatius will get two connections to different islands. All the telecommunication traffic to and from Saba and St. Eustatius could then be routed through St. Maarten and/or St. Kitts. This increases the reliability of Internet services and, at the same time, provides St. Maarten the possibility to also obtain a double connection. Presently, St. Maarten is connected with only one fiber optic cable to international telecommunication networks. This cable is property of the Telem Group of Companies, which has the technical and financial control over the fiber optic cable access from and to St. Maarten.

For more information, visit [www.rijksdienstcn.com](http://www.rijksdienstcn.com).

### **SCR Drives**

Coastal Power Systems SCR Drives integrate old and new technology to provide a DC drive that is both durable and versatile in its use. A Solid State Stack Controller combined with a PLC for logic and control provide an easy to configure and operate Drive System.

The CPS Drive system was designed with the on-site electrician in mind. The drive is simple, and requires minimal downtime for Main Switch and Cell Stack replacement.



### **Custom Control Panels**

Coastal Power Systems Custom Control Panels can be built to your exact specifications. We can provide you with Pump Panels, Motor Saver Panels, Distribution centers and Operator Control Stations.



Top Drive      Mud Pump



ATO

### **Automatic Throw-Over**

Coastal Power Systems Automatic Throw-Over System integrates an Automatic Transfer Scheme and Emergency Power Distribution into one enclosure. The CPS ATO utilizes Circuit Breakers as opposed to Switches to provide over-current protection within the transfer process.

Built in Distribution provides power to Emergency Lighting Panels, Critical Motor Control Centers and a Backfeed to the Main Power Board. Our ATO is also ABS Certified.

### **SCR System Refurb**

Coastal Power Systems SCR System Refurb services can give new life to your old Drive Systems. CPS can also provide Upgrades and Modifications to your Drive Systems. System is Dis-Assembled to Component Level, All Electronics are tested and repaired if needed, Cabinets are Powder-Coated and all Electro-Mechanical Devices are Re-Conditioned.



Before      After



### Beach works mark next steps in Gwynt y Môr

Three days of beach works will mark the next key stage of the construction of Gwynt y Môr Offshore Wind Farm in North Wales. A project team will begin excavating small sections of the beach to help prepare for the installation of subsea cabling, which is being brought ashore at Pensarn, North Wales.

The trials will be carried out by contractor Global Marine Systems Limited, on behalf of Gwynt y Môr Offshore Wind Farm Limited, and will help identify the best procedures and equipment required to successfully install the cabling.

Four subsea export cables will transport power from the wind farm via two offshore substations to a transition pit behind the beach at Pensarn. This will connect the offshore to the onshore cable and ultimately, via underground cabling, to the new substation, being built 11km away at St Asaph Business Park.

UK-based Global Marine Systems Limited won a multi-million pound contract to install offshore export cables for Gwynt y Môr. It will use the trials to excavate small sections of the beach to determine settlement levels once the cables are laid and the correct type of anchor for securing the installation barge, Cable Enterprise. Cable Enterprise will be visible along the coast, at times coming very close to the beach in order to bury the cables.

Four 132kV export cables will be brought ashore at intervals between mid-May and July. Gwynt y Môr offshore wind farm is being constructed 13 kilometers off the North Wales coast, in water depths of 12m to 28m, and was granted approval by DECC (Department of Energy and Climate Change) back in December 2008.

For more information, visit [www.globalmarinesystems.com](http://www.globalmarinesystems.com).

### Diving companies track cables and pipelines

Utility companies have been laying cables and pipelines across the ocean floor for more than a century. Prior to the introduction of GPS, marking their position was a difficult and tedious task, fraught with error. Regulations require that they be buried from several feet to several meters under the ocean bottom to prevent snagging by boat anchors and fishing trawls. This depth of burial typically makes them impossible to find with conventional metal detectors. Two pieces of equipment have proved most effective in finding them: a pinpointing magnetometer and a cable tracker. The pinpointing magnetometer is a very sensitive device that locates iron and steel pipes buried up to 16ft below the ocean bottom, and the cable tracker is powerful enough to detect a power or communications cable at more than 30ft away.

One company using both instruments in their subsea operations is WJ Castle PE & Associates. Company founder, William Castle, has been providing marine and structural engineering services for almost 30 years and has served on a number of industry boards, including the Association of Diving Contractors (ADC). Recently, Castle was subcontracted by Brayman Construction to perform an inspection and document the underwater conditions at a utility's proposed site for a diffuser pipe extension.

Using JW Fishers CT-1 cable tracker and PT-1 pipe tracker, Castle's team of divers searched for a high voltage power cable and pipeline running through the area. Complicating the job was the excessive amount of debris littering the site, including steel plates, beams, and wire rope. Also close by were a seawall constructed of steel reinforced concrete and steel plates. Very high concentrations of ferrous metal in the area prevented the use of a standard magnetometer, as it would be impossible to locate individual pieces. The primary advantage of the PT-



is its ability to pinpoint targets, even in areas surrounded by steel structures. Despite the challenges, diver Greg McGrath reports that they were successful in finding both the pipe and cable.

For more information, visit [www.jwfishers.com](http://www.jwfishers.com).

### NSW enters long-term charter contract for DP2 vessel

Norddeutsche Seekabelwerke GmbH (NSW) has agreed to a long-term charter for the DP2 vessel MV Aura from the Finnish Meraura Ltd for use in subsea cable installation projects in the North and Baltic Seas. Under the terms of the agreement, NSW will charter the vessel starting in summer 2012.

Constructed in 2008, the vessel will be converted by the owner according to NSW's demands and will be part of NSW's second installation spread. With a length of approximately 100m and a width of 25m, it offers the required space and auxiliary power supply for cable installation equipment, such as a heavy-duty trencher (1600kW), a heave-compensated offshore crane, and a turntable suited for all types of subsea power cables.

NSW has already successfully produced and installed submarine power cables for various offshore wind farm projects and island connections, using its installation spread of the NOSTAG 10 in combination with the vertical injector technology.

For more information, visit [www.nsw.com](http://www.nsw.com).

### Omnisens monitors Hainan Interconnector

To secure the power supply to Hainan Province, China Southern Power Grid Company has installed a 500kV interconnector across the Qiongzhou Strait which separates Guangdong from Hainan Island. The temperature all along the 32km energy cable, installed by Nexans Norway AS, is monitored by Omnisens, the long distance cable monitoring specialist.

Using optical fibers attached to the three cables as distributed sensors, Omnisens Ditest monitors the temperature continuously in real time, providing condition monitoring along the entire subsea cable. The Ditest detects and locates any temperature anomalies, communicating them to the operator, who can take appropriate action to rapidly secure the supply and protect the cable.

For more information, visit [www.omnisens.ch](http://www.omnisens.ch).



## Bell Tech Inc. – Setting the standard for eco-friendly response, recovery and restoration

By Nate Smith, Bell Tech Inc.

Bell Tech Inc. specializes in ecological management as it relates to the response, recovery, and restoration of spill response activities. With over 24 years of experience, ranging from the Exxon Valdez to the Deepwater Horizon Incidents, Bell Tech with its eco-friendly procedures has decontaminated more super tankers, barges, and vessels than anyone in the world. Offshore capabilities include contaminant recovery and restoration of platforms, piling, and any other surface that becomes contaminated. This proven method has transformed to land-based operations addressing refineries, frozen tundra, shoreline, and recovery from a multitude of surfaces.

What sets Bell Tech apart from all other environmental response companies is its specialized equipment combined with the procedures the team has developed and refined over the years. Their method captures and collects the contamination at the point of contact and prevents it from being transferred back into the environment. Conceptualized in Valdez, Alaska, Bell Tech's unique method consists of transforming the current state of the oil and changing the viscosity, thus returning it back to a liquid form to be managed effectively. Their approach incorporates adjustable water temperature and pressure for agitation purposes along with a powerful vacuum to extract the water and contaminates



*Eastern Lion tanker vessel undergoing decontamination in the Port of Valdez*

directly into a holding tank. Using an assortment of clean and capture tools, ranging from a wide surface area to a crevasse, decontamination is contained within the footprint of the attachment, preventing contaminants from further polluting the environment.

The Bell-Vac equipment package is portable and can be utilized from an ATV trailer, the deck of a landing craft, or any other means of transportation including a snowcat. Along with a workable distance of 1,000ft from the equipment, technicians can deploy the hose and restore hard-to-reach areas of contamination. Bell Tech has the capability to mobilize dedicated equipment worldwide, including the ability to call upon a vast variety of resources to compliment the response efforts for activation as conditions or requirements dictate as well as an incident command team to include a Certified Safety Professional, an archeologist, marine biologist, and task force leaders to oversee highly skilled technicians that comply with EPA, DEC, USCG, and OSHA regulations.



*Landing craft equipped with the Bell-Vac system are utilized as work platforms due to their ease of mobility and versatility in varying situations*

Bell Tech is committed to addressing the recovery and restoration of any surface that becomes contaminated. Effective and economical Arctic recovery solutions for ice-covered waters and frozen tundra using the Bell-Vac system have been developed to assist with spill preparedness and response for the Chukchi and neighboring Beaufort Sea exploration in Alaska. Utilizing the equipment is advantageous in the Arctic due to the effectiveness of the recovery procedures that minimize the environmental impact of the clean-up by shrinking the footprint of the activities as well as greatly reducing the affected surface area in terms of the depth of the recovery. Utilization of the Bell-Vac allows trained technicians to remove just the top surface area of the ice rather than other methods that require chipping, digging, or other intrusive means of recovery. Frozen tundra and ice procedures incorporate steaming to change the viscosity of the oil back into a liquid, at which point the vacuum system transfers the oil directly into a holding tank. In addition, the portability of the equipment and the capability of reaching distances of 1,000ft from the equipment provide versatility in achieving clean-up goals without damaging ultra-sensitive areas of Arctic wildlife habitat.

For more information, visit [www.belltechconsultants.com](http://www.belltechconsultants.com).

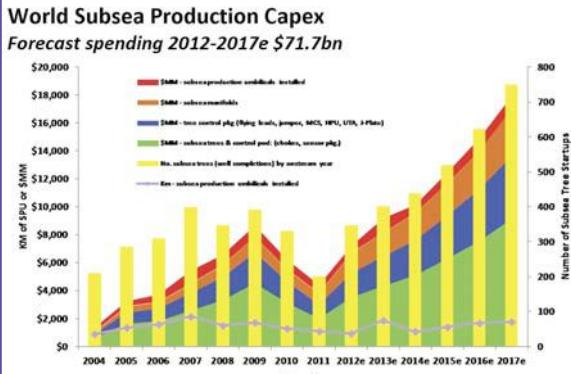


*Bell Tech has the ability to decontaminate vessels and offshore platforms*

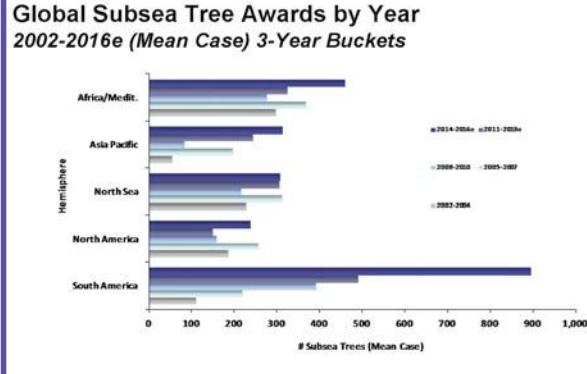
# Offshore At-A-Glance

## Quest Offshore Activity Report

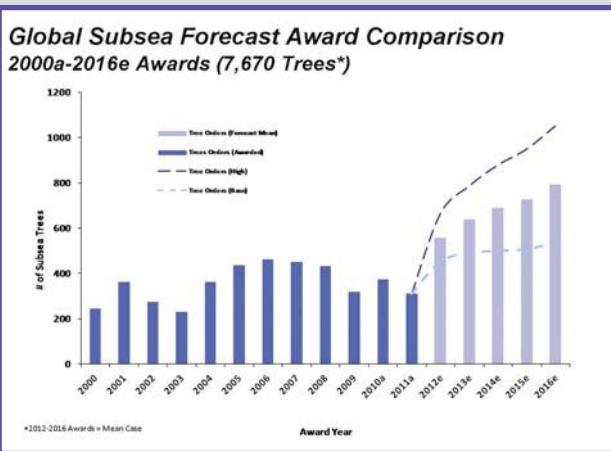
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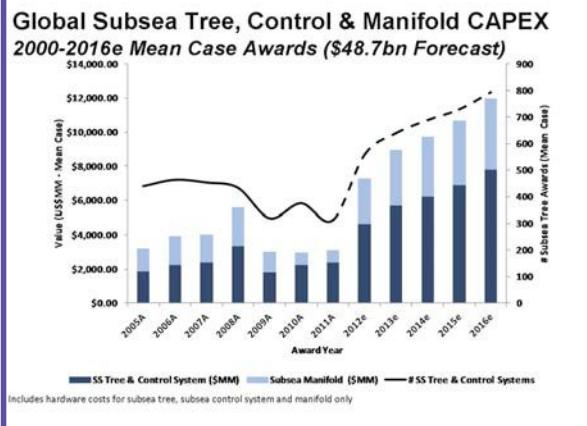
### Global Subsea Tree Awards by Year



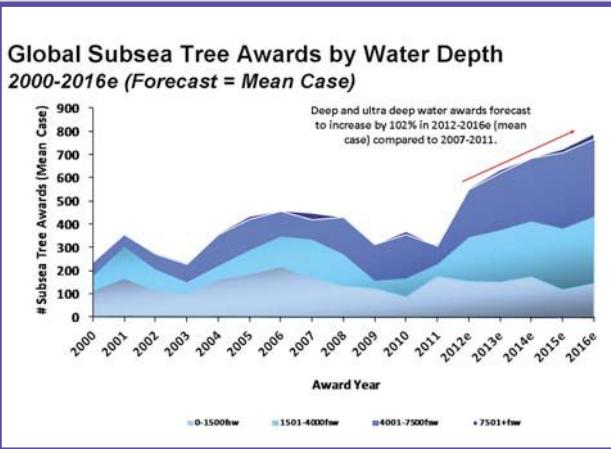
### Global Subsea Forecast Award Comp.



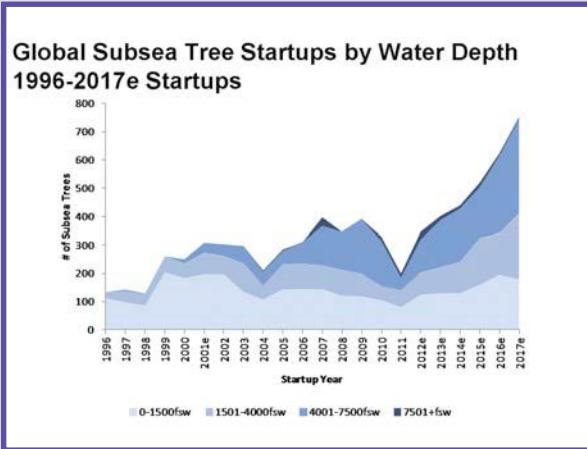
### Global Subsea Tree, Control & Manifold CAPEX



### Global Subsea Tree Awards by Water Depth



### Global Subsea Tree Startups by Water Depth

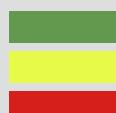
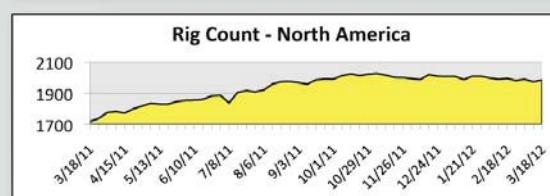
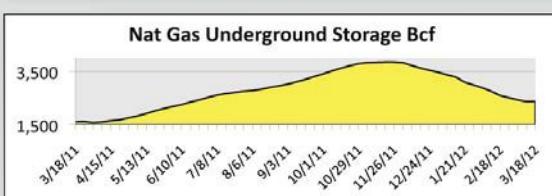
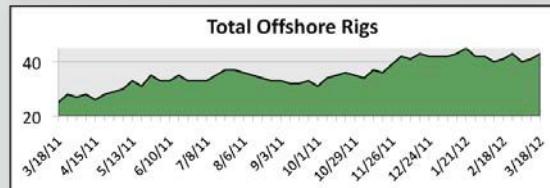
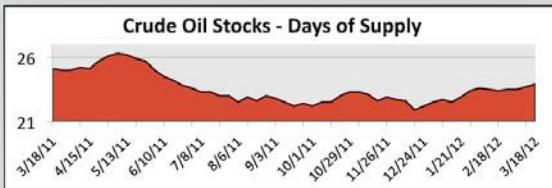
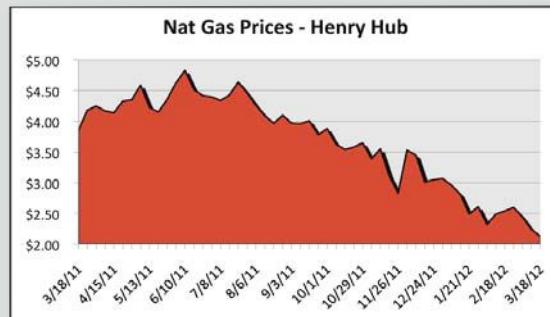
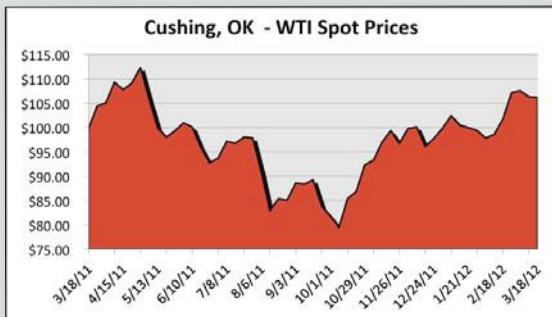


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# Oil & Gas Industry Trends

*Monitoring the pulse of the US Offshore Oil & Gas Industry*



**positive trend at least 3 weeks**

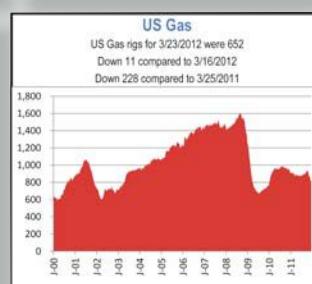
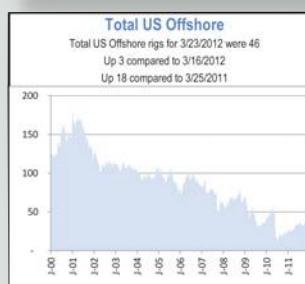
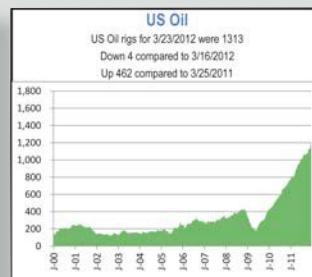
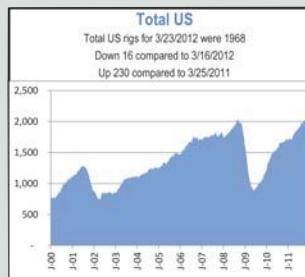
**changing trend < 3 weeks**

**negative trend at least 3 weeks**

## Baker Hughes Rig Report

### North American Rig Report March 26, 2012

Location	Week of 3/26	Week Ago	Year Ago
	+/-	+/-	+/-
Land	1899	-21	1920
Inland Waters	23	2	21
Offshore	46	3	43
U.S. Total	1968	-16	1984
Gulf of Mexico	46	3	43
Canada	352	-165	517
N. America	2320	-181	2501



# Gulf of Mexico Data

## Current Deepwater Activity

Operator	OCS Area/ Block	Lease	Rig Name	Prospect Name	Water Depth(ft)
Petrobras America Inc.	WR 206	G16965	PRIDE DEEP OCEAN MENDOCINO	Cascade	8,143
Shell Offshore Inc.	AC 857	G17565	H&P 205	Great White	7,815
Shell Gulf of Mexico Inc.	MC 391	G26252	T.O. DEEPWATER NAUTILUS		7,157
Union Oil Co. of California	WR 677	G18753	T.O. DISCOVERER INSPIRATION	Saint Malo	7,040
Chevron USA Inc.	WR 758	G17015	T.O. DISCOVERER CLEAR LEADER	Jack	6,965
BP Exploration & Production Inc.	GC 743	G15607	T.O. DEVELOPMENT DRILLER II	Atlantis	6,834
LLOG Exploration Offshore, LLC	MC 431	G22877	NOBLE AMOS RUNNER		6,427
Noble Energy, Inc.	MC 948	G28030	ENSCO 8501	Bob	6,060
BP Exploration & Production inc.	MC 778	G14658	THUNDER HORSE PDQ	Thunder Horse South	6,036
BP Exploration & Production inc.	KC 292	G25792	SEADRILL WEST SIRIUS	Kaskida	6,031
Cobalt International Energy, LP	GC 814	G32534	ENSCO 8503	Ligurian	5,837
BP Exploration & Production inc.	GC 743	G15607	T.O. DEVELOPMENT DRILLER III	Atlantis	5,405
Anadarko Petroleum Corp.	GC 903	G24197	T.O. DISCOVERER AMERICAS	Heldorfberg	5,260
Chevron USA Inc.	WR 29	G16942	T.O. DISCOVERER INDIA	Big Foot	5,187
Exxon Mobil Corp.	AC 25	G10380	NABORS MODS 201	Hoover	4,808
BHP Billiton Petroleum (GOM)	GC 654	G20085	GSF C.R. LUIGS	Shenzi	4,337
Chevron USA Inc.	GC 640	G20082	T.O. DISCOVERER DEEP SEAS	Tahiti 2	4,292
Anadarko Petroleum Corp.	GC 608	G18402	BLAKE 1007	Genghis Khan	4,287
BHP Billiton Petroleum (GOM) Inc.	GC 610	G16764	T.O. DEVELOPMENT DRILLER I	Shenzi	4,270
Shell Offshore Inc.	MC 940	G31534	NOBLE DANNY ADKINS	Vito	4,004
ATP Oil & Gas Corp.	MC 941	G16661	NABORS 202	Mirage	4,000
Shell Offshore Inc.	MC 935	G07976	NOBLE DRILLER	Europa	3,797
Anadarko Petroleum Corp.	EB 602	G14205	ENSCO 8500	Nansen	3,681
Anadarko Petroleum Corp.	EB 602	G14205	COIL TUBING UNIT (L.J. #3)	Nansen	3,681
Nexen Petroleum USA Inc.	GC 504	G22968	ENSCO 8502	Kakuna	3,600
BP Exploration & Production Inc.	VK 914	G08785	T.O. DISCOVERER ENTERPRISE	Nile	3,535
Shell Offshore Inc.	GB 516	G11528	NOBLE JIM DAY	Serrano	3,380
Murphy E&P Co.	GC 338	G21790	NABORS MODS 200	Front Runner	3,325
Statoil USA E&P Inc.	GC 404	G28076	MAERSK DEVELOPER	Kilchurn	3,146
Shell Offshore Inc.	GC 158	G07995	H&P 202	Brutus	2,985
Shell Offshore Inc.	MC 807	G07963	H&P 201	Mars B	2,945
Shell Offshore Inc.	GB 426	G07493	AUGER	Auger	2,862
W&T Energy VI, LLCC	MC 243	G19931	NABORS SUPER S.D. XIX	Matterhorn	2,816
Chevron USA Inc.	GC 205	G05911	NABORS 85 (MAYRONNE 162)	Genesis	2,590
Shell Gulf of Mexico Inc.	GB 385	G10350	NOBLE JIM THOMPSON	Llano	2,514
Anadarko Petroleum Corp.	VK 826	G06888	NABORS P-10	Neptune	1,932
Hess Corp.	GB 260	G07462	NABORS S.D. XVI	Baldpate	1,648
Exxon Mobil Corp.	MC 355	G02964	DIAMOND OCEAN VICTORY	Zinc	1,458

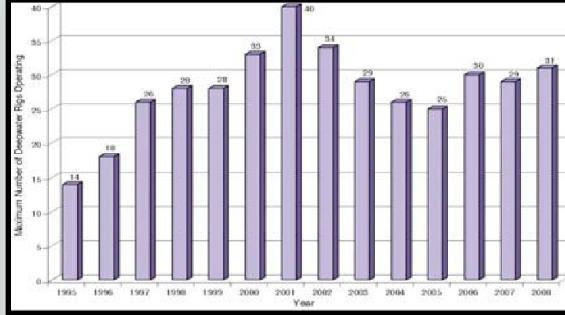
Deepwater prospects with drilling and workover activity: 38

Current Deepwater Activity as of Monday, March 19 , 2012

### Activity by Water Depth

Water Depth in Meters	Active Leases	Approved Applications	Active
0 to 200	1,774	34,155	2,974
201 to 400	120	1,111	20
401 to 800	275	840	10
801 to 1,000	397	533	8
1,000 & above	3,349	1,715	25

### Rig activity by year



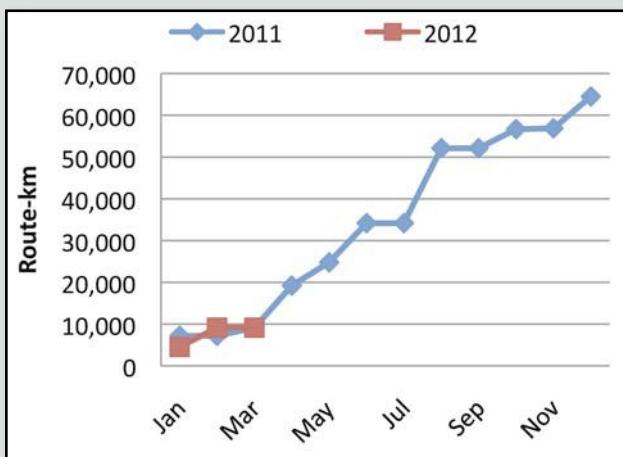
Activity by water depth Information current as of Monday, March 19, 2012

Maximum number of rigs operating in the deepwater Gulf of Mexico. The rig unit includes platform rigs operating on deepwater production facilities in addition to the MODU's. The numbers do not distinguish between rigs drilling and those in service for completion and workover operations.

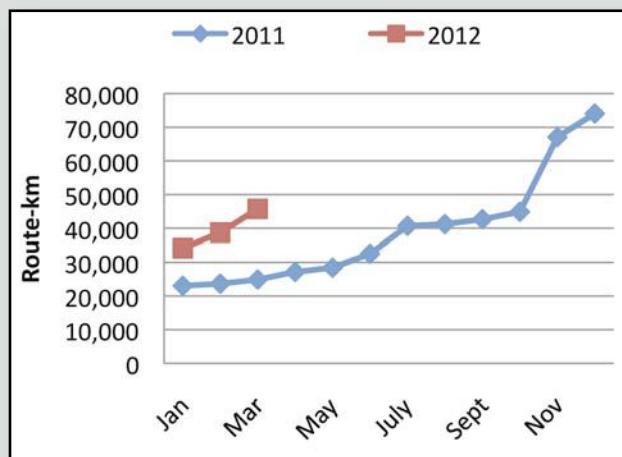
Information provided courtesy of the U.S. Bureau of Ocean Energy Management

# Subsea Telcom & Power Cable Data

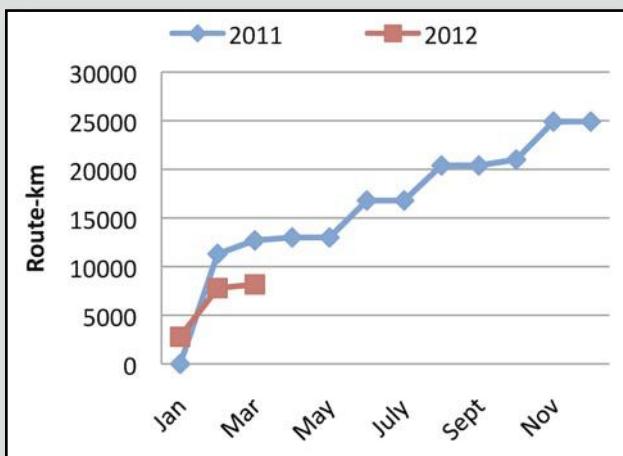
**FO Cable Awards by month**



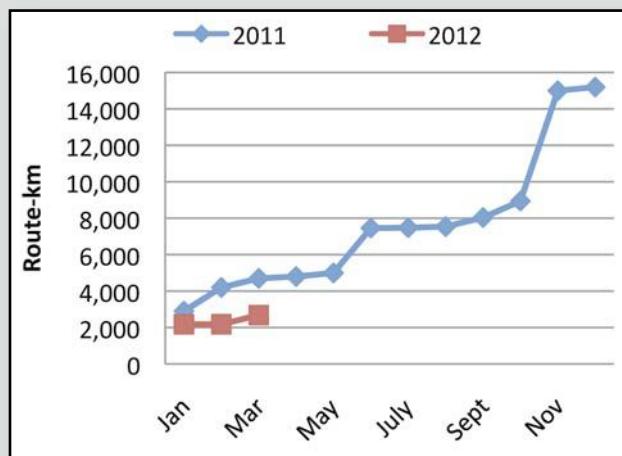
**FO Cable Announcements 2011**



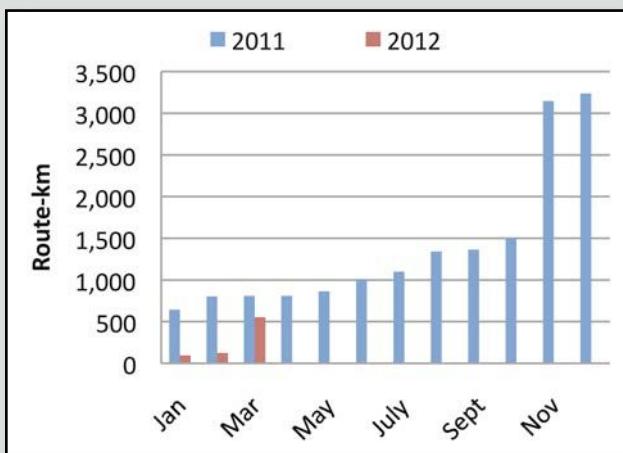
**Submarine FO Cables Entering Service 2011 in route-km**



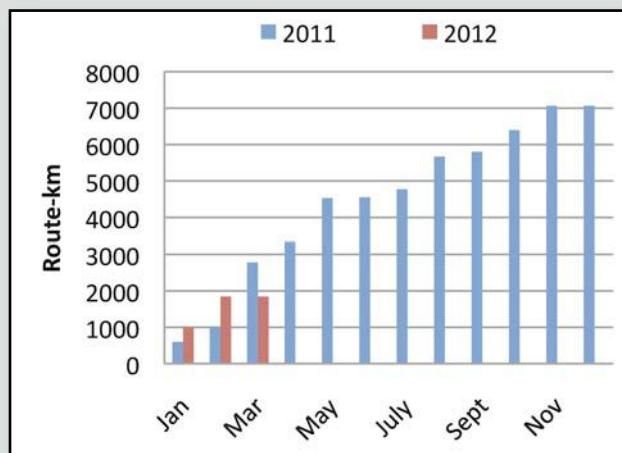
**Upgrades of Existing Cable Systems in Gbps**



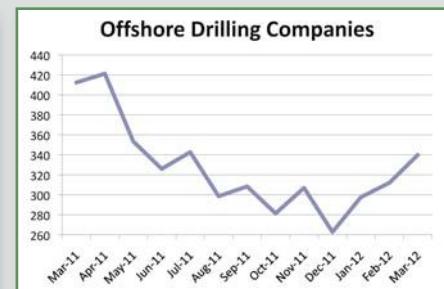
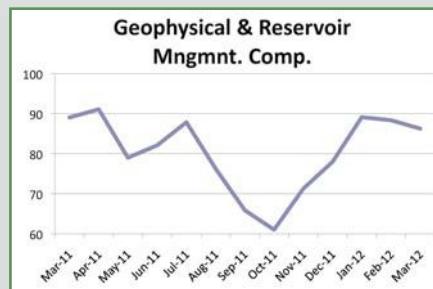
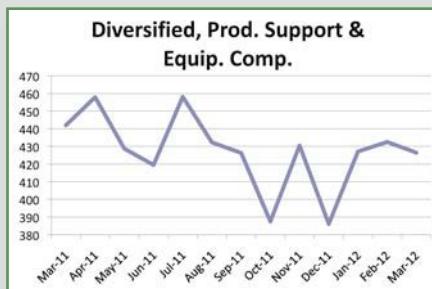
**Submarine Power Cable Awards 2011 in route-km**



**Submarine Power Cable Announcements 2011 in route-km**



# Monthly Stock Figures & Composite Index

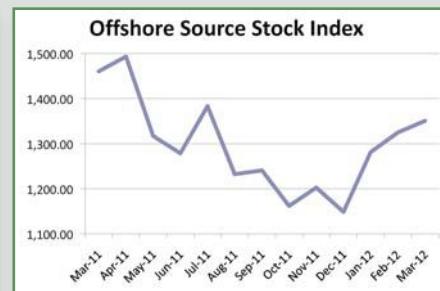
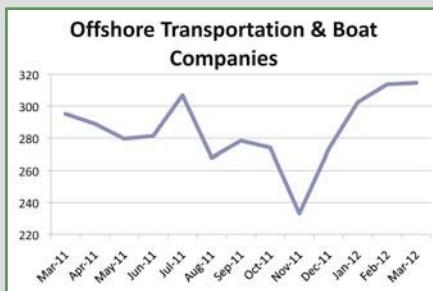
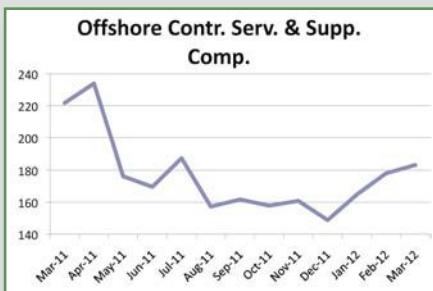


Industry Company Name	Symbol	Close Mid-March	Close Mid-February	Change	Change %	High 52 week	Low
<b>Diversified, Production Support and Equipment Companies</b>							
Baker Hughes, Inc.	BHI	48.24	47.50	0.74	1.6%	81.00	41.91
Cameron Intl. Corp.	CAM	52.72	55.59	-2.87	-5.2%	61.28	38.77
Drill-Quip, Inc.	DRQ	68.11	73.84	-5.73	-7.8%	80.64	47.40
Halliburton Company	HAL	33.94	35.42	-1.48	-4.2%	57.77	27.21
Tenaris SA	TS	42.07	39.52	2.55	6.5%	51.07	23.29
Newpark Resources, Inc.	NR	7.97	7.63	0.34	4.5%	10.62	5.19
Schlumberger Ltd.	SLB	75.95	77.02	-1.07	-1.4%	95.53	54.79
Superior Energy Services, Inc.	SPN	28.06	27.99	0.07	0.3%	42.87	22.19
Weatherford International, Inc.	WFT	17.14	17.38	-0.24	-1.4%	23.41	10.85
Deep Down, Inc.	DPDW	0.06	0.06	0.00	0%	0.29	0.05
FMC Technologies	FTI	52.19	50.56	1.63	3.2%	55.19	34.46
<b>Total Diversified, Production, Support and Equipment.....</b>	<b>426.45</b>	<b>432.51</b>	<b>-6.06</b>	<b>-1.4%</b>		<b>559.67</b>	<b>306.11</b>
<b>Geophysical / Reservoir Management</b>							
Dawson Geophysical Company	DWSN	35.08	37.36	-2.28	-6.1%	47.02	21.57
Mitcham Industries, Inc.	MIND	20.70	22.37	-1.67	-7.5%	26.76	9.52
Compagnie Gnrale de Gophysique-Veritas	CGV	30.48	28.64	1.84	6.4%	38.09	15.08
<b>Total Geophysical / Reservoir Management.....</b>	<b>86.26</b>	<b>88.37</b>	<b>-2.11</b>		<b>-2.4%</b>	<b>111.87</b>	<b>46.17</b>
<b>Offshore Drilling Companies</b>							
Atwood Oceanics, Inc.	ATW	47.98	45.86	2.12	4.6%	48.86	30.64
Diamond Offshore Drilling, Inc.	DO	71.43	61.90	9.53	5.5%	81.19	51.16
ENSCO International, Inc.	ESV	57.44	54.44	3.00	5.9%	60.31	37.39
Nabors Industries, Inc.	NBR	20.69	19.54	1.15	7.8%	32.47	11.05
Noble Drilling Corp.	NE	41.15	38.17	2.98	-2.0%	46.72	27.33
Parker Drilling Company	PKD	6.32	6.45	-0.13	-2.0%	7.62	3.60
Rowan Companies, Inc.	RDC	36.46	37.20	-0.74	20.7%	44.83	28.13
Transocean Offshore, Inc.	RIG	58.48	48.44	10.04		83.05	38.21
<b>Total Offshore Drilling.....</b>	<b>339.95</b>	<b>312.00</b>	<b>27.95</b>		<b>9.0%</b>	<b>405.05</b>	<b>227.51</b>

## DISCLAIMER

The information on this page is provided for information and comparison purposes only and should not be used to make financial and business decisions and is accurate to the best of our knowledge for the period indicated.

# Monthly Stock Figures & Composite Index



Industry Company Name	Symbol	Close Mid-March	Close Mid-February	Change	Change %	High 52 week	Low
<b>Offshore Contractors, Services and Support Companies</b>							
Cal Dive International, Inc.	DVR	3.58	3.33	0.25	7.5%	8.19	1.50
Helix Energy Solutions Group, Inc.	HLX	18.72	18.42	0.30	1.6%	21.65	11.57
Gulf Island Fabrication	GIFI	30.35	32.54	-2.19	-6.7%	36.00	19.55
McDermott International, Inc.	MDR	13.49	13.19	0.30	2.3%	25.94	9.34
Oceaneering International	OII	54.01	53.32	0.69	1.3%	57.16	31.77
Subsea 7 SA	SUBCY.PK	25.08	22.11	2.97	13.4%	27.52	16.82
Technip ADS	TKPPY.PK	28.65	25.25	3.40	13.5%	28.35	17.52
Tetra Technologies, Inc.	TTI	9.38	9.91	-0.53	-5.3%	16.00	6.77
<b>Total Offshore Contractors, Service and Support.....</b>	<b>183.26</b>	<b>178.07</b>	<b>5.19</b>	<b>2.9%</b>	<b>220.81</b>	<b>114.84</b>	
<b>Offshore Transportation and Boat Companies</b>							
Seacor Holdings, Inc.	CKH	97.71	98.58	-0.87	-0.9%	109.50	75.04
Gulfmark Offshore, Inc.	GLF	48.61	48.59	0.02	0.0%	56.41	32.34
Bristow Group	BRS	48.00	47.63	0.37	0.8%	52.89	37.98
PHI, Inc.	PHII	22.55	22.33	0.22	1.0%	26.36	16.95
Tidewater, Inc.	TDW	55.72	59.60	-3.88	-6.5%	63.27	38.80
Trico Marine Services, Inc.	TRMAQ.PK	0.04	0.04	0.00	0.0%	0.19	0.01
Hornbeck Offshore	HOS	41.99	36.90	5.09	13.8%	43.16	19.80
<b>Total Offshore Transportation and Boat .....</b>	<b>314.62</b>	<b>313.67</b>	<b>0.95</b>	<b>0.3%</b>	<b>351.78</b>	<b>220.92</b>	
<b>Total Diversified, Production, Support and Equipment</b>	<b>426.45</b>	<b>432.51</b>	<b>-6.06</b>	<b>-1.4%</b>	<b>559.67</b>	<b>306.11</b>	
<b>Total Geophysical / Reservoir Management</b>	<b>86.26</b>	<b>88.37</b>	<b>-2.11</b>	<b>-2.4%</b>	<b>111.87</b>	<b>46.17</b>	
<b>Total Offshore Drilling</b>	<b>339.95</b>	<b>312.00</b>	<b>27.95</b>	<b>9.0%</b>	<b>405.05</b>	<b>227.51</b>	
<b>Total Offshore Contractors, Service and Support</b>	<b>183.26</b>	<b>178.07</b>	<b>5.19</b>	<b>2.9%</b>	<b>220.81</b>	<b>114.84</b>	
<b>Total Offshore Transportation and Boat</b>	<b>314.62</b>	<b>313.67</b>	<b>0.95</b>	<b>0.3%</b>	<b>351.78</b>	<b>220.92</b>	
<b>Total Offshore Source Index...</b>	<b>1,350.54</b>	<b>1,324.62</b>	<b>25.92</b>	<b>2.0%</b>	<b>1,649.18</b>	<b>915.55</b>	

## New Birns Snooper™ III

The BIRNS Snooper™ has been relied on to blaze a trail at depths of up to 3km since its inception many decades ago. Now, the new version of this customizable field-proven industry favorite provides up to 33,000 lumens and 3250K illumination, with a choice of 400 to 1,200W lamps and four different lens options – so it's perfect for a vast range of marine and deep sea applications. With its robust, bulletproof lens and reinforced, tempered cast body with mechanical impact protection and four sealing operations, it can be hand held or yoke mounted to practically any surface or vehicle for reliable intense underwater brilliance. The BIRNS Snooper line (NSN 6230-01-025-5628) is used by divers, on diving bells, submarines, and ROVs across the world, thanks to its extremely rugged fixture proven to stand up to heavy mechanical abuse.

The new BIRNS Snooper III is available with a new backwards compatible conversion kit, with an innovative new lamp, reflector, base, and lamp base mount, providing seamless adaption for any legacy system. And there are tens of thousands of existing BIRNS Snooper systems in the field – many of them on vehicles and used by divers and still working perfectly since the 1960s.

The system features a highly polished internal parabolic reflector, with high-output Tungsten-Halogen lamp



in its focal point, and comes with a choice of white light lamp, lens, and mount, with an available handgrip that is now detachable – plus, the BIRNS Snooper III can mount on its mounting boss for maximum space savings and versatility. It features an instant ON/OFF and hot-restrike capability, with no ballast necessary.

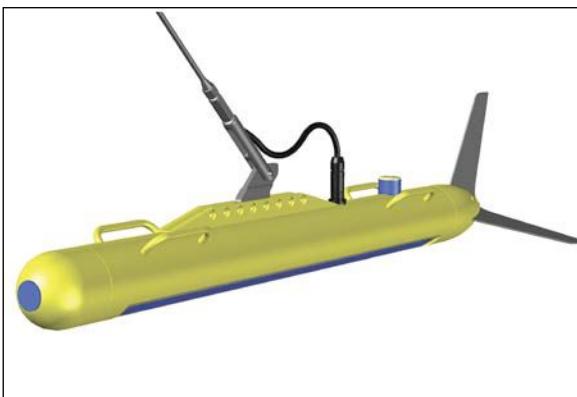
For more information, visit [www.birns.com](http://www.birns.com).

## New Wideview 3D interferometric side-scan sonar

The new WideView 3D side-scan sonar launched by Marine Electronics Ltd at Oceanology 2012 employs the latest interferometric acoustic technology to provide high resolution images over a 120° field of view. The new sonar is a particularly valuable tool for shallow water surveys where its wide field of view can save time and operating costs by reducing the number of passes needed to scan a specific area.

The new sonar can be supplied as a complete system integrated into a tow fish that can include additional options of a forward-looking sonar, downward-looking altimeter, pressure sensor, and emergency relocation beacon. The WideView sonar can also be supplied mounted on a V-plate for side pole deployment or aboard a client's vehicle or towed body. Because WideView is a survey tool aimed at the shallow water market, it can be supplied to operate at one of two frequencies. The 250KHz version will range up to 200m, whereas the 500KHz version will range up to 100m.

As an interferometric device, WideView uses phase measurement to calculate the range and angle of the reflected acoustic beam. This enables it to simultaneously



acquire side-scan and swath bathymetry for each ping. The range and angle measurements obtained by the transducer elements are combined to give a depth measurement for the received signals. These are used to produce the bathymetric image, and many thousands of range-angle pairs are collected for each ping, giving the high data density that marks the performance of the WideView Sonar. The algorithm used to measure the

phase of the reflected sonar beam can calculate the angle to a fraction of a degree (less than 0.1°), with the range being measured to millimeter accuracy. Up to 4000 amplitude, angle and range samples are collected for each slant range, which allows the sonar to exceed the accuracy required by the latest IHO standards for bathymetric surveying. When four transducers are operated at differ-

ent frequencies, a wide swath can be achieved, which can significantly reduce survey time. This is particularly valuable in difficult shallow water surveys where weather and tidal windows of opportunity may be restricted.

For more information, visit [www.marine-electronics.co.uk](http://www.marine-electronics.co.uk).

### MacArtney launches LUXUS range of titanium cameras and lights

The MacArtney Group is launching a new video unit, camera, and light range – the LUXUS series, with three types of lights, four cameras, two video units, and accessories. The entire range has been designed to combine operational and service flexibility, excellent performance, and ensured reliability. Their compact size and robust design make them ideal for ROV and diving applications – from shallow dives to deep water ROV operations.

Different ROV tasks can require different equipment, and even the same job can require changes to camera setups and lighting. Changes in operational depth, light levels, and turbidity have enormous effects on imaging, and light conditions can also vary greatly in the water column. Being able to make adjustments and changes easily when working offshore saves operator, time and effort.

MacArtney's LUXUS range is based on standard housings, which makes swapping lights and cameras in the field fast and convenient. A camera or light type can easily be removed from the bracket and exchanged with another for a change in application – from low light to color zoom or HD or high power LED. Standard sizing makes camera or light changes more convenient and all the cameras and lights in the LUXUS range use the same brackets.

Lights can also be dimmed from 0% to 100%, making it easy to perfect the light level while working. The diver or operator needn't worry about choosing the right depth rating for cameras or LED lights. The complete range is tested to 4,000m as standard.

Protruding objects on underwater systems can often be subjected to damage and can be a weak link in the system. On some camera and light systems, breaking the connector can cause major damage to the camera or light itself. MacArtney has designed the connector on the rear of the cameras and lights to be replaceable without causing damage to the whole assembly.

The units are fitted with SubConn® connectors or other connector types depending on the customers' needs.

The compact design is based on three standard-sized titanium housings that give the entire range a working depth of 4,000m. Housings are light, strong, and non-oxidizing for long lifetime and minimal servicing. Their cylindrical shape combines strength and compact design, making them ideal for divers or on ROVs.

Ensuring reliability in new products is critical, and MacArtney has based the



series on standard parts – which not only makes them tried and tested technology in combination with innovation, it also reduces prices as costly research and development costs are not passed onto the customer. Everything in the range is pressure tested before leaving the production site, and each item is fully traceable.

The range also includes two self-contained video units that offer complete control of a range of information input and provide safe data storage and straightforward, practical control. The LUXUS Compact Media Controller and the top of the range LUXUS Multi Media Controller. The LUXUS Compact Media Controller model is an easy to use video unit for straightforward diving applications. Weighing just 8kg, the compact kit includes controllers, an LED light and a camera.

The touch screen is easy to use and the keyboard and controls are all built in. Recorded data is stored on an external hard drive that is unpluggable and can be passed onto the customer at the end of a job without needing the whole system for a lengthy download process.

The LUXUS Multi Media Controller system is also a portable video unit with controllers, LED lights, and cameras.

Video data are automatically transferred to USB storage at set intervals for data security, and split power ensures that the safety light is always on.

Both models have an overlay that can display and record a customer logo. Cameras can be dimmed a full 0% to 100% without steps and extras like colored locking sleeves for easy cable identification. Extra inline underwater connectors have been included into a design that takes diver needs to hand.

For more information, visit [www.macartney.com](http://www.macartney.com).

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**Spanish Hydrographic Institute expands survey capability with Kongsberg equipment**

Kongsberg Maritime is supporting the Spanish Hydrographic Institute in expanding its survey capabilities during the first part of 2012 following official equipment acceptance, which took place 20 December 2011. The leading instrument developer is supplying its sophisticated EM 2040 0.7° x 0.7° multibeam with Seapath 300+ position reference system for installation on H/V Antares in addition to providing flexible, portable shallow water systems based on two Geoswath Plus Compact echosounders.

H/V Antares is already equipped with a Kongsberg Maritime EA 600 single beam echosounder. The new EM 2040 will increase the vessel's survey capability up to 400m depth and offer full coverage of the seabed. Installation is taking place during the next dry docking at the end of February 2012.

The Geoswath Plus Compact-based portable systems have been chosen to extend the Institute's very shallow water requirements. The systems are already onboard R/V Hespérides, which is undertaking a 2-month hydrographic campaign in Antarctica that started just after Christmas. Geoswath Plus is an ideal system for survey in Antarctica as its wide swath enables high productivity, regardless of conditions.

Once the Antarctica survey is completed, the systems will be ready for deployment on any of the seven hydrographic boats that the Institute has onboard its large survey vessels. A base-mounting arrangement will be installed on each boat in order to allow quick installation of the systems, which consist of poles carrying the Geoswath Plus transducer, Kongsberg Seatek motion reference unit (MRU 5), and an R320 dGPS Receiver.

The final part of the contract is the delivery of a new EM 3002, which will offer excellent shallow water survey capabilities aboard the H/V Tofíño, following installation during the next dry docking, which is planned for spring 2012. The new system will be installed on the same blister as the existing KONGSBERG EM 300 medium water system aboard H/V Tofíño, which was installed in 2005.

For more information, visit [www.kongsberg.com](http://www.kongsberg.com).

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**BlueView Introduces the Industry's smallest full-featured 2D multibeam imaging sonar**



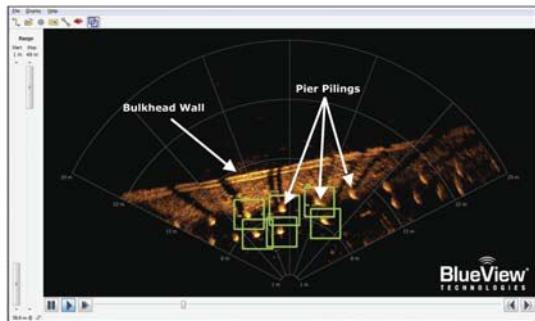
BlueView Technologies, the world leader in compact acoustic imaging and measurement technology, introduces the new M Series, the smallest full-featured 2D Multibeam Imaging Sonar available. The M Series is 30% smaller than BlueView's popular P900 Series and is engineered to fit where others can't to deliver crisp, real-time, high-resolution sonar imagery for underwater navigation, monitoring, target tracking, and more. Available with 45°, 90°, or 130° field-of-view options, it is a

unique "split-head" configuration that separates the sonar's acoustic sensor from the electronics package for an even smaller footprint.

Additionally, each new M Series 2D Multibeam Imaging Sonar includes BlueView's new ProViewer® Plus software with the industry's most advanced target tracking capabilities through exclusive data analytics developed by SeeByte.

"BlueView constantly pushes the size envelope. Our customers need minimally intrusive sensors to fit onto smaller and smaller platforms, and the new M Series is engineered to fit this need," said Scott Bachelor, BlueView vice president of engineering.

BlueView is the leader in 2D imaging and 3D scanning sonar technology, with more than 500 installed systems worldwide. BlueView Technologies' advanced sonar systems are currently deployed on AUVs, ROVs, surface vessels, fixed positions, and portable tripods and have been adopted by leading manufacturers and service providers to support mission critical operations.



BlueView customers enjoy a low cost of ownership with reliable operation, exceptional service, in-person training, extensive online information, and worldwide after-sale support.

In addition, BlueView Technologies is now including its new ProViewer Plus operating software with all 2D Multibeam Imaging Sonar shipments. ProViewer Plus features the industry's most advanced target tracking capabilities through exclusive data analytics developed by SeeByte.

The new operating software enables users to track, monitor, and classify multiple targets simultaneously, and automate underwater navigation controls.

For more information, visit [www.blueview.com](http://www.blueview.com).

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### EIVA announces new ROTV and SUBSEA time tagging products

EIVA is proud to announce the new ScanFish III. The EIVA ScanFish is a proven design and has been delivered to many customers in different configurations over the years. The single wing ROTV design has proven to be very robust and easy to operate and offers unmatched flexibility due to the very wide choice of sensors.

"We have taken the experience over the past many years of delivering ROTVs and made the ScanFish an even better product on all parameters. The ScanFish III is at the same time extremely proven – yet all new. With this latest version, we are able to offer even more value for money in the ROTV market," said Jeppe Nielsen, CEO of EIVA A/S.

Some of the improvements included in this latest generation of the ScanFish include the following:

- **Higher mission speed** – the internal control electronics have been redesigned, and the control motors have been upgraded. The result is faster regulation, higher possible mission speed, and improved stability and navigation.

- **Even more durable** – the construction is redesigned, allowing for a modern production method using latest material technologies. The result is an even more durable product, designed for the tough environment and handling at sea.

- **Simpler service** – with larger hatches and fully replaceable components, the new ScanFish III is offered with a detailed spare parts catalog and full-service program.

- **More Payload** – the new design allows for significantly more internal payload – now up to 3x2 internal sensors inside the wing.

EIVA is taking orders for the ScanFish III. Special trade-in options are offered for existing ScanFish customers.

EIVA has also announced the new SUBSEA version of its ATTU (Accurate Time Tagging Unit) for integration into subsea platforms, such as ROVs, AUVs, etc.

The EIVA ATTU adds high-precision time stamping across multiple sensor inputs – thereby enabling higher precision of the resulting surveys.

For complex surveys, typically MBE, the offshore industry has proven time tag-

ging precision requirements beyond that which can be made on standard PCs. The rack version of the ATTU offers astonishing 50msec guaranteed time tagging – many times better than the requirement and what standard PC/Windows implementations can offer.

With the SUBSEA ATTU, the ATTU electronics and software are in a subsea housing for easy integration into ROVs, ROTVs, AUVs, or other subsea platforms. This offers even greater precision due to removal of the latency and delay of communications.

For more information, visit [www.eiva.dk](http://www.eiva.dk).

### New SubConn® 25-pin connector series combines power and signal connection

Demands placed on underwater connectors have increased as underwater technology projects combine increasing numbers of sensors, and each sensor requires multiple connections. Often, connectors need to combine power and signal – power to supply the sensors, and signals for information.

SubConn Inc. has developed a new

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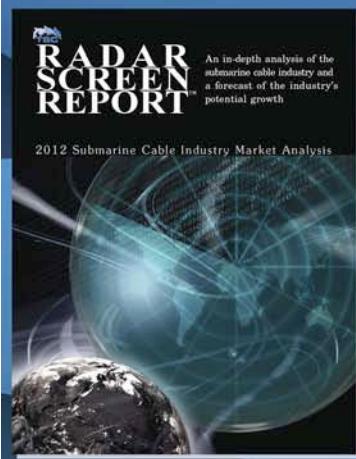
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series of SubConn® connectors designed to carry more power and signal connections than previously available. This new SubConn® range has 25 pins – 3 for power and 22 for signal.

Reliability is a crucial factor, and basing new design on existing technology takes full advantage of proven dependability. The new SubConn® series is based on the existing C size series, offering the assured quality and reliability already proven in decades of use offshore. Using the same dimensions as the standard C size connector also makes it compatible with the same locking sleeves, nuts, and other accessories.



The series is available as a circular connector, in bulkhead version with  $\frac{3}{4}$ in. thread and in an attachable version that can be moulded on. The three power pins have a rating of 600volts, 10amps per pin, are standard pin size and the 22 signal pins are micro pin size.

The first orders for the new SubConn® 25-pin series have already been received. They will form part of the infrastructure for counting fish on spillways of dams in the U.S.

For more information, visit [www.subconn.com](http://www.subconn.com).

#### **Pressure sensors sub-sea level measurement of underwater ROVs**

American Sensor Technologies AST 4000 series of pressure sensors are used for sea level measurement of underwater ROVs. Typically, an underwater ROV is lowered into the ocean with a pressure port installed either inside an enclosure or completely exposed to the sea water. As the ROV is submerged, water pressure is exerted on the diaphragm of the pressure sensor. The deeper the system is submerged, the higher the pressure. By calculating salt water density at 1.025 (or 2.5% more dense than fresh water at 4°C) a correlation between pressure and output signal can be made to measure equipment depth.

For example, when a pressure sensor is packaged with a pressure range of 0 to 5075psi (350Bar) and a 4 to 20mA output signal, the pressure sensor will read 0psi or 4mA at the surface. When the sensor is submerged with the ROV, pressure will increase along with the linear output signal up to 20mA at a depth of approximately 12,000ft (3,658m). This is calculated by:  $(5,075\text{psi} \times 27.68\text{in. of water column} \times 1.025 \text{ density})/12\text{in.} =$  approximately 12,000ft.

Pressure sensors submerged in sea water need certain mechanical considerations to survive the corrosive environment. American Sensor Technologies packages its AST 4000 series of pressure sensors with all 316L stainless steel wetted parts, including the pressure



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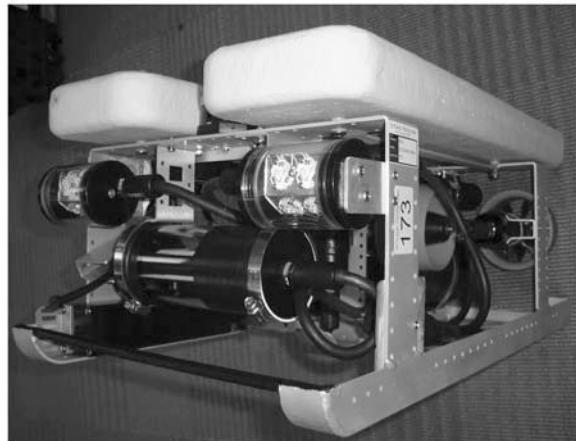
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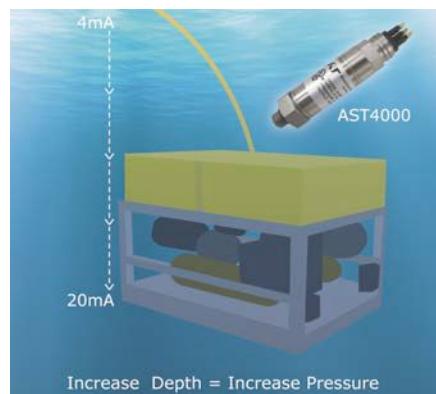
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sensing element, housing, and electrical connection to survive sub-sea environments. Even deep in the ocean where oxygen levels are low and water movement is continuous, pitting and crevices of the AST 4000 pressure sensors are minimal due to its construction.

Because the AST 4000 pressure sensors have a one piece 316L construction and a thick diaphragm membrane without any welds or O-rings, sensors are ideal for sea level measurement. The diaphragm is thicker, leading to longer life, as there is no potential leak path and only one material to consider.

Pressure sensors that employ a separate diaphragm than the pressure port must ensure wetted materials of the pressure port are compatible with stainless steel.

Electrical termination is also a key factor for sub-sea applications. AST 4000 Series Pressure Sensors use a wet, plugable style connector that can withstand 10,000psi of pressure. Made of 316L material, it completely seals the electronics of the pressure sensor. The threaded connector is made with gold contacts and glass reinforced epoxy to maintain media compatibility and long-term use.



The AST 4000 pressure sensors provide gauge, sealed gauge, or compound gauge pressure measurement in ranges up to 10,000psi. Sensors are calibrated and temperature compensated to ensure stability over specified ranges. Units offer accuracy of <+0.5% BFSL at 25°C (77°F) and long-term stability of +0.25% full scale output per annum. Offering a wide range of options for OEMs, system integrators, and end-users, AST 4000 pressure sensors can be constructed as a millivolt output pressure sensor, amplified output pressure transducer, or 4 to 20mA loop powered pressure transmitter using MEMS technology.

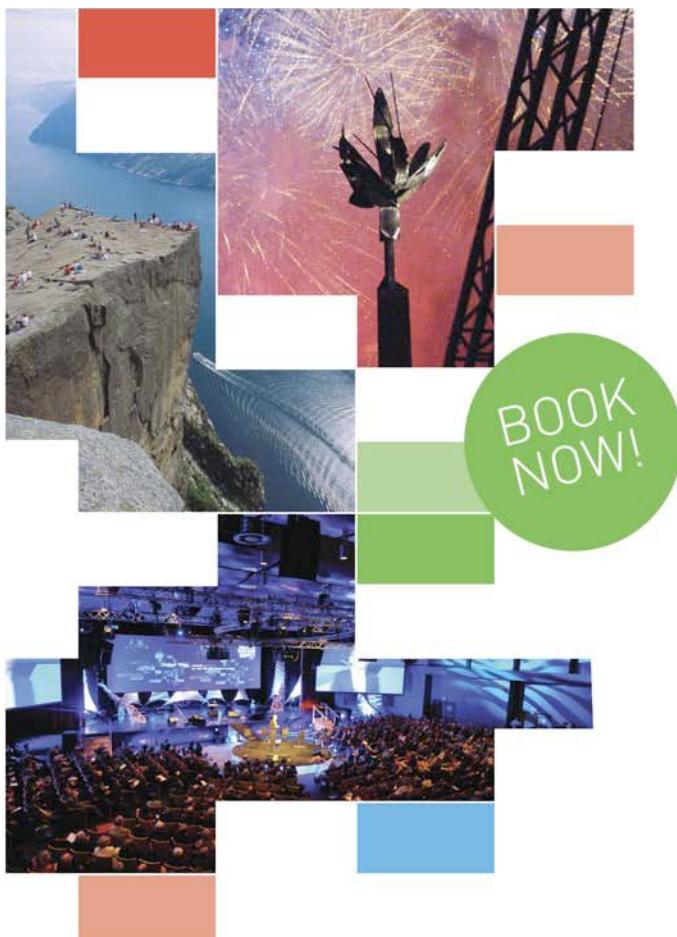
For more information, visit [www.ast-sensors.com/pressure\\_sensors\\_and\\_transducers/AST4000](http://www.ast-sensors.com/pressure_sensors_and_transducers/AST4000).

### DMS-500 motion sensors launched

A new addition to the Teledyne TSS range of DMS-500 motion sensors was launched at Oceanology International. The DMS-500 range is being developed specifically to meet the needs of users who require a top-quality motion sensor with Ethernet connectivity, but do not require the subsea-rated housings that typify Teledyne TSS products. The result is a complete range of conservatively priced sensors that incorporate a number of advanced and innovative features for applications such as Dynamic Positioning (DP), wave height monitoring, and structural stress monitoring.

The versatile design means that the range will be available in various accuracies to make it suitable for a wide range of bespoke applications.

The second phase of the product's launch introduces the Heave range of sensors – DMS-525, DMS-550, and DMS-500H. These provide a highly reliable, accurate, and cost-effective choice for motion measurement with roll/pitch accuracies from 0.25° to 0.50° RMS, with high dynamic accuracy during vessel turns and inclusive of heave measure-



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ment at  $\pm 5\text{cm}$  or 5%, whichever is greater. Unique features of the new sensors are the ability to provide power and data over Ethernet and the inclusion of two independently configurable serial outputs – offering users a wide range of connection and application options.

For more information, visit [www.teledyne-tss.com](http://www.teledyne-tss.com).

#### Tritech offers SeaKing Hammerhead package

The SeaKing Hammerhead high-resolution, 360° mechanical scanning imaging sonar is the solution for a variety of detailed survey tasks, according to manufacturer Tritech.

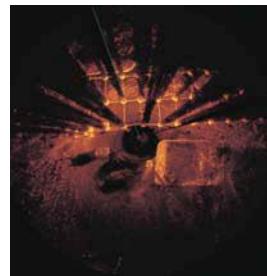
Now available as a package complete with top box, tripod, cable on reel, and transit cases, the SeaKing Hammerhead

can be deployed on the tripod for many survey tasks, such as bridge or pier inspections, as well as underwater engineering projects.

The SeaKing Hammerhead utilizes a wide transducer aperture, very fine mechanical step size, and proven Digital Sonar Technology (DST) to create even higher resolution imagery than other mechanically scanning sonars, such as the Super SeaKing sonar.

To promote higher visibility of small targets, the SeaKing Hammerhead offers a market-leading CHIRP (Compressed High-Intensity Radar Pulse) dual-frequency option as standard. The 675kHz frequency is used for large area surveys up to 100m radius, and the 935kHz frequency performs high-definition target examination up to 40m radius.

The Hammerhead unit can also be networked with compatible Tritech products such as the MicronNav UBSL Tracking System, which runs from Tritech's standalone software, Seanet Pro. The package also offers the user post-processing capabilities with an optional Image Tiler Program to produce an accurate map of the surveyed area.



In addition, Tritech has recently supplied Soil Machine Dynamics (SMD) with Gemini multibeam imaging and profiling sonars for installation on three SMD vehicles built for the Nautilus Minerals Solwara 1 Project.

The titanium multibeam sonar package is based on Tritech's proprietary Gemini multibeam technology and, together with supplied surface processing units, will offer profiling and imaging capabilities in the world's first deep-water mineral exploration project.

For more information, visit [www.tritech.co.uk](http://www.tritech.co.uk).



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## 2012 EDITORIAL CALENDAR

### January/February 2012

**Editorial:** Inspection & Light Work Class ROVs, Oceanography & Meteorology

**Distribution:** NACE • Oceanology International

**Deadline:** January 15th

**Product Focus:** Diving Equipment & Buoyancy Materials

### March

**Editorial:** Defense & Naval Systems, Maritime Security, Decommissioning, Plug & Abandonment

**Distribution:** Decommissioning & Abandonment Summit

**Deadline:** February 15th

**Product Focus:** Navigation, Mapping & Signal Processing; Diver Detection Systems

### April

**Editorial:** Offshore Technology

**Distribution:** Global Marine Renewable Energy • OTC

**Deadline:** March 15th

**Product Focus:** Connectors, Cables & Umbilicals

### May

**Editorial:** AUVs & Gliders, UW Imaging & Processing, Aquaculture & Marine Resources,

**Distribution:** UDT Europe • Anti-Submarine Warfare

**Deadline:** April 15

**Product Focus:** Cameras, Lights & Imaging Sonars

### June

**Editorial:** Workclass ROVs, Wave & Tidal, Ocean Observing Systems

**Distribution:** EnergyOcean Int'l

**Deadline:** May 15th

**Product Focus:** Subsea Tools & Manipulators

### July

**Editorial:** Offshore Mooring, Subsea Fiber Optic Networks, Company Showcase

**Distribution:** Offshore Northern Seas • AUVSI

**Deadline:** June 15th

**Product Focus:** Tracking & Positioning Systems, Seismic Monitoring

### August

**Editorial:** Ocean Mapping & Survey, Subsea Telecom, Deepwater Pipeline Repair & Maintenance

**Distribution:** TBA

**Deadline:** July 15th

**Product Focus:** Multibeam & Side Scan Sonars

### September

**Editorial:** Coastal Engineering, Environmental Assessment & Monitoring, Offshore Wind

**Distribution:** MTS Dynamic Positioning • Oceans 2012 MTS/IEEE Hampton Roads • Ocean Innovation • AWEA/Offshore Windpower

**Deadline:** August 15th

**Product Focus:** Buoys & Monitoring Instrumentation

### October

**Editorial:** Offshore Communication, Offshore IRM, OTEC

**Distribution:** Offshore Communications • Subsea Survey IRM • Clean Gulf • North Sea Decommissioning

**Deadline:** September 15th

**Product Focus:** Acoustic Modems, Releases & Transponders, Marine Communications

### November

**Editorial:** Offshore Vessels, Marine Construction

**Distribution:** International Workboat

**Deadline:** October 15th

**Product Focus:** Workboats, Diving Systems

### December

**Editorial:** Year in Review, Marine Salvage Operations, Commercial Diving

**Distribution:** Underwater Intervention

**Deadline:** November 15th

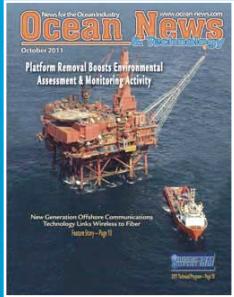
**Product Focus:** Handling Equipment, Winches & Control Systems, Battery Technology

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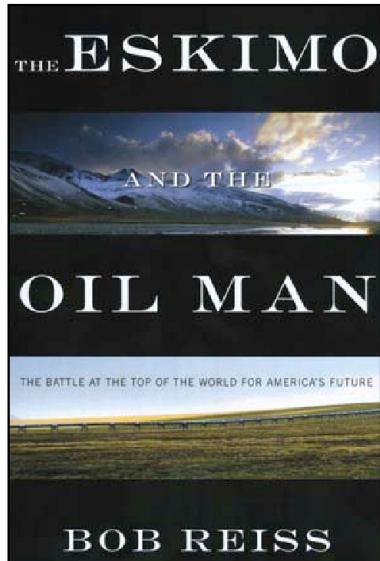
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# Media Reviews

## The Eskimo and the Oil Man The Battle at the Top of the World for America's Future



The Arctic century is upon us. A great jockeying for power and influence has erupted among nations in the high north. At stake are trillions of dollars in profit or loss, U.S. security, geopolitical influence, and the fate of a fragile environment as well as the region's traditional people. As the ice melts and oil companies venture north, the polar regions may become the next Panama Canal, the next Arabian Peninsula—places on earth that remain relatively unknown in one century and become pivotal in the next. Now, Shell Oil plans to sink exploratory wells in the pristine waters off the North Slope of Alaska—a site that the company believes contains three times as much oil as the Gulf of Mexico. The Eskimo and the Oil Man, by Bob Reiss, tells this story through the eyes of two men, one an Iñupiat Eskimo leader on Alaska's North Slope, the other the head of Shell Oil's Alaska venture. Their saga is set against the background of an undersea land rush in the Arctic, with Russian bombers appearing off Alaska's coast and rapid changes in ice that put millions of sea mammals

at risk. The men's decisions will affect the daily lives of all Americans, in their cities and towns and also in their pocketbooks. The story begins as a fight and ends with a surprise. In the spirit of Thomas L. Friedman's Hot, Flat, and Crowded, bestselling author Bob Reiss traveled in America's High North for over 3 years and spent time with scientists, diplomats, military planners, Eskimo whale hunters, and officials at the highest levels of the government. He traveled to remote villages and sailed on a U.S. icebreaker. The Eskimo and the Oil Man reflects the issues dividing every American community wrestling with the balance between energy use and environmental protection, our love of cheap gas and the romance of pristine wilderness. Bob Reiss is a New York-based author and journalist, a former Chicago Tribune reporter, and former correspondent for Outside Magazine.

**ISBN-978-0-892-96076-7, Published by Business Plus, Soft Cover, 300 pages, Pub. date - June 5, 2012, Price: \$27.99**

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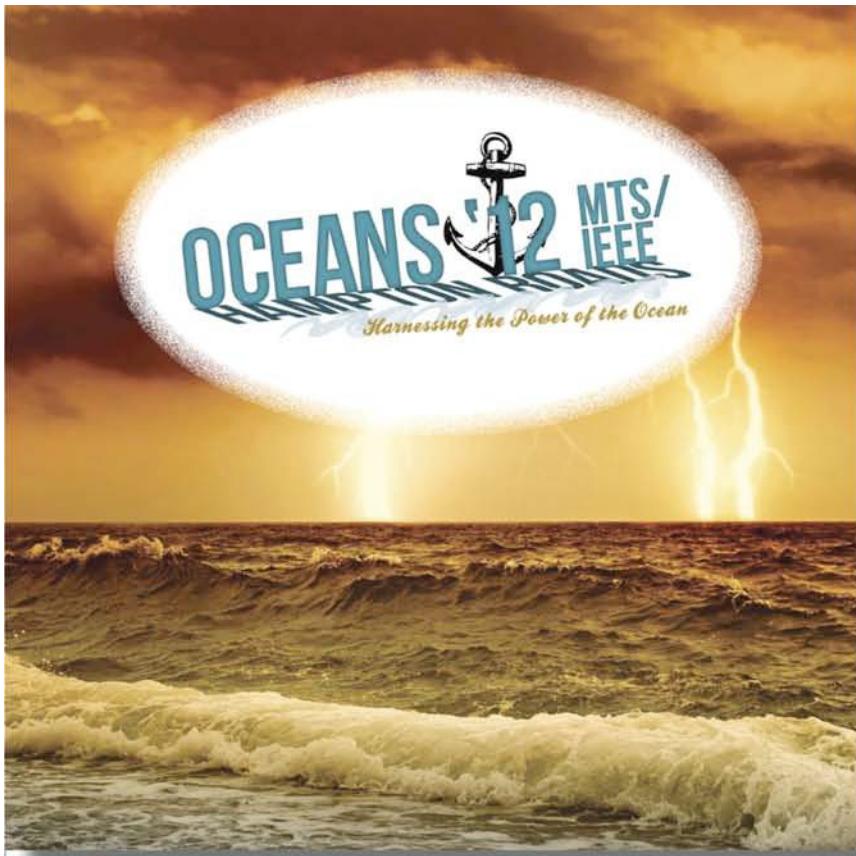
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13 July 2012
- Early Bird Room**  
01 August 2012
- On-line Registration**  
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# People & Company News

Wild Well Control, a Superior Energy Services company, said that **James Tuppen** joined the company as manager of international well control operations. Based in Dubai, UAE, Tuppen will assist in maintaining Wild Well Control's commitment to supporting client needs globally in well control, prevention, and response services. Superior employs more than 5,700 people in more than 156 locations in 18 countries worldwide.

Anadarko Petroleum Corp.'s board of directors promoted **Al Walker**, the company's president and chief operating officer, to the position of president and chief executive officer. **Jim Hackett**, who was named Anadarko's CEO in December of 2003, will continue serving the company in the newly created position of executive chairman. The leadership changes will be effective 15 May, in conjunction with the company's annual meeting. In addition, Walker will stand for election to the company's board of directors at that time.



Tuppen

**L. J. (Lucille) Cavanaugh**, vice president, human resources, ExxonMobil Corp. retired effective 1 April, with more than 34 years of service. It was anticipated that the board of directors would elect **M. (Malcolm) Farrant** to replace Cavanaugh. Farrant was executive assistant to the chairman.

Cummins Inc. named **Jenny Bush** general manager for its commercial marine business. Working in close cooperation with the Cummins distributor network, Bush will be responsible for all commercial marine business activities for the engine business unit globally, including business development and support. She will be located in Charleston, South Carolina and will report directly to Mark Levett, vice president of the high horsepower engine business.

**Remi Eriksen** has taken up the position as chief executive officer of DNV Maritime and Oil & Gas as of 1 March. Following its acquisition of the majority shareholding in KEMA, DNV is now



Bush

establishing a group structure with three companies to manage the strong multiple industry positions it now holds. Remi Eriksen was previously Chief Operating Officer of DNV's Asia Pacific and Middle East operations, based in Singapore. The company will be headquartered in Oslo, Norway, and provide services to DNV's traditional core markets.

Noble Corp. said that **Bernie G. Wolford** was named senior vice president of operations. Wolford will be responsible for increasing Noble's organizational capabilities, advancing the company's culture of safety and ensuring operational excellence throughout the Noble fleet. Wolford will report to David W. Williams, chairman, president and chief executive officer. Wolford was previously vice president of operational excellence.

**FMC Technologies, Inc.** announced it has been named the recipient of two Spotlight on New Technology awards by the Offshore Technology Conference (OTC). The awards, which honor innovative technologies that significantly impact offshore exploration and production, recognize FMC's subsea processing systems designed for Total's Pazflor field and Petrobras' Marlim field.

The advertisement features a large background image of the Eiffel Tower against a blue sky with white clouds. Overlaid on the image are several text elements and logos. In the top left corner, the text "Sustainable Developments with a Renewed Risk Awareness" is displayed. In the top right corner, the logo for "MCE DEEPWATER DEVELOPMENT" is shown, featuring a stylized globe and the acronym "MCE". Below the main title, the text "26-28 March, 2012 · CNIT La Défense Paris, France · www.MCEDD.com" is provided. In the bottom left corner, there is a red starburst button with the text "REGISTER NOW!" in white. At the very bottom left, the website "www.MCEDD.com" is listed. The bottom right corner contains logos for "Guest Offshore" and "ASME PETROLEUM DIVISION".

Accommodation specialist, HB Rentals, a Superior Energy Services company, named **Jessi Haas** and **Danielle Landry** corporate business analysts, U.S. land division. Haas has been employed by HB Rentals since October 2010. She previously served as the administrative assistant in HB's Mill Hall, Pennsylvania location where she worked closely with the management team. Landry has more than 6 years of accounting experience and



Haas

recently served as the budget and management accountant for Petsec Energy, Inc. in Lafayette, Louisiana. Based in the company's corporate office, Haas and Landry will act as liaisons between business districts and regions, analyzing and communicating business cases in support of projects, and participating in or facilitating business process modeling and research efforts. They will also measure, analyze, and communicate costs and benefits of products and services to the vice president of land operations.

Pipeline engineering company, STATS Group, has strengthened its management team with the appointment of former Sparrows Offshore executive **Graham Thomson** as general manager. The company has also appointed **Vikas Shangari** as business development manager for the Middle East, based in Qatar. He joins from Hydratight where he held a similar role for 8 years.

Offshore Installation Services Ltd, an Acteon company, appointed **Jeremy Punnett** to global president. He will be based in Aberdeen, UK, at Acteon's Tern Place facility. Punnett joins OIS from Bibby Offshore where he oversaw business planning and strategic development. He will be responsible for continuing the evolution of OIS's successful project management and specialist installation services.

International FPSO moorings and marine engineering services business, Sigma Offshore, has appointed an experienced industry figure to head up

one of its key service areas. **Geir Eik** has become vice president of Internal Turret Systems at the Aberdeen-headquartered company.

Reservoir Group appointed **Wade McCutcheon** as chief operating officer. McCutcheon steps up to the role from his previous position as vice president responsible for the Group's formation evaluation activity. With plans for similar expansion this year, McCutcheon will oversee all operational matters, accelerating the Group's organic growth and maximizing synergies between existing member companies.

**CSA International, Inc.** (CSA) has acquired **ECOES Consulting**, a leading Marine Mammals and Protected Species Consulting firm in Florida, expanding the capabilities of CSA's Marine Mammals Business Line. As part of the acquisition, Ms. Mary Jo Barkaszi, former President of ECOES, will be responsible for managing the expanded CSA Marine Mammals Business Line, including marketing efforts and scientific oversight. The CSA Marine Mammals Business Line provides a wide variety of services to the Energy, Government, Defense, and Commercial markets, including Marine Mammal Observer (MMO) services, Passive Acoustic Monitoring (PAM) services, Protected Species consulting, and associated biological and fisheries consulting. The Business Line will support customers around the world through CSA's international offices and alliance partners.

**EIVA** and **AML Oceanographic** (formerly Applied Microsystems) have signed a distributor agreement with the aim of EIVA reselling the AML Oceanographic product line. EIVA will provide the AML Oceanographic products comprising CTD, sound velocity, and environmental instrumentation in its integrated survey and monitoring system solutions provided to the offshore energy sector, hydrographic survey industry, and oceanographic science and research institutes. In addition, the AML Oceanographic products will be available for integration in the EIVA ScanFish remotely operated towed vehicle along with a wide range of other sensors.

**Torsten Marten** has taken the post of Brazil operations manager at NCS Survey, an Acteon company. Torsten will be based in Rio de Janeiro, Brazil as of 25 March and will look after all NCS's current and future operations in the country.



Landry



Thomson



Marten

April 15-18, 2012:  
**Navy League Sea-Air-Space**, National Harbor, MD  
[www.seairspace.org](http://www.seairspace.org)

Apr 20-May 2, 2012:  
**Maritime Homeland Security Summit-IDGA**  
Norfolk, VA  
[www.maritimehssummit.com](http://www.maritimehssummit.com)

April 24-26, 2012:  
**Global Marine Renewable Energy Conference**  
Washington DC  
[www.globalmarinerenewable.com](http://www.globalmarinerenewable.com)

April 30 - May 3, 2012:  
**OTC**  
Houston, TX  
[www.otcnet.org/2012](http://www.otcnet.org/2012)

May 15-17, 2012:  
**Clean Pacific 2012**  
Long Beach, CA  
[www.cleanpacific.org](http://www.cleanpacific.org)

May 29-31, 2012:  
**UDT Europe / Anti-Submarine Warfare**  
Spain  
[www.udt-global.com](http://www.udt-global.com)

June 3-6, 2012:  
**AWEA Windpower**  
Atlanta, GA  
[www.windpowerexpo.com](http://www.windpowerexpo.com)

June 19-21, 2012:  
**EnergyOcean International 2012**  
Boston, MA  
[www.energyocean.com](http://www.energyocean.com)

August 6-9, 2012:  
**AUVSI's Unmanned Systems N.A.**  
Las Vegas, NV  
[www.auvsi.org](http://www.auvsi.org)

August 28-31, 2012:  
**Offshore Northern Seas**  
Stavanger, Norway  
[www.ons.no](http://www.ons.no)

September 11-12, 2012:  
**MAST Europe**  
Sweden  
[www.mastconfex.com](http://www.mastconfex.com)

October 8-10, 2012:  
**MTS Dynamic Positioning 2012**  
Houston, TX  
[www.mtsociety.org/conferences](http://www.mtsociety.org/conferences)

October 9-11, 2012:  
**AWEA Offshore Windpower**  
Virginia Beach, VA  
[www.offshorewindexpo.org/](http://www.offshorewindexpo.org/)

October 15-19, 2012:  
**MTS/IEEE Oceans 2012**  
Virginia Beach, VA  
[www.oceans12mtsieehamptonroads.org](http://www.oceans12mtsieehamptonroads.org)

November 5-8, 2012:  
**Subsea Survey IRM 2012**  
Galveston, TX  
[www.subseasurvey.com](http://www.subseasurvey.com)

# ocean industry

# directory

**OCEAN INDUSTRY DIRECTORY**  
ON&T's Product & Service Directory

Volume 17 • Issue 3 • Ocean News & Technology, Volume 17 • Issue 3 • April 2011

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ON&T April 2011

## CURRENT LISTINGS IN EVERY ISSUE

Ocean Industry Directory is featured in every issue of Ocean News, and the industry knows this is the one source they can count on to provide them with up to date listing information for the products and companies they're looking for.

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#### Applied Acoustic Engineering Ltd

Marine House, Capton Hall Road, Great Yarmouth. NR31 0NB, United Kingdom  
Tel: +44(0)1493 440355, Fax: +44(0)1493 440720  
E-mail: gavinwilloughby@appliedacoustics.com  
Website: www.appliedacoustics.com  
Contact: Gavin Willoughby

*Manufacturer of fully integrated USBL acoustic tracking systems, both portable and vessel based, high quality multi-system compatible beacons for acoustic positioning and release, and seismic sub-bottom profiling systems for coastal, offshore or geohazard surveys.*

*All products are supported by a network of overseas representatives providing a first class service on a global scale.*



#### EvoLogics GmbH

Ackerstrasse 76  
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Fax: +49(0)30 4606 8215  
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Website: www.evologics.de

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E-mail: sales@jwautmarine.co.uk  
Website: www.jwautmarine.co.uk  
Contact: David Letts

*Design and Manufacture of Underwater Lifting and Buoyancy Bags 25 kg – 50,000 kg capacity and flexible storage tanks. ISO 9001:2008 assessed and IMCA D016 Revision 3 compliant. Member of IMCA.*

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Toll Free: (800) 848 4257  
Tel: (760) 471 5400, Fax: (760) 471 4970  
E-mail: sales@falmat.com  
Website: www.falmat.com  
Contact: Shawn Amirehsani

*Falmat designs and manufacturers cables for commercial and military projects ensuring performance and reliability specifically in harsh environments. Innovative cable solutions for dynamic and static applications. Ruggedized Deep-Water XtremeNet composite Ethernet cables, proven XtremeGreen video cables, miniature XtremeLight fiber optic cables are high performance products representing our versatile manufacturing capabilities serving the marine industry. We offer installing braided hair fairing, single and multilayered steel armored cables in short lengths. Falmat is a Certified ISO9001/AS9100 company. Visit our web site www.falmat.com or contact our sales team for a prompt quotation.*

### CABLE & PIPELINE TRACKING

#### INNOVATUM Ltd.

Unit 11 & 12, Woodside Business Park, Ingham, BURY St. EDMUNDS, IP31 1NR, Suffolk, England, UK  
Tel: +44(0)1284 729 123, Fax: +44(0)1284 729 133  
E-mail: sales@innovatum.co.uk  
Website: www.innovatum.co.uk  
Contact: Terry Slater and Rob Nunn

*SMARTRAK: High accuracy magnetic cable and pipeline tracking systems from the beach to 3000m water depth. SMARTSEARCH: for highly detailed magnetic mapping survey; magnetic debris search; pipe-route clearance; munitions/UXO survey; wreck location. For all ROV; towed sled; AUV and small vessels.*



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Tel: +44(0)1923 216020 Fax: +44(0)1923 216061  
E-mail: tsssales@teledyne.com  
Website: http://www.teledyne-tss.com  
Contact: Carolyn Jones  
USA Office: 10801 Hammerly Blvd, Suite 128, Houston, TX 77043, Contact: Keith Pope  
Tel: (713) 461 3030, Fax: (713) 461 3099

*Underwater detection systems for determining the location, relative position and burial status of offshore pipelines, umbilicals and subsea telecommunications & power cables.*

### CABLE PROTECTION



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5300 St. Clair Avenue, Cleveland, OH 44103  
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E-mail: sales@pmiind.com  
Website: www.pmiind.com

*Engineering services company specializing in design, manufacturing & testing highly reliable custom cable systems & hardware for the harsh marine environment. DYNA-HANGER® Suspension System: a unique split hardware design offers mid-span bend protection & superior high strength holding that can be applied at any point along the cable. EVERGRIP® Termination: provides a full-strength field installable termination providing a high quality strength termination for use on E-O-M cables & wire rope. CABLE-GRIP™ and STOPPER-GRIP™ Terminations: Ideal for short term dynamic loading applications and strain relief operations. EVERFLEX® Bending Strain Relief: used & applied at terminations where off-axis tension may occur.*

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#### AK Industries

3115 East Las Hermanas Street  
Rancho Dominguez, CA 90221  
Tel: (310) 762 1600  
Fax: (310) 762 1616  
E-mail: sales@ak-ind.com  
Website: www.ak-ind.com  
Contact: Allan Kidd

*AK Industries is an agile high tech manufacturer of rugged low cost underwater electrical connectors. The HydroVolt line of connectors is the most rugged and reliable low cost connector available. AK Industries is also ideally suited to provide unique solutions engineered to customer requirements.*



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USA: +1-888-BIRNS-88 (888-247-6788)  
Fax: +1-805-487-0427  
E-mail: service@birns.com  
Website: www.birns.com  
Contact: Eric Birns

*BIRNS, Inc. is a fully-integrated ISO:9001:2008-certified designer and manufacturer of high-performance underwater solutions—LED and tungsten-halogen chamber and commercial diving lights; MPI-NDT equipment; electrical, coaxial, optical, electro-opto-mechanical connectors, penetrators and custom cable assemblies. Specializing in high-end connector products—BIRNS Millennium™, miniature metal shell (high-density, high-voltage, coaxial, fiber-optic, hybrid); Metal Shell: rugged, high power use; Penetrators: ABS/DNV-approved pressure boundary penetration; along with Aquamate, Rubber and Polymeric lines.*



#### BIRNS Aquamate LLC

122 Waltham St.  
Pawtucket, RI 02860 USA  
Tel: 1 401-723-4242, Fax: 1 401-753-6342  
E-mail: sales@birnsaquamate.com  
Website: www.birnsaquamate.com  
Contact: Eli Bar-Hai

*Birns Aquamate design and manufacture underwater electrical connectors, cable assemblies, and cable terminations. The company produces a wide range of standard industry connectors such as the 5500 Series, SC, MC, LP, FAWL/FAWM, Rubber Molded, and NANO. BIRNS Aquamate is the only underwater connector producer that guarantees compatibility with other manufacturers. Birns also excels in fast turn-around for custom design of special connector solutions. Stocking dealers in the UK (Scorpion Oceanics) South Africa (Marine Solutions) Holland (Nautikaris and Seascape) as well as dealers in Italy, Russia, China, Brazil and across the USA.*



#### SEA CON®

1700 Gillespie Way  
El Cajon, California 92020, USA  
Tel: (619) 562-7071, Fax: (619) 562-9706  
E-mail: seacon@seaconworldwide.com  
Website: www.seaconworldwide.com

*The SEA CON® Group of companies are leaders in underwater connector technology and provide an extensive and diverse range of electrical, optical and hybrid connector assemblies, submersible switches and cable system solutions for many applications within the oil and gas, defence, oceanographic and environmental markets. With locations in California, Texas, Rhode Island and Florida in the USA, Brazil, the UK and Norway as well as a worldwide network of agencies and representatives, SEA CON® is able to provide quick solutions with either existing or custom designed products across the globe.*



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**MacArtney Inc.**  
575 Washington Street, Unit 2  
P.O. Box 328  
North Pembroke, MA 02358  
Tel: 781 829 4440, Fax: 781 829 4442  
Mobile: 617 733 1412  
E-mail: jas@macartney.com  
Website: www.macartney.com  
Contact: Jennifer A. Stewart

SubConn Inc. has been supplying the world's leading range of underwater pluggable electrical connectors to the underwater industry for over 30 years. MacArtney Offshore and M.J. Stewart Associates have now joined forces to create MacArtney Inc., combining responsibility for SubConn® sales in North America with SubConn® sales in the rest of the world.

From our Massachusetts office and supported by the main Houston office, MacArtney Inc. offers connector and cable product lines along with MacArtney Underwater Technology's world leading underwater technology systems from proven components, cables and connectors, to state-of-the-art integrated packages.



**Teledyne ODI**  
A Teledyne Technologies Company  
  
1026 North Williamson Boulevard,  
Daytona Beach, Florida 32114  
Toll Free: (888) 506 2326  
Tel: (386) 236 0780, Fax: (386) 236 0906  
E-mail: ODI\_marketing@teledyne.com  
Website: www.odi.com

A leader in subsea electrical & fiber optic interconnect systems. Wet-mateable connectors include signal & high-power electrical, optical, and hybrid products. All based on patented PBOF technology. These rugged components are designed for use at any ocean depth, in the harshest environments. ODI also provides top quality custom engineered solutions for any subsea networking challenge.



**Teledyne Oil & Gas**  
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Daytona Beach, Florida 32114  
Toll Free: (888) 506 2326  
Tel: (386) 236 0780, Fax: (386) 236 0906  
E-mail: oilandgas@teledyne.com  
Website: www.teledyneoilandgas.com.

Delivering engineered solutions for subsea & topside monitoring, sensing and interconnection applications. Technology-focused capabilities include corrosion & erosion monitoring networks, data acquisition/evaluation/reporting systems and turnkey systems integration, power & data interconnection systems and subsea engineering. Teledyne Oil & Gas is Teledyne ODI, Teledyne Impulse, Teledyne Cormor & Teledyne DG O'Brien.

Continued □

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Devon, PL3 4DT, UK  
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E-mail: vanessa@interdive.co.uk or diving@interdive.co.uk  
Website: www.interdive.co.uk  
Contact: Ms. Vanessa Yardley

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E-mail: tsssales@teledyne.com  
Website: www.teledyne-tss.com  
Contact: Carolyn Jones

**USA Office:** 10801 Hammerly Blvd, Suite 128  
Houston, TX 77043, Contact: Keith Pope  
Tel: (713) 461 3030, Fax: (713) 461 3099

Supplier of the Meridian range of IMO, Wheelmark and High Speed Craft approved surface and seafloor gyro compasses. Options include heave, roll and pitch and battery backup versions as well as a range of repeaters and ancillary products. TSS also continues to support the world-renowned range of SG Brown gyro compasses and marine equipment.

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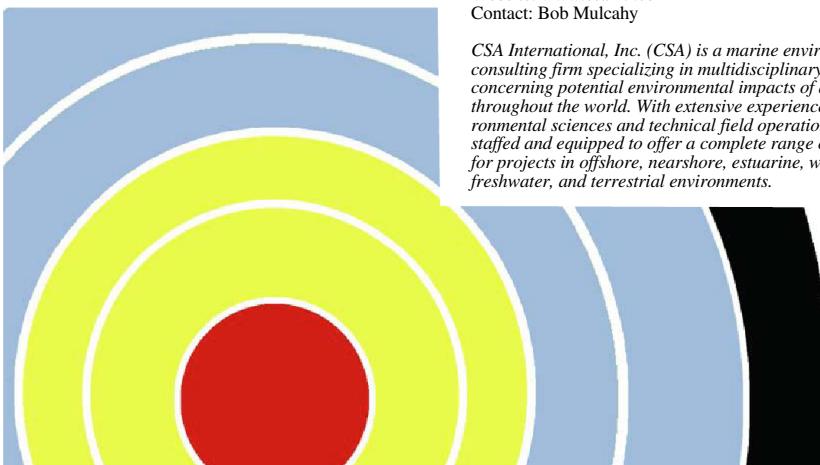
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**LIQUID STORAGE****Aero Tec Laboratories, Inc. (ATL)**

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E-mail: atl@atline.com  
Website: www.atline.com  
Contact: David Dack

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Tel: (408) 954 0522, Fax: (408) 954 0902  
E-mail: sales@geometrics.com  
Website: www.geometrics.com  
Contact: Ross Johnson

*Geometrics, a member of OYO Corporation, manufactures, sells, and services portable geophysical instruments for land, marine, and air investigations of the subsurface. Geometrics' product line includes proton precession and cesium magnetometers, high-resolution seismographs, and electrical conductivity imaging and resistivity systems. Geometrics' instruments are used around the world for natural resource exploration, geotechnical and environmental assessments, ordnance detection, locating archeological and treasure sites, teaching and research.*

**Marine Magnetics Corp.**

135 Spy Court  
Markham, Ontario, Canada L3R 5H6  
Tel: +1 905 479 9727 x232  
E-mail: info@marinemagnetics.com  
Website: www.marinemagnetics.com  
Contact: Rebecca Milian

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- **SeaQuest** is a multi-sensor gradiometer. It is the most advanced magnetic search tool available - improving speed and accuracy in UXO and mine detection. Available auxiliary sensors include, tilt sensor, pressure sensor, altimeter, built-in GPS.

**MARINE ENVIRONMENTAL CONSULTING SERVICES****CSA International, Inc.**

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Stuart, FL 34997  
Tel: 772 219-3000, Fax: 772-219-3010  
E-mail: rmulcahy@conshelf.com  
Website: www.csaintl.com  
Contact: Bob Mulcahy

*CSA International, Inc. (CSA) is a marine environmental consulting firm specializing in multidisciplinary projects concerning potential environmental impacts of activities throughout the world. With extensive experience in environmental sciences and technical field operations, CSA is staffed and equipped to offer a complete range of services for projects in offshore, nearshore, estuarine, wetland, freshwater, and terrestrial environments.*

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- IMO-certified survey grade gyrocompass
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- Complete motion sensor, features roll, pitch, surge, sway, heave, speed and acceleration
- Calibration and maintenance-free
- Easy to install and interface (serial, Ethernet, WEB based software)

**Kongsberg Seatex AS**

Kongsberg Seatex AS  
Pirseteret  
N-7462 Trondheim  
Norway  
Tel: +47 73 54 55 00  
Fax: +47 73 51 50 20

**KONGSBERG**

E-mail: km.seatex@kongsberg.com  
Website: www.km.kongsberg.com/seatex  
Contact: Finn Otto Sanne finn.otto.sanne@kongsberg.com

*Kongsberg Seatex is a leading international marine electronics manufacturer specializing in the development and production of precision positioning and motion sensing systems. Our commitment is to provide quality products and solutions for safe navigation and operations at sea in the commercial offshore, maritime, hydrographics and defence industries.*

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A Teledyne Technologies Company

**Teledyne TSS Ltd.**

UK Office: 1 Blackmoor Lane, Croxley Business Park  
Watford, Hertfordshire WD18 8GA  
Tel: +44(0)1923 216020 Fax: +44(0)1923 216061  
E-mail: tsssales@teledyne.com  
Website: http://www.teledyne-tss.com  
Contact: Carolyn Jones

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*Comprehensive family of motion sensors available; ranging from a heave sensor through to heave, pitch and roll, and at the top end of the range highly accurate position and heading systems.*

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E-mail: info.instrumentation@nke.fr

Website: www.nke-instrumentation.com  
Contact : Yves DEGRES – Instrumentation Manager,  
Valérie LE PEN – Sales Dpt.

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- Drifting surface buoys with temperature and GPS receiver for Surface velocity project.
- Carioca drifting buoy: sea water dissolved pCO<sub>2</sub>, chlorophyll, wind speed and salinity.

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**Sea-Bird Electronics, Inc.**  
13431 NE 20th St., Bellevue, WA 98005  
Tel: 425-643-9866, Fax: 425-643-9954  
E-mail: seabird@seabird.com,  
Website: <http://www.seabird.com>  
Contact: Calvin Lwin, Applications Engineering

*Sea-Bird is the leader in accurate, stable ocean instruments for measuring conductivity, temperature, pressure (salinity); oxygen; and related variables. Our CTD profilers, water samplers, moored CT recorders, wave/tide recorders, and DO sensors are used by research institutes, ocean observing programs, government agencies, and navies globally. Investments in engineering, metrology, calibration, software, and analysis make our products the best choice.*

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### Star-Oddi

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Tel: +354 533 6060, Fax: +354 533 6069  
E-mail: [baldur@star-oddi.com](mailto:baldur@star-oddi.com)  
Website: <http://www.star-oddi.com>  
Contact: Baldur Sigurgeirsson

*A manufacturer of miniature data loggers with sensors as temperature, depth/pressure, salinity, tilt/acceleration, compass direction/magnetometer, light levels, acoustic receiving/transmitting. The loggers are used for various researches, including oceanography, fishing gear studies, equipment behavioral monitoring and fish tagging. Data is presented in the application software with a time-stamp for each measurement.*

## OFFSHORE EQUIPMENT



**OEG Offshore, LLC**  
Millennium Tower, Suite #1300  
10375 Richmond Ave., Houston, Texas 77042  
Tel: M(+1) 713 899 7502  
Tel: O(+1) 713 783 1771  
E-mail: [larry.bobbitt@oegoffshore.com](mailto:larry.bobbitt@oegoffshore.com)  
Website: [www.oegoffshore.com](http://www.oegoffshore.com)  
Skype: larrybobbitt

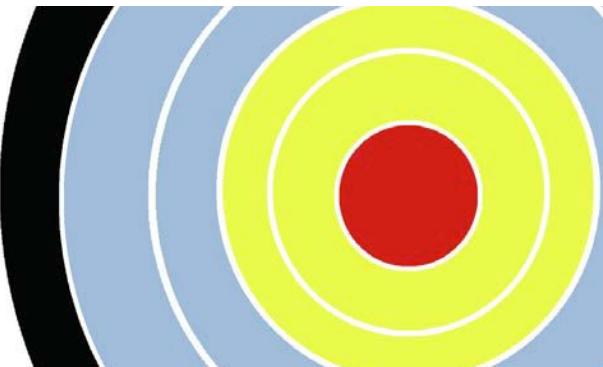
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## PIEZOELECTRIC CERAMICS



**Channel Industries**  
A Division of Channel Technologies Group  
839 Ward Dr., Santa Barbara CA 93111 USA  
Tel: (805) 967-0171; Fax (805) 683-3420  
E-mail: [cisales@changetech.com](mailto:cisales@changetech.com)  
Website: [www.changetechgroup.com](http://www.changetechgroup.com)  
Contact: K.Ruelas, pres.; K.Aties, Director of Business Development; E.Bickel, technical sales

*Piezoelectric ceramics - Channel Industries, A Division of Channel Technologies Group (CTG) is a custom manufacturer of piezoelectric ceramics in lead-zirconate and barium titanate compositions. Since 1959 Channel Industries ceramics have been at the heart of thousands of underwater acoustic applications and systems. Hydrophones, towed arrays, modems, side-scan sonar, etc. Military and commercial applications worldwide for over 50 years.*



Continued □

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E-mail: [sales@deepsea.com](mailto:sales@deepsea.com)  
Website: [www.deepsea.com](http://www.deepsea.com)  
Contact: Pedram Pebdani, Oceanographic Sales Manager

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Stuart, FL 34997  
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Fax: (772) 219-3010  
Email: [jbyous@oceanspecialists.com](mailto:jbyous@oceanspecialists.com)  
Website: [www.oceanspecialists.com](http://www.oceanspecialists.com)  
Contact: Jim Byous



*Ocean Specialists, Inc (OSI) provides a broad range of capabilities and services to the Offshore Oil & Gas, Submarine Telecom, Government and Scientific markets, including: Market analysis, project consulting, submarine fiber cable systems, subsea technology development, & corporate services.*

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Morris Southeast Group/  
CORFAC International  
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Plantation, FL 33322  
Tel: (954) 474-1776  
Email: [kennorris@morrissegroup.com](mailto:kennorris@morrissegroup.com)  
Website: [www.morrissegroup.com](http://www.morrissegroup.com)  
BLOG: [www.morristsrends.com](http://www.morristsrends.com)  
Contact: Ken Morris, SIOR



*Morris Southeast Group/CORFAC International is a leading provider of commercial real estate services specializing in owner and tenant representation, corporate services and investment sales in the office, industrial and retail sectors. Based in South Florida, the firm serves corporations throughout the Americas in affiliation with CORFAC International and worldwide with FIABCI, the International Real Estate Federation.*

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**MaRE Trans. Ltd.**  
MaRE Trans. Ltd.  
Kilda House  
Bruntland Road  
Portlethen, Aberdeenshire, AB12 4QL  
Tel: +44(0)1224 781123, Fax: +44(0)1224 783407  
Email: [michael@m-are.com](mailto:michael@m-are.com)  
Website: [www.m-are.com](http://www.m-are.com)  
Contact: Mike Kernaghan

*MaRE provides an International Brokerage and Equipment Sourcing service to the underwater industry. We are the world's leading source of used ROV systems and components. "DeepSearch", a free-issue database, is distributed monthly highlighting used ROVs and associated equipment for sale worldwide. Our Procurement department offers an equipment and spares sourcing service which complements the brokerage side of the business. MaRE also provides Consultancy on all aspects of remote underwater technology.*

## SONAR SYSTEMS



**BlueView Technologies, Inc.**  
2515 N. Northlake Way, Suite 214  
Seattle, WA 98103, USA  
Tel: (206) 545-7260  
E-mail: [info@blueview.com](mailto:info@blueview.com)  
Website: [www.blueview.com](http://www.blueview.com)  
Contact: Beto Campos - Director, Global Commercial Sales

*BlueView delivers state of the art, compact acoustic imaging, measurement, and automation solutions for defense, energy, civil engineering, transportation, and port security applications worldwide. BlueView's advanced acoustic systems support underwater operations from a wide variety of platforms, including ROVs, AUVs, surface vessels, fixed mounts, portable tripods, and diver handheld systems.*

# OCEAN INDUSTRY DIRECTORY

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### Imagenex Technology Corp.

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E-mail: [imagenex@shaw.ca](mailto:imagenex@shaw.ca)  
Website: [www.imagenex.com](http://www.imagenex.com)  
Contact: Steve Curnew

*Imagenex is an innovative company specializing in advanced acoustic underwater sensors. The company's products include multibeam, mechanical scanning, and sidescan sonars. The Delta T is a compact, cost-effective multibeam sonar, small enough to fit on most underwater vehicles for obstacle avoidance, navigation and profiling applications. The profiling versions feature an output for real-time 3D plotting and are compatible with third party post-processing software. The Model 881A is a small multi-frequency sonar for imaging or profiling applications. There is an Azimuth Drive available for the 837B Delta T and the 881A for profiling applications from stationary platforms. The Model 881L features improved performance via Ethernet communications. Two sidescan sonars, the SportScan and the YellowFin, feature a revolutionary price/performance ratio. For more information please visit [www.imagenex.com](http://www.imagenex.com)*

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E-mail: [jdmille@marinesonic.com](mailto:jdmille@marinesonic.com)  
Website: [www.marinesonic.us](http://www.marinesonic.us)

*Marine Sonic Technology, Ltd. builds high quality, high resolution side scan sonar systems. Located in Gloucester, Virginia, Marine Sonic has been in business for more than 20 years. Our towed systems are rugged, easy to deploy and easy to operate. We also offer highly efficient embedded side scan systems for use in AUVs which occupy minimal space in the vessel and operate with minimal power consumption.*



### Sonatech

A Division of Channel Technologies Group  
869 Ward Dr. Santa Barbara, CA 93111-2920 USA  
Tel: (805) 683-1431; Fax (805) 683-4862  
E-mail: [marketing@sonatech.com](mailto:marketing@sonatech.com)  
Website: [www.channeltechgroup.com](http://www.channeltechgroup.com)  
Contact: K.Ruelas, pres.; R. Franklin, v.p., nav & range sys; M. Shaw, v.p., sonar & transducer sys; B. Febo, Director of Business Development

*Sound Engineering Solutions – Sonatech, A Division of Channel Technologies Group (CTG) develops innovative solutions for underwater acoustic applications. Existing technologies span a wide variety of acoustic systems, including sonar systems, navigation systems, and custom acoustic solutions. Our solutions are based on a 36-year career of developing high-performance, high-reliability underwater systems that are continually improved through research and development.*



### Sound Metrics Corp.

15029 Bothell Way NE, Suite 100  
Lake Forest Park, WA 98155  
Tel: (206) 364-1441, Fax: (206) 374-2929  
E-mail: [sales@soundmetrics.com](mailto:sales@soundmetrics.com)  
Website: [www.soundmetrics.com](http://www.soundmetrics.com)  
Contact: Jeanne Dorsey

*Founded in 2002, Sound Metrics Corporation is one of the first manufacturers of high resolution imaging sonars. These units are used in virtually every marine industry by some of the most recognized companies around the world. In addition to being the technological leader in image quality, Sound Metrics has built a reputation for support and for innovative solutions around their customers' applications.*

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E-mail: [info@saivas.no](mailto:info@saivas.no)  
Website: [www.saivas.no](http://www.saivas.no)  
Contact: Gunnar Sagstad

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### SUBSEA FABRICATION



#### NEW Industries

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Morgan City, LA  
Tel: 985-385-6789  
E-mail: [bill.new@newindustries.com](mailto:bill.new@newindustries.com)  
Website: [www.newindustries.com](http://www.newindustries.com)  
Contact: Bill New

*New Industries (NI) provides quality fabrication services to the offshore oil & gas and marine industries. NI focuses on large diameter, pressure vessels and deepwater subsea equipment such as jumpers, PLETs, PLEMs, suction piles and ROV components.*

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Tel: 713-934-3100  
E-mail: [contact@seanicusa.com](mailto:contact@seanicusa.com)  
Website: [www.seanicusa.com](http://www.seanicusa.com)  
Contact: Karen North

*Seanic Ocean Systems is an industry leader in providing simple, rugged and reliable subsea tooling for remote intervention.*

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E-mail: [sales@seacon-ap.com](mailto:sales@seacon-ap.com)  
Website: [www.seacon-ap.com](http://www.seacon-ap.com)

*SEACON Advanced Products, LLC., manufactures a wide variety of versatile and robust switches to suit a number of applications. These include Limit, Positive Action and Proximity switches in a range of materials including Titanium, Plastic and Stainless Steel which can be supplied in varying load capacities up to 7 amps and pressure rated to 10,000 psi. To further aid simplicity, our proven range of Modular Proximity Switches have been integrated with the Micro WET-CON electrical wet-mate connector making this switch a very modular component that is easily installed and replaced in the field, but without compromising reliability.*

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E-mail: [sales@itc-transducers.com](mailto:sales@itc-transducers.com)  
Website: [www.channeltechgroup.com](http://www.channeltechgroup.com)  
Contact: K.Ruelas, pres.; B.Dolan, Director of Business Development; E.Kunstal, eng. mgr.

*The Science of Sound Performance – ITC, a Division of Channel Technologies Group (CTG), designs and manufactures both custom and off-the-shelf underwater, air, and ultrasonic acoustic transducers, projectors, hydrophones, hydrophone/preamp, side-scan arrays. OEM and end-item products for commercial and military applications.*

### UNDERWATER THICKNESS GAUGES



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Fax: (410) 268 2013  
E-mail: [sales@cygnusinstruments.com](mailto:sales@cygnusinstruments.com)  
Website: [www.cygnusinstruments.com](http://www.cygnusinstruments.com)  
Contact: Rod Sanders

*Cygnus manufactures the world's first true multiple echo ultrasonic thickness gauge. Multiple echo means that coatings, such as paint or epoxy, do not have to be removed in order to measure the steel. We offer hand held gauges that divers take into the water. Also have models that can communicate topside to a display repeater or PC. Also offer a range of shallow to deepwater units for ROVs. Manufacturing to ISO 9002 standards. Approved by classification societies.*

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## UNDERWATER VEHICLES

### ROVs



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E-mail: perry.sales@f-e-t.com  
Website: www.f-e-t.com/subsea

Forum Energy Technologies' Perry Slingsby brand supplies deepwater work class ROVs, tooling solutions, burial systems, and control-system-based products to the oil, gas, and telecommunications industries. Providing the most advanced, robust and dependable ROVs and subsea products in the world, Forum's Subsea group has facilities in the US and UK and sales offices and agents around the world.



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Tel: +1 619 450-4000, Fax: +1 619 450-4001  
E-mail: Info@SeaBotix.com  
Website: www.SeaBotix.com

SeaBotix Inc. is the world leading manufacturer of capable MiniROV systems. The Little Benthic Vehicle range of systems have become the benchmark in compact ROVs around the world. All systems perform a multitude of tasks including maritime security, body rescue, sensor deployment, object recovery, hazardous environment intervention, and hull inspection.



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10642 West Little York, Suite 100  
Houston, Tx, 77041-4014, USA  
Tel: +1 713 329 8730, Fax: +1 713 329 8299  
E-mail: sub-atlantic.sales@f-e-t.com  
Website: www.f-e-t.com/subsea

Forum Energy Technologies' Sub-Atlantic brand manufactures world class ROVs ranging from portable units to light work class systems. Sub-Atlantic also supplies thrusters, hydraulic power units, valve packs, compensators and pan and tilt systems to other ROV manufacturers. Sub-Atlantic is part of the FET subsea group and has facilities in the US and UK and sales offices and agents around the world.



**Submersible Systems Inc.**  
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PO Box 1843  
Patterson, LA 70392  
Tel: 985-395-0999  
Fax: 985-395-0995  
Website: www.ssirovs.com  
Contact: Wolfgang Burnside

Established in 1989 as an Offshore ROV service company, SSI now Designs and Manufactures the TRV Series of ROV Systems. A totally new, modular concept, these rugged, larger vehicles are designed for the true Offshore environment. Covering all aspects from Inspection / Survey tasks to full Workclass capability there is a TRV for your application. Sales offices in UK, Singapore and the USA.



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E-mail: info@videoray.com  
Website: www.videoray.com  
Contact: Brian Luzzi

With more than 1,900 Remotely Operated Vehicles (ROVs) in service around the world, VideoRay has clearly become the global leader in Observation ROV technology. VideoRay is an extremely versatile, portable, affordable, and reliable solution for underwater operations including surveys, offshore inspections, search & recovery, homeland & port security, science & research, fish farming, and other unique applications in underwater environments. VideoRay is available on the General Services Administration.

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### iRobot Corporation | Maritime Systems

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Tel: 919-405-3993, Fax: 919-495-3994  
E-mail: frochleder@irobot.com  
Website: www.irobot.com  
Contact: Friedrich Rochleder, Sales Account Manager

iRobot designs and builds robots that make a difference. iRobot's family of unmanned underwater vehicles (UUVs), including the iRobot IKA Seaglider and iRobot 15A Ranger, perform a variety of missions for researchers, oceanographers and military planners including physical, chemical and biological oceanography, persistent surveillance, marine environmental monitoring and other missions.

## UNDERWATER VIDEO EQUIPMENT



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Don, Aberdeen, AB22 8GT, UK  
Tel: +44 (0)1224 226500  
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### KONGSBERG

E-mail: km.camsales.uk@kongsberg.com  
Website: www.kongsbergmaritime.com  
Contact: Bill Stuart

Kongsberg Maritime Ltd is a world leader in providing harsh environment underwater camera & imaging technology and marine CCTV systems to the Offshore Oil Field & Renewable Energy, Power Generation, Scientific, Maritime and Military sectors.



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St. Catharines, Ontario L3N 1L2  
Tel: 905-687-6672, Fax: 905-687-9742  
E-mail: sales@sharkmarine.com  
Website: www.sharkmarine.com  
Contact: Jim Honey

Since 1984 Shark Marine Technologies, has been manufacturing Remotely Operated Vehicles and accessories, Winches, Handling & Control Systems, Underwater Cameras and Diver Held Sonar Systems, for operations including surveying, oil and gas, security and defence, search and recovery and archaeological investigations. We also provide on-site operations and consultation, software development and custom manufacturing.

## SIDUS Solutions, Inc.

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Tel: (619) 275 5533, Fax: (619) 275 5544  
Houston, TX Office:  
Tel: (281) 596 7568, Fax: (281) 596 7578  
E-mail: info@sidus-solutions.com  
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SIDUS Solutions, Inc. is an integrated systems provider for security and video surveillance systems specializing in customization. Our products are operational to subsea depths of 6,500m, serving industries worldwide. We are a full-service provider, offering complete end-to-end solutions from concept design, product selection, engineering, manufacturing, technical and customer support.

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Tel: 902 275 3591, Fax: 902 275 5014  
E-mail: paul.phillips@hawboldt.ca  
Website: www.hawboldt.ca  
Contact: Paul Phillips

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### Markey Machinery Company

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## WINCHES - UNDERWATER

### ALL OCEANS Engineering Ltd.

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- \_\_\_\_\_

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