

# Ocean News

News for the Ocean Industry

www.ocean-news.com

& Technology

November 2013

## Monitoring Basking Sharks

Feature Story - Page 10





PHOTO CREDIT: NIELS VISSER

# REMOTELY OPERATED VEHICLES



A global leader in inspection-class underwater ROVs (Remotely Operated Vehicles), VideoRay makes it easy and affordable to inspect, observe, and explore underwater. The hydrodynamic and flexible design make VideoRay the ultimate platform for sensors and accessories to expand your operational window and capabilities.

Explore at [www.videoray.com](http://www.videoray.com).

**INSPECT • OBSERVE • RECOVER • EXPLORE**

[WWW.VIDEORAY.COM](http://WWW.VIDEORAY.COM)

## OptoLink Fibre optic connectors



### Worldwide solutions

Denmark | Norway | United Kingdom | USA | France  
Netherlands | Germany | Bahrain | Australia | Singapore

*By*  
**MacArtney**

# MINIROVS FOR PROFESSIONALS



LBV150/200-4 - defining portable ROV capability.



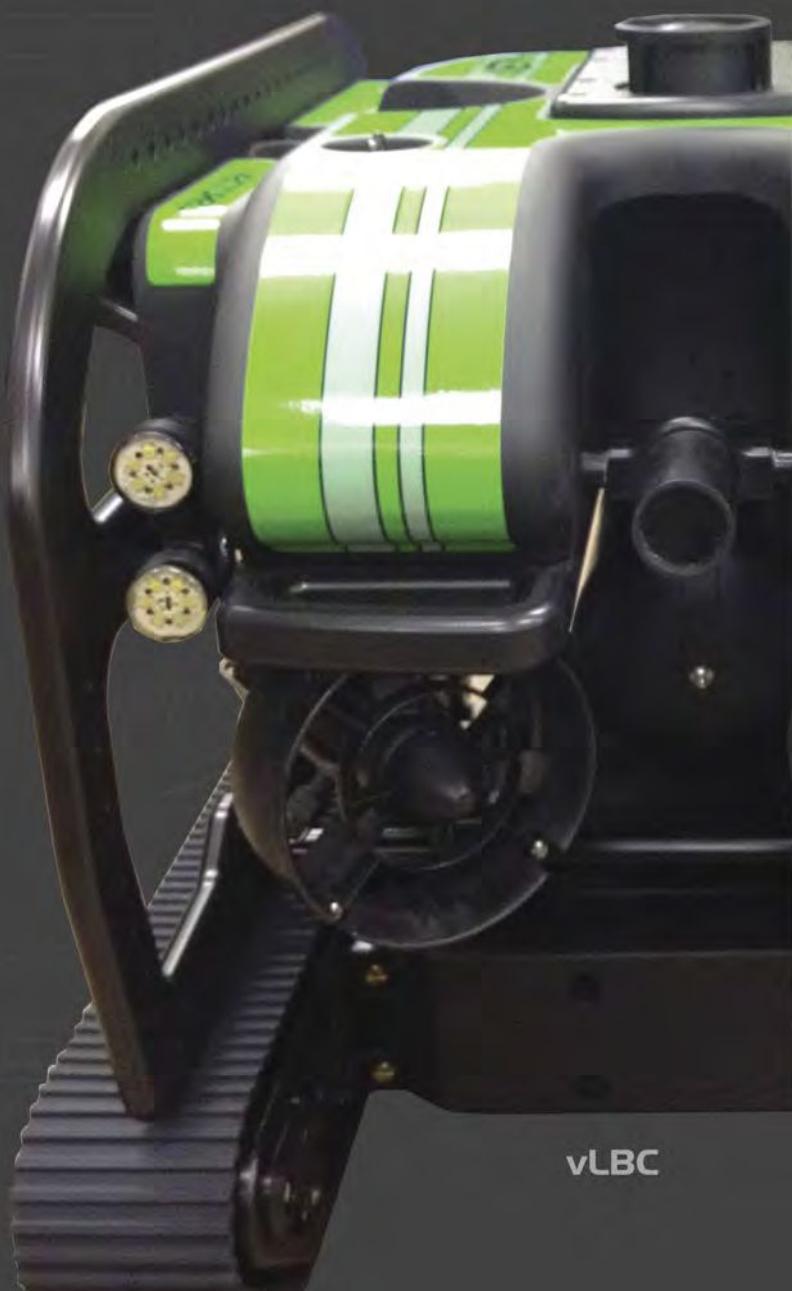
LBV300-5 - versatile dual vertical thruster ROV system.



vLBV300/950 - ultimate powerful and stable vectored platform.



LBC/vLBC - revolutionary hybrid for unprecedented stability.



## Little Benthic Vehicles

**INDUSTRY BENCHMARK**  
[WWW.SEABOTIX.COM](http://WWW.SEABOTIX.COM)

**SEABOTIX**

SeaBotix, Inc. leads the industry with the most comprehensive and capable MiniROV solutions. Products ranging from the shallow water LBV150-4 systems to the unmatched performance of the vLBV300 to the exceptional stability of the LBC. A diverse suite of systems for demanding professional applications including military, police, commercial, scientific, aquaculture, hydro and more.

# Our world-class ROV performance starts with technology, but it's our people that make us special



When you partner with Delta SubSea, you get industry leading ROV resources, knowledge and experience from top to bottom. No matter the challenge or the location, we get the job done right.

+1-936-582-7237 | [deltasubsea-rov.com](http://deltasubsea-rov.com)



# in this issue

November 2013  
Ocean News & Technology

## Ocean Industry



## Offshore Industry



## Feature Story

### 10 Monitoring Basking Sharks

- |                            |                                |
|----------------------------|--------------------------------|
| 13 Ocean Industry Briefs   | 35 Offshore Industry Headlines |
| 18 Maritime Transportation | 38 Upstream Oil & Gas          |
| 22 Ocean Science           | 52 Underwater Intervention     |
| 28 Ocean Energy            | 56 Maritime Communications     |
| 32 Defense                 | 60 Subsea Cables               |

6

## Departments

- |                         |                             |
|-------------------------|-----------------------------|
| 8 Editorial             | 60 Stock Watch              |
| 61 Offshore At-A-Glance | 64 Product News             |
| 68 Media Showcase       | 70 People & Company News    |
| 72 Calendar & Events    | 75 Ocean Industry Directory |

## Cover Photo



Diver burning on an underwater structure for removal  
(EPIC Divers & Marine)

## Editorial Focus

- 16 Flying Leads and Production Schemes

News for the Ocean Industry  
**Ocean News & Technology** [www.ocean-news.com](http://www.ocean-news.com)  
More News, More Technology, More Data

# in the next issue

## Editorial Focus

- Light Workclass ROVs
- Commercial Diving

## Product Focus

- Diving Equipment & Buoyancy Materials



**TSC** Technology Systems Corp.

Ocean News & Technology ISSN# 1082-6106 is published 11 times a year by Technology Systems Corporation, 8502 SW Kansas Avenue, Stuart, FL 34997, telephone 772-221-7720. Copyright ©2013 Technology Systems Corp. All rights to editorial content are reserved. No article, photograph, or illustration may be reproduced in whole or part without the written permission of the publisher. Unless otherwise stated in writing by the contributor, all images submitted to TSC may be used in other promotional materials belonging to TSC without permission. Subscriptions are free to qualified individuals or companies. For all others, call TSC for subscription information.

Printed in the USA.





Safeguarding life,  
property and the environment

# Sesam<sup>TM</sup> GeniE

## Innovative offshore engineering made easy

**Thousands of users worldwide rely on Sesam  
for strength assessment on a daily basis.**

In the new version of Sesam GeniE importing data from other systems is easier than ever.

"We have to improve our knowledge continuously to deliver successful projects and using Sesam helps us achieve this."  
Sasha Mandic, Engineering Manager at Frigstad Engineering

Watch the video on [www.dnvsoftware.com/ON](http://www.dnvsoftware.com/ON)

Complete solutions • Most user friendly • Most value for money • Professional service

MANAGING RISK





By Ray Tyson

## Ocean News & Technology

EDITOR IN CHIEF  
Ladd Borne

OFFSHORE ENERGY EDITOR  
Ray Tyson

SUBMARINE CABLE EDITOR  
John Manock

SR. V.P. BUSINESS DEVELOPMENT  
MJ McDuffee

PRODUCTION COORDINATOR  
Amy Hamm

ART DIRECTOR  
Suzanne Short

COPY EDITOR  
Robyn Schuricht

CIRCULATION  
Samantha Burn  
[subscriptions@ocean-news.com](mailto:subscriptions@ocean-news.com)

### ADVERTISING SALES

SR. V.P./SALES & MARKETING  
MJ McDuffee  
Tel: +1 (772) 219 3027  
Fax: +1 (772) 221 7715  
[mj@tscpublishing.com](mailto:mj@tscpublishing.com)

NORTH AMERICAN AD SALES:  
Lisa Chilik  
Tel: +1 (574) 261 4215  
Fax: +1 (574) 255 1006  
[Lchilik@tscpublishing.com](mailto:Lchilik@tscpublishing.com)

TEXAS/LOUISIANA AD SALES:  
Amy Dukes  
Tel: +1 (713) 557 8057  
Fax: +1 (281) 497 6608  
[adukes@tscpublishing.com](mailto:adukes@tscpublishing.com)

INTERNATIONAL AD SALES:  
Zinat Hassan  
Tel/Fax: +44 (0) 845 6522 483  
Mobile: +44 (0) 781 1200 483  
[zhassan@tscpublishing.com](mailto:zhassan@tscpublishing.com)

Mimi Shipman  
Mob: +44 (0) 777 6017 564  
Ph: +44 (0) 193 5508 698  
[mshipman@tscpublishing.com](mailto:mshipman@tscpublishing.com)

### ADVISORY BOARD

PHILIPPE PIERRE COUSTEAU  
Washington, D.C.

KEVIN HARDY  
San Diego, California

DR. PHIL HART  
Pennington, New Jersey

DAN WHITE  
Stuart, Florida

# Offshore market forecasts solid for years to come

Just about every forecast published in our oil and gas section during 2013 bodes well for offshore markets. This is in stark contrast to many forecasts of yesteryear when energy was caught in the down draft of a rather sick world economy. This is not to say that the global economy is necessarily on the rebound, only that the offshore industry is percolating as it is forced into deeper waters to replace and expand commercial oil and gas reserves, something nations will need a lot more of as populations increase.

Energy demand is anticipated to be about 35% higher in 2040 than in 2010, with oil being the most widely used fuel, according to ExxonMobil's annual "Outlook for Energy" report posted at the beginning of this year.

The ExxonMobil report also noted that natural gas — the fastest growing major fuel — is expected to overtake coal by 2025 as the second most used fuel. Demand for natural gas will increase by about 65% through 2040, and 20% of global production will occur in North America, supported by growing supplies of gas from shale and other unconventional sources.

Drilling activity and spending will significantly increase in global deepwater markets over the next decade, according to an analysis by Wood Mackenzie. The "Future of Global Deepwater Markets" study indicates well expenditures are expected to grow from \$43 billion in 2012 to \$114 billion in 2022. The study also projects that the number of exploration, appraisal and development wells will increase by 150%, rising from 500 to 1,250 wells per year.

"To meet the forecasted well demand, the fleet will require 95 additional deepwater rigs to be constructed between 2016 and 2022, representing \$65 billion of investment," said Malcolm Forbes-Cable, senior management consultant at Wood Mackenzie. "This will require the longest period of deepwater rig construction to date, representing a change for the deepwater sector from cyclical to sustained growth."

Existing rig orders and newbuilds required to meet this demand suggest that the rig contractors will need an additional 37,000 workers over the next decade.

Infield Services, in another report, projects that ultra-deepwater developments will capture 48% of capital expenditures and 23% of tree installations in

2013-2017 in contrast to 37% of capital expenditures and 15% of installations in 2008-2012.

"Latin America and West Africa will account for more than half of the subsea capital expenditures expected to be spent between 2013 and 2017," Infield said, adding that this is being driven by large deepwater and ultra-deepwater discoveries offshore Brazil, particularly in the presalt basins, and offshore Angola and the Gulf of Guinea.

Meanwhile, recent deepwater discoveries combined with a shortage of drilling vessels is making for a big year for offshore equipment supplies, according to a Barclays report. In fact, platform and rig builders are struggling to keep up with the demand for offshore drilling rigs, as exploration throughout the Gulf of Mexico, Brazil and Africa continues to grow. And many offshore projects are moving from exploration to production, further increasing the demand for offshore equipment.

"We anticipate roughly 80 jack-ups and 50 floaters will be delivered into the offshore market over the next 2 years and expect that relatively few of these units will displace rigs currently working," Barclays wrote.

About 40% of the 50 drillships already had been contracted through 2014, a further indication of a growing demand for the equipment that will be needed for drilling. The increase in activity should shake loose additional financing, Barclays said, enabling service companies to make needed investments in additional drilling rigs.

Over the next 5 years, Quest Offshore expects an 88% growth in floating production system (FPS) award levels, illustrating a strong resurgence of investment in high-capital, major deepwater developments. This growth coupled with current high levels of offshore rig construction will buoy oil and gas related utilization of major offshore fabrication shipyards to record levels, according to the study.

Subsea hardware expenditures are forecast to double from 2013-2017 to \$124 billion compared to the preceding 5-year period, predicts Douglas-Westwood. Deepwater activity in the "Golden Triangle" — Brazil, West Africa and the Gulf of Mexico — is forecast to account for 44% of total subsea hardware expenditure.

# 2 REASONS WE BRING YOU EVERYTHING REMOTELY POSSIBLE:

Perry™



sub-Atlantic



Widest range of vehicles available in the industry

**FORUM™**

SUBSEA TECHNOLOGIES  
*everything remotely possible™*

To learn more about how Forum can help solve your next subsea challenge,  
email us at [subsea.sales@f-e-t.com](mailto:subsea.sales@f-e-t.com) or visit [f-e-t.com/subsea](http://f-e-t.com/subsea)

# MONITORING BASKING SHARKS

*By: Adam Junner, Hydrographic Surveyor  
Teledyne RESON*

Biologists from Aberdeen University wanted to find out if sonar equipment could be used to learn more about the movements of basking sharks. Most of the current knowledge about basking sharks is based on what is visible at the surface and, as such, an investigation was sought to determine if surface observations matched what was happening below the surface. In particular, the scientists were interested to know if the sharks were 'stacking', and whether there was evidence of young sharks.

November 2013

10

Ocean News & Technology



Figure 1. The vessel

*To view videos and more images of the survey,  
please visit [www.teledyne-reson.com/basking-sharks](http://www.teledyne-reson.com/basking-sharks)*





**Figure 2. Teledyne RESON SeaBat 7128 multibeam imaging system**



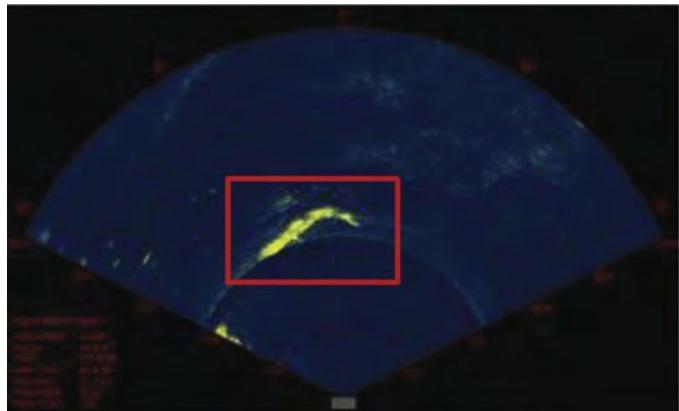
**Figure 3. The dry end**



**Figure 4. Basking shark within a few metres of the vessel**



**Figure 5. Dorsal fin, nose and tail visible at the surface**



**Figure 6. Basking shark within 15m range. The pectoral fins are visible here**

To support this research, Teledyne RESON supplied Aberdeen University with a SeaBat 7128 forward-looking multibeam imaging system. The project was carried out from 7-9 August 2012 off the waters of Coll in the Inner Hebrides of Scotland. Basking sharks are known to reside here and sightings are particularly common at this time of year.

The SeaBat 7128 was tied to the port side of a small fishing vessel (Figures 1-2). The dry end consisting of the sonar processor and monitor was contained in a shipping case (Figure 3).

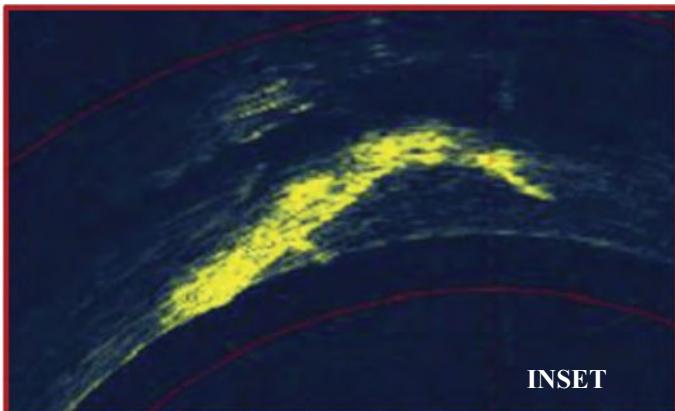
Sightings were common, and in most cases the boat was able to travel to within 30 m of the sharks. The sharks varied from 5 m to 10 m in length. On the surface, the dorsal fin was always visible, while the nose and tail were sometimes visible (Figures 4-5).

The sharks showed clearly on the SeaBat and the pectoral fins were distinguishable (Figure 6). The tail could be seen moving from side to side on the SeaBat interface.

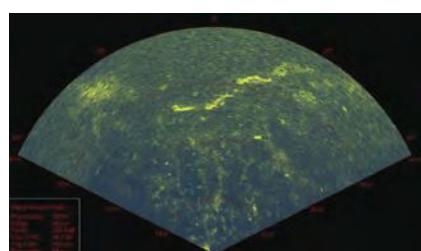
The head width provided an indication as to whether the mouth was opened or closed. The strength of the return varied depending on whether the mouth was opened or closed. When the mouth was open, a strong narrow return appeared down the center of the head, with weaker returns on either side, and stronger returns at the edges.

Below the surface, the sharks often left a distinctive wake in their paths. When the background noise was low, this made it possible to clearly track the movements of the sharks.

Up to 5 sharks were visible simultaneously on the SeaBat (Figure 7). Nothing out of the ordinary was discovered as far as the research was concerned. Indeed, what appeared at the surface closely matched up with what appeared to be happening below the surface – the sharks were not ‘stacking’ as the research hypothesized. Cases where the shark was visible on the SeaBat but not at the surface were extremely rare.



**Figure 7. Four basking sharks on the SeaBat interface**



**Figure 8. Three basking sharks following each other nose to tail. The speckled/cloudy substance may be plankton**

A cloudy/speckled substance occasionally appeared on the SeaBat interface. Its density varied, and the location of it often corresponded with shark sightings. This substance may be the plankton that the sharks feed on (Figure 8).

#### Acknowledgements:

Dr Les Noble Reader, Institute of Biological and Environmental Sciences, University of Aberdeen; Lilian Lieber PhD Student, Institute of Biological and Environmental Sciences, University of Aberdeen; Innes Henderson, Skipper, FV Tarka.

# DISCOVER NEW OPPORTUNITIES WITH MULTIBEAM SONAR



Broaden your business potential at the Underwater Technology Seminar 2013

The deeper you understand how today's multibeam sonar solutions can benefit your business, the clearer your opportunities will become.

For sharper insight, join us at one of our 3-day seminars to discover the latest innovations and become "Teledyne RESON certified" with hands-on training, workshops, boat demos and presentations from distinguished guest speakers.

Contact us today for more information or register at:  
<http://www.teledyne-reson.com/worldtour>

AUSTIN, US  
18-21 NOVEMBER

COPENHAGEN, DK  
17-19 SEPTEMBER

SHANGHAI, CN  
1-3 SEPTEMBER

UNDERWATER TECHNOLOGY SEMINARS

World tour 2013  
Shanghai - Copenhagen - Austin

[www.teledyne-reson.com](http://www.teledyne-reson.com)



TELEDYNE RESON  
Everywhereyoulook™

EIVA

Seafloor

IXBLUE

TELEDYNE ODOM HYDROGRAPHIC  
Everywhereyoulook®

CDL  
INERTIAL ENGINEERING

HYPACK  
HYDROGRAPHIC SYSTEMS

VALEPORT

aplanix

TELEDYNE BlueView

Everywhereyoulook®

RICE

caris

Ashtead  
TECHNOLOGY

seatrionics

PDS2000

TELEDYNE TSS  
Everywhereyoulook®

GPS

TRITON  
IMAGING, INC.

SAM

Chesapeake  
Technology

AML

# OCEAN INDUSTRY

## MTS announces election results and annual award winners at Oceans '13

At the MTS Annual Meeting held during OCEANS'13 San Diego, Liesl Hotaling was elected as vice president of education and research. Re-elected was Justin Manley as vice president of government and Public Affairs. Each was elected to a 3-year term.

The highest accolade a member can receive within the Society is to be designated an **MTS Fellow**. Two members, Lisa Medeiros and Sumanohar (Suman) Muddusetti, were recognized at the MTS Annual Meeting, joining the 118 honored with this recognition since its inception.

The **Ocean News and Technology Young Professional's Award** recognizes a member of our "Next Generation" who has already demonstrated excellence in their profession and made significant contributions to MTS. This year, the award recognized Ryan Morton, technical safety for Mozambique LNG with Anadarko Petroleum, who was awarded \$1000.

The **Compass (Publications) Distinguished Achievement Award** was presented to Captain Dennis (Mike) Egan (ret), honoring his over four-decade service to both the public and private sectors. In addition to his award, Rolex Watch, who has been a part of this award with Compass Publications for 39 years, presented Egan with a watch. The **Compass (Publications) International Award** honored the Ocean Technology Branch—Innovation, Business & Rural Development (IBRD), Province of Newfoundland and Labrador. IBRD developed and launched a strategic plan to accelerate activity between the business and educational communities to further develop applied research and commercialization activities enabling improved offshore safety, advanced simulation and modeling, smarter fishing, and enhanced aquaculture practices. The **Compass (Publications) Industrial Award** recognized Shell Oil Company for their advanced research and work on developing a unique application of subsea fiber optic lines for acoustic and temperature sensing.

The **Lockheed Martin Award for Ocean Science and Engineering** was presented to Liesl Hotaling in recognition of her work demonstrating that, through designing and operating sensor systems, children can learn complex and interrelated concepts.



MTS member and Ocean News and Technology Editor Ladd Borne presents Ryan Morton with the Ocean News & Technology Young Professionals Award (Photo Stan Chamberlain)



Liesl Hotaling

Also honored at the Annual Meeting was Mark Bushnell, recognized with the **MTS Outstanding Service Award**. The MTS Hampton Roads Section was recognized as **Outstanding MTS Section** for their exceptional OCEANS'12 Conference, organized and coordinated in addition to the Section's regular activities. The Fisheries and Marine Institute of Memorial University of Newfoundland Student Section was recognized with the **Outstanding Student Section Award**.

## in this section

Ocean Industry Briefs	13
Maritime Transportation	18
Ocean Science	22
Ocean Energy	28
Defense	32

### Bluefin acquires SeeByte

Bluefin Robotics, a leading provider of Autonomous Underwater Vehicles, announced that it has acquired SeeByte, Ltd., a leading provider of autonomous platform software that enhances the user experience and the capabilities of underwater sensors, vehicles, and systems. SeeByte, headquartered in Edinburgh, Scotland, will operate as a wholly-owned subsidiary of Bluefin. Terms of the transaction were not disclosed. Bluefin is owned by Battelle, a leading independent science and technology organization committed to solving some of the world's toughest challenges in national security, energy, the environment, and healthcare. The combined companies will offer a complete suite of autonomy products for surface and underwater vehicles, both remotely-operated and unmanned. Together, Bluefin Robotics and SeeByte will have full life-cycle capability from R&D through design and manufacture to field operations and will operate globally in both defense and commercial markets.

### Professor Gwyn Griffiths given IEEE/OES Distinguished Technical Achievement Award

The Oceans conference and exhibition is the world's most diverse and prestigious conference regarding our most critical resource — the oceans. At the IEEE/OES awards luncheon, the IEEE/OES announced that their annual award for Distinguished Technical Achievement was being awarded to Professor Gwyn Griffiths for his work on acoustic Doppler current profiling (ADCP) instruments and autonomous vehicle technologies. Professor Griffiths' work includes resolving difficulties with hull-mounted ADCP errors arising from ships' heading and extends into displaying and analyzing acoustic backscatter from biologics.

### Hydrographic Society of Korea joins IFHS

The International Federation of Hydrographic Societies (IFHS) is delighted to announce that the Hydrographic Society of Korea (HySK) officially became its newest member, joining its other member societies in Australasia, Benelux, Denmark, Germany, Italy, South Africa and the UK. Based in Seoul, the HySK is headed by its president, Dr. Dae Choul Kim of Pukyong National University's Department of Energy Resources Engineering, whose fellow directors are drawn from key sectors of the Korean maritime industry. The Society itself represents leading hydrographic surveying individuals and organizations throughout Korea and has recently concluded joint Memorandums-of-Understanding (MoUs) with the China Institution of Boundary & Ocean Studies (CIBOS) at Wuhan University and IFHS fellow-member, the Australian Hydrographic Society (AHS).

## Liquid Robotics announces PacX Challenge grand prize winner

Liquid Robotics, an ocean data service provider and developer of the Wave Glider®, announced at the Oceans'13 MTS/IEEE scientific conference the winner of the Liquid Robotics' PacX Challenge grand prize, which was awarded to Dr. Tracy Villareal, professor of marine science at the University of Texas at Austin. His winning research focused on a comparison of scientific spatial data collected from U.S. satellite streams to in situ or surface data collected by the four PacX Wave Gliders®. Dr. Villareal studied the detection and behavior of large phytoplankton species critical to removing carbon from the ocean's surface and a major food source for the deep sea. His findings provide the scientific community valuable surface validation of satellite measurements across a variety of oceanographic data (turbidity, weather, hydrographic, chlorophyll fluorescence), which is instrumental to gaining insight to the effects of global climate change on our oceans' ecosystems. Additionally, he noted the autonomous surface vehicles ability to track rapidly developing ocean phenomena — adaptive sampling in real time — providing spatial and temporal variability that can't be measured by satellites today.

"Two years ago, we set out on the grand challenge to send four Wave Gliders® on an unprecedented scientific mission to navigate and collect data across the Pacific Ocean," said Bill Vass, CEO of Liquid Robotics. "Our goals were to foster new ocean exploration enabled through our revolutionary, long duration ocean observation technology. With today's awards recognizing the outstanding scientific research produced by the Dr. Villareal and the three finalists and by receiving the Guinness World Record for the longest journey of an autonomous surface vehicle, we can celebrate this scientific journey and its impact on the world of ocean exploration."

An independent PacX Science Board composed of industry and academic experts selected the winning research from an outstanding slate of four finalists. These finalists were selected after a year-long competition with abstract submissions from around the world. For his achievement, Dr. Villareal received a \$50,000 research grant from BP and six months of Wave Glider® data services from Liquid Robotics valued over \$300,000.

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

## Dutch fight for Greenpeace activists held on piracy charges

The Dutch government announced that it would initiate arbitration proceedings against Russia under the UN Convention of the Law of the Sea to secure the release of 28 Greenpeace International activists, plus a freelance photographer and a freelance videographer, currently being detained in Russia on piracy charges.

On 19 September, Russian coast guard officers boarded the Dutch registered Arctic Sunrise that was protesting oil exploration in the Arctic and arrested its crew.

In response, Greenpeace International's General Counsel Jasper Teulings said: "Greenpeace International applauds the Dutch government's decision as flag state of the Arctic Sunrise in taking the necessary legal steps to gain the release of the Arctic Sunrise and the Arctic 30, who are being unjustly held. The Netherlands is taking a strong stance in support of the rule of law and the right to peacefully protest. Russian officials will now be called to explain their actions before an international court of law, where it will be unable to justify these absurd piracy allegations. We hope the court will agree with President Putin himself, who has said that the Greenpeace campaigners are certainly not pirates."

"International legal experts have uniformly described the piracy charges against the Greenpeace International activists and the freelance photographer and videographer as baseless. While we hope that the Russian prosecutor and courts come to the same conclusion well before these international proceedings are concluded and the defendants are released, the Dutch legal action sends a strong political signal and gives us hope that justice will prevail."

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

## ASI-Marine among top 100 companies in marine tech industry

In its eighth annual edition of "MTR100," Marine Technology Reporter included ASI-Marine among the leading 100 companies in the marine technology industry under the name of its parent company, ASI Group Ltd.

Marine Technology Reporter's editor, Gregory R. Trauthwein, describes the roundup as an "annual pilgrimage into the guts of the subsea marine market to present updates and insights on 100 leading companies."

ASI-Marine was specifically recog-

nized for offering a "full-service approach," from problem identification to solution. The spotlight on ASI-Marine also highlighted the company's diverse and comprehensive fleet of remotely operated vehicles. Drew Michel, manager of business development, elaborates: "ASI-Marine operates the longest tethered inspection vehicles in the world. In addition, we offer the only large array of advanced technology systems that include remotely operated subsea excavators, advanced imaging and profiling solar applications for zero visibility environments, and unmanned remotely operated surface vehicles for collecting both underwater and topside data in tunnels and pipelines."

The Ontario-based company continues to lead technologically with plans to dedicate additional resources to its advanced technologies research and development programs. This expansion will allow ASI-Marine to continue to provide cost-effective, off-the-shelf solutions for clients, create new subsea systems, and solve unique problems taking place below the waterline.

For more information, visit [www.asi-group.com/marine-services](http://www.asi-group.com/marine-services).

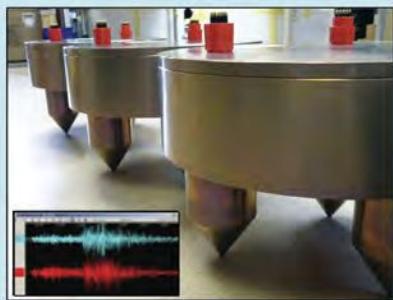
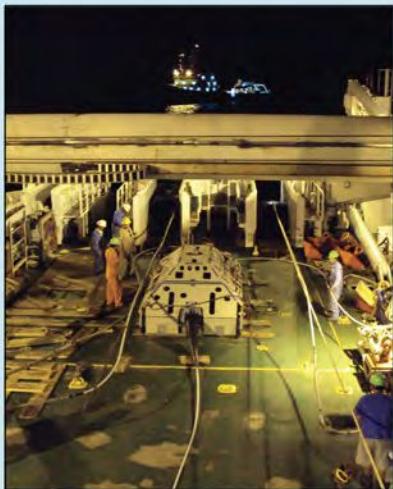
## ROV work-class operations expenditure to grow by 80%

Douglas-Westwood (DW) forecast the market for the operation of work-class ROVs through to 2017 in its sixth edition of the World ROV Operations Market Forecast. Results forecast total ROV operations expenditure of \$9.7 billion, an increase of nearly 80% over the previous 5-year period.

Drilling support accounts for three-quarters of expenditure between 2013 and 2017 and is expected to increase over the period by 13%. DW forecast almost 527,000 days of ROV drilling support in the next 5 years, of which the majority is made up of work on exploration & appraisal (E&A) wells. Expenditure on construction support accounts for a fifth of ROV operations, with repair & maintenance accounting for the remaining.

Africa is forecast to experience strong demand from subsea development wells, driven by the discovery of new deepwater provinces offshore East Africa, and will remain the largest region, followed by Latin America and Asia. The Middle East has the lowest ROV spend and, along with Norway, will see decline in spend. Latin America is set to show the strongest growth of all regions.

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



CSnet International, Inc.  
3270 South Hwy A1A, Suite 201  
Melbourne Beach, FL 32951  
Phone: +1.321.327.7915  
[info@csnetinternational.com](mailto:info@csnetinternational.com)  
[www.csnetinternational.com](http://www.csnetinternational.com)

# Seafloor Communications Specialists



## Products & Services

- Environmental Assessment and Monitoring
- MetOcean Data Acquisition
- Ocean Observing Systems for Science & Industry
- Tsunami and Seismic Warning Systems
- Pipeline and Infrastructure Monitoring
- *In-Situ* Sensor Evaluation Test Bed

## Experts in Seafloor Communications Network

CSnet offers end-to-end solutions providing global users a pre-engineered, expandable, portable system that can be deployed and redeployed anywhere – in water depths up to 3,000 meters. Meeting the needs for a wide range of spatial, power or bandwidth requirements, the Offshore Communications Backbone (OCB) serves research, industrial and government applications, providing the infrastructure needed to deliver power in support of continuous 24/7 monitoring; delivering data and providing command and control on-shore via satellite or shore-ended cable.

## Offshore Communications Backbone

The OCB is a modular seafloor communications network that is directly connected to the Internet. Clients can provide and control their own sensors and data outputs, or CSnet can provide a suite of sensors from the surface to the seafloor with data directly forwarded to the client's onshore facilities. CSnet's OCB allows for individual component and end to end networked testing of power and communications functionality during the buildup and pre-deployment phases, ensuring a cost effective and successful installation. The OCB represents a proven network module that has been designed, constructed and tested, eliminating upstart time and cost. Each OCB module is expandable and so can be configured to accommodate large or small applications at a predictable cost.

# Flying Leads and Production Schemes

By Fernando Hernandez, Reaching Ultra

*The offshore landscape has greatly advanced since the era that witnessed the execution of the “first known” subsea completions in North America (Goodfellow, 1977). Such completions — undertaken in the 1940s in Lake Erie — can be said to have contributed to the shifting of surface-based equipment onto the seafloor to export a well’s product.*

November 2013

16

Ocean News & Technology

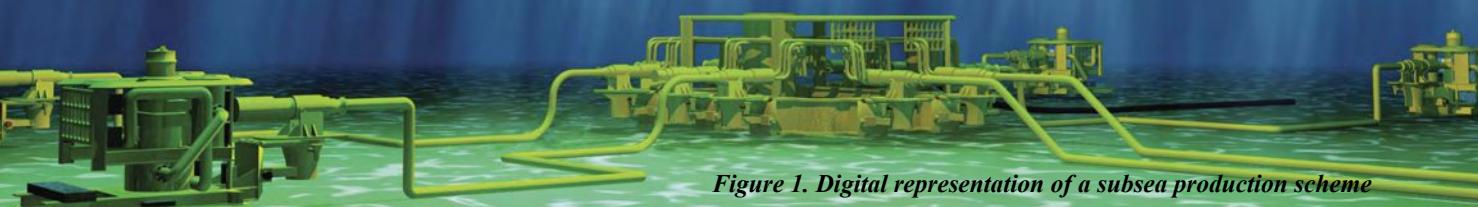


Figure 1. Digital representation of a subsea production scheme

The placement of topside equipment onto the ocean’s floor to export from a submerged well is known as subsea production. At the core of this form of production is the provision and distribution of Power & Communication (P&C) to subsea assets that make up a production scheme: the intertwining of the above elements is imperative since the future expansion of subsea production systems largely depends on the understanding of such elements, and their importance cannot be understated as this technology continues to advance.

The intent of this paper is to give a general overview of these elements, with an emphasis on flying leads, in order to add an additional layer of comprehension to participants of the

oil and gas community that are looking to further understand how flying leads facilitate subsea production.

## Where do flying leads come from?

To understand flying leads at the most basic level, the term’s use in a lab setting must be referenced. In such a setting, flying leads are used to connect one section of a printed circuit board, or electrical circuit, to another point. When utilized in this fashion, the flying lead “jumps out” and hovers above the electrical components below. The book titled Beginning Analog Electronics through Projects illustrates this further when describing tethering two separate points in a dry environment by one’s hands: “For the input to signal monitor, we’re going to need to have two flexible flying leads coming out, with small alligator clips attached as terminations” (Singmin, 2001).

The book’s excerpt has two direct parallels with subsea flying leads: 1) both are flexible in nature and 2) both depend on the end of the connection points to be terminated. However, subsea flying leads are not terminated by way of alligator clips, instead remotely operated vehicle (ROV)-operable connectors are employed when electricity is to be bridged between two distinct points. Moreover, the bridging of two points in a submerged setting depends on an ROV pilot to physically fly and install a flying lead on a production scheme. For this reason, it is critical to highlight the pivotal role ROV pilots play in installing flying leads as this will, in large part, facilitate conceptualizing the act, process, and physical representation of a flying lead in a subsea environment.

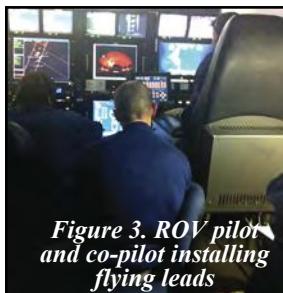
Figure 2. Umbilical termination/distribution assembly prior to installation (Photo: Connect-Subsea)



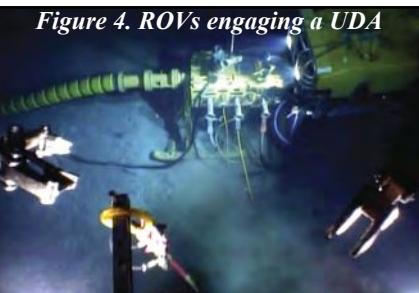
## Piloting and installation of leads

The term ROV pilot is very fitting when describing the personnel who commandeer subsea vehicles; this especially true when compared to helicopter pilots. For example, when an ROV pilot has to install a flying lead, both ends of the lead of interest must be “spooled out” from a deployment frame at operational depth. After this is completed, the ROV pilot will have to travel/fly in all planes and hover as required to install the flying lead; such motion of travel must equally be undertaken by helicopter pilots when performing dynamic tasks that are specific to helicopters. Synthesizing the two forms of travel — subsea and air — highlight why it is fitting to describe a subsea conduit as a flying lead since the leads must be flown in the ocean by way of an ROV pilot to make a connection.

In terms of installation and the leads to be engaged by an ROV pilot, the flying leads to be used are called out months or years in advance prior to the deployment of a subsea asset (the only deviation to this occurs when an unplanned intervention is required). This “call out” is driven by the conduit and medium that needs to be distributed to an asset via an Umbilical Distribution Assembly (UDA).



*Figure 3. ROV pilot and co-pilot installing flying leads*



*Figure 4. ROVs engaging a UDA*

## Subsea distribution's role in production

The ability to jump out and distribute P&C from a UDA through the use of flying leads — to external assets — is of key importance to subsea production, as this makes it possible to bridge a path of continuity with multiple assets via a single umbilical/source. This, in turn, allows for new wells and related assets to begin exporting upon being brought online by way of spare ports/hubs on a UDA. Another key feature of UDAs is that they reduce capital and operational expenditures by minimizing the amount of umbilicals to be installed to control and communicate with subsea jewelry.

Additionally, flying leads enable P&C to be distributed to different sections within a singular asset which facilitates the use of module-based systems. It must be noted that module-based distribution, coupled with singular-asset distribution, is highly beneficial to the advancement of subsea boosting, separation, processing, etc., since it allows for an operator to interface with myriad of valves, sensors, etc., on such assets. The result is the exportation of a well’s product while enhancing the recovery of oil.

*Figure 5. Categorization of flying leads*

Item	Acronym	Denotes	Typical Application
1	HFL	Hydraulic flying lead	Provision of hydraulic controls for XMAS-Trees
2	CFL	Chemical flying lead	Injection of xylene and methanol at manifolds for flow assurance purposes
3	EFL	Electrical flying lead	Provision of power Subsea Control Modules (SCM) on XMAS-Trees
4	OFL	Optical flying lead	Allows for data to travel at long step-out distances, from surface/land to subsea assets

## Categorization of flying leads

As previously mentioned, flying leads enable the distribution of P&C — to be more specific, they provide a conduit/medium for the following: electrical power/signal, fiber optic communication, supply of chemicals, and hydraulics. For this reason, numerous acronyms are used when describing flying leads and the conduit/medium that is to be employed (Figure 5).

It is important to note that there are two additional categories that are not covered above. The first being Steel Flying Leads (SFL); this style of lead can equally handle chemicals and/or hydraulic fluids in the same fashion as CFLs and HFLs. However, SFLs do not utilize thermoplastic hoses or a non-steel medium to facilitate the travel of chemicals and hydraulics to a subsea point. Instead, these two mediums are routed through the SFL’s steel tubes.

The second category that is not covered in the table above is Hybrid Flying Leads; these leads are manufactured with the ability to transmit all mediums listed in Figure 5. The configurations available to an operator, via hybridization, are as follows:

- Placement of CFL and HFL lines together (steel tube and non-steel tube)

- This setup will require that the ends of the flying lead terminate to a junction plate. This setup will have an outer sleeve attached to the bundled lines.

- Running of fiber/electrical lines in conjunction with chemical and hydraulic lines

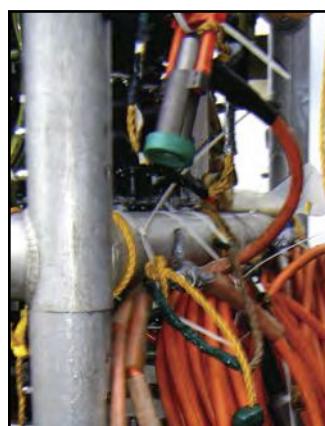
- This setup will also require that the ends of the chemical and hydraulic lines terminate to a junction plate while the fiber/electrical lines will terminate to a “jump out panel” by way of Positive Balanced Oil-Filled (PBOF) hoses as shown in Figure 7.

- This setup will have an outer sleeve attached to the bundled lines.

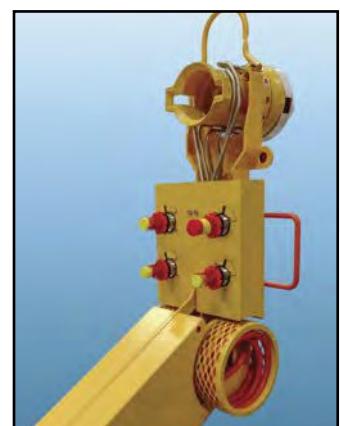
- The utilization of electrical and fiber optics together, which is referred to as an Electrical Optical Flying Lead (EOFL).

- This configuration will require a PBOF hose to house the electric wire and fiber lines. The PBOF hose is sole barrier for said items in this configuration.

- This setup will require the use of hybrid connectors (Figure 6).



*Figure 6. Hybrid connector in the foreground, with PBOF hose in the background*



*Figure 7. Junction plate with PBOF hose and “jump out” panel*

It is important to note that the hybridization of flying leads via the aforementioned configurations is what truly enables an operator to dynamically interface, control, and communicate with a subsea production scheme. By mixing, matching, and distributing the items in Figure 5, it allows such a scheme to have multiple layers of functionality that ensure a well’s product is efficiently and intelligently exported.

**Oceaneering announces new build subsea support vessel**  
Oceaneering International, Inc. announced it has commissioned the construction of a subsea support vessel from BAE Systems. Expected delivery of this vessel is by the end of the first quarter of 2016. This vessel will be U.S. flagged and documented with a coastwise endorsement by the U.S. Coast Guard. It will have an overall length of 353 ft, a Class 2 dynamic positioning system, accommodations for 110 personnel, a helideck, a 250-ton active heave compensated crane, and a working moonpool. The vessel will be outfitted with two 13,000-ft rated Oceaneering work class remotely operated vehicles. The vessel will also be equipped with a satellite communications system capable of transmitting streaming video for real-time work observation by shore personnel. The vessel will be used to augment Oceaneering's ability to provide subsea intervention services in the ultra-deep waters of the U.S. Gulf of Mexico. These services are required to perform inspection, maintenance, and repair (IMR) projects and hardware installations. IMR projects are expected to include chemical well stimulation and hydrate remediation. Hardware installations are expected to include flowline jumpers, flying leads and subsea trees, pumps, and separators.

## New EU project aims to improve efficiency of maritime regulations

A new 3 year European Research Project, partly funded by the EU, has been launched to help increase efficiencies in regulation compliance and enforcement for the maritime sector. e-Compliance will facilitate tighter integration and co-operation in the fragmented field of regulatory compliance. It will closely align with the EU e-Maritime initiative of which a key priority is supporting authorities and shipping operators to collaborate electronically in regulatory information management. The maritime sector is, by necessity, heavily regulated. International, EU, and national authorities create large numbers of rules and regulations; the long lifetime of ships and the different phases of their operation add to the complexity. As a result, practitioners who need to enforce or comply with regulations are often unsure as to which rules apply for a given vessel in a given situation. Building on the success of other EU projects such as FLAGSHIP, e-Compliance will look at creating a model for managing maritime regulations digitally and thus help to harmonize these regulations. The project's consortium comprises representatives of the three main stakeholder groups involved: classification societies (who create class rules), port state control (who enforce regulations), and ships (who need to comply with regulations). This seamless co-operation between the different stakeholder groups will improve the effectiveness of regulations and reduce the burden on practitioners who work with maritime regulations on a daily basis. e-Compliance consists of 10 partners, all of which bring their own areas of knowledge and experience of working in the maritime space. They include BMT Group Ltd, Det Norske Veritas (DNV), Danaos Shipping Co Ltd, INLECOM Systems, The Netherlands Organisation for Applied Scientific Research (TNO), TEMIS, Acciona Infraestructuras, PORTIC Barcelona, Norsk Marinteknisk Forskningsinstitutt AS (MARINTEK), and the Maritime Administration of Latvia.

**Asian shippers argue practicality of container weight rule**  
The Asian Shippers' Council complained that an agreement by the International Maritime Organization (IMO) on mandatory verification of gross weight of containers is unworkable and was not done with what it called "proper representation" from shippers. It complained that neither it nor the European Shippers' Council were involved in meetings to discuss the draft amendments to Chapter VI of the Safety of Life at Sea convention when the IMO's Subcommittee on Dangerous Goods, Solid Cargoes and Containers considered the issue. The Global Shippers Forum, from which the ASC resigned last year, did support the changes and said it believes the rules on container weights was "the best possible outcome for shippers, saying it was a compromise proposal that creates a flexible and workable solution." GSF noted it had worked with the IMO to achieve the compromise and "welcome the fact that they listened to our concern regarding flexibility which will go a long way to tackling the recognized safety problem of misdeclared cargo weights."

## New Polaris ship's bridge simulator for Mexican coastal and port development



A new multi-purpose Kongsberg Maritime Polaris ship's bridge simulator has become a key coastal and port development resource for The Instituto Mexicano del Transporte (IMT) following the opening of its new research facility in August 2013.

Based in Queretaro, Mexico, IMT is the leading research center for ports and coasts in Mexico. The organization is using its new Polaris simulator, which was ordered in April 2013, within its maritime research, development and project planning activities.

"The simulator is vital for us to provide research-grade services in Mexico related to port and coastal area research and development such as coastal structures, hydrodynamics, sediment transport, field studies and port development studies," said IMT's Miguel Montoya, manager of the new simulation facility.

IMT's Polaris simulator accommodates a range of bridge console configurations, instrumentation arrangements, hydrodynamic ship models and initial exercise areas covering navigable waters and adjacent shore lines for the ports of Lazaro Cardenas, Manzanillo, and Veracruz.

In addition to the main Polaris simulator, Kongsberg Maritime will supply IMT with the capability to independently develop both vessel models and exercise areas.

"This is a very flexible simulator installation that offers the ability to function as a wide variety of vessels including Naval ships, merchant deep-draft, shallow-draft, and small boats, all of which can be simulated in harbor project development scenarios. Any waterway, any vessel, can now be developed here in Mexico," said Tristan Ruiz Lang, coordinator of port engineering and geospatial systems of the Mexican Transport Institute.

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

## MHI receives order from JAMSTEC for wide-area seabed research vessel

Mitsubishi Heavy Industries, Ltd. (MHI) has received an order for construction of a wide-area seabed research vessel from the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), and an agreement has been signed. The vessel on order will efficiently advance wide-area research into seafloor resources, its comprehensive research capabilities to include elucidation of mineral and ore deposit origins and formation conditions, and will also



enable contributions to disaster prevention research. Construction is to get under way at MHI's Shimonoseki Shipyard & Machinery Works in Yamaguchi Prefecture within the current fiscal year, with completion scheduled for March 2016.

The wide-area seabed research vessel on order will be approximately 100 m in length and 19 m in width, with gross tonnage near 5,500 tons. To efficiently conduct survey research of ocean floor resources, it will be capable of operating such state-of-the-art equipment as a seismic research system for investigating crustal structure, large piston corers and a seafloor-mounted excavator for collecting seabed samples, a remotely operated vehicle (ROV) and an autonomous underwater vehicle (AUV). Sea speed will be approximately 12 kts, with a crew capacity of 65. The vessel on order will also be outfitted with a marine

research laboratory enabling swift analysis of collected samples without any time-lag deterioration.

Selection of the shipyard was made through an open proposal submission process. MHI was initially included among the pool of candidates in recognition of its technological strengths, and ultimately chosen by JAMSTEC to construct its new research vessel.

In recent years, MHI has constructed a number of cutting-edge research vessels. Among them are the Shinsei Maru, delivered to JAMSTEC for studying the marine ecosystem off the coast of Tohoku in northeast Honshu, and the Hakurei, delivered to Japan Oil, Gas and Metals National Corporation (JOGMEC) to study marine resources.

Going forward through construction of the research vessel newly ordered by JAMSTEC, MHI looks to contribute to research into Japan's marine resources. The company also intends to leverage the technological strengths to be cultivated through the vessel's construction and apply them to proactive initiatives to attract further orders for research vessels.

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

### First U.S.-built, LNG-fueled PSV with unique Nitrogen membrane generator

Norwegian-based Air Products has been selected by Harvey Gulf International Marine to supply Nitrogen Membrane Generators for the six newly ordered LNG-fueled Platform Supply Vessels (PSVs) to be built at Trinity Offshore Shipyard, Gulfport, Mississippi.

The NC 1.1 series cabinet model consists of a complete N2 Generator, a control panel and a feed air pre-treatment with a PLC control. The Nitrogen Membrane System is approved by all international marine standards. The fact that the system is DNV-type approved was one key reason for Harvey Gulf International to select this system.

This unique Nitrogen Membrane Generator has a reduced footprint and lowers the operational cost at the same time. Maintenance is kept to a minimum thanks to the robust design and carefully selected materials that meet the stringent operational demands for PSVs. The Standard Serial Line Communication (Modbus) can be connected directly into the vessel's IAS



## ARE YOUR BUOYANCY AND BALLAST BAGS:

- Supplied directly from the manufacturer?
- FULLY compliant with IMCA D-016/LEEA 051 guidance?
- Proven via drop-testing to meet required factors of safety on the WLL?
- Complete with Type Test and ABS PDA certification?
- Fully traceable down to component level?
- Delivered in an enclosed crate, ready for immediate use, with product logbook and operation manual?
- Available immediately from a stock of over 12,000t held worldwide?
- If rented, then inspected and tested between each and every job?

If not, then you need to speak to us



**Unique Maritime Group**  
Strength in Depth

Contact Unique System L.L.C. (USA)  
for a professional solution.  
Email: [usasales@uniquegroup.com](mailto:usasales@uniquegroup.com)  
Website: [www.uniquegroup.com](http://www.uniquegroup.com)  
Tel: (New Iberia) +1 337 365 5650  
(Houston) +1 713 937 6193



**Unique System LLC (USA)**  
A Unique Maritime Group Company

(Integrated Alarm System). Finally, it is said to be very operator friendly.

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

## Northern Offshore Services takes delivery of its first Damen Twin Axe FCS 2610

Northern Offshore Services has taken delivery of its first Damen Twin Axe, just weeks after the order was placed in August. The 26-m Fast Crew Supplier is already being deployed at an offshore wind farm in the North Sea.

A leading crewboat operator, Northern Offshore Services has offices in Sweden and Denmark and a fleet of nearly 20 vessels. The company specializes in the safe and reliable transport of personnel and equipment to the offshore (wind) industry and is a new customer for Damen.

The new vessel is sailing under the Danish flag. She left Damen Shipyards Gorinchem (NL) to travel to Esbjerg in Denmark on 16 September in particularly bad weather, but despite the stormy conditions still managed average speeds of 18 kts.

The Damen Twin Axe is derived



from an extensive research and development program for the optimization of seakeeping and maneuverability while carrying out offshore operations. The introduction of this vessel type was a significant step forward from more conventional seagoing High Speed Vessels, due to the characteristics of its hull form, which ensures low resistance, a high sustainable speed in waves and superior seakeeping. This, in turn, leads to lower fuel consumption.

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

## FedEx launches ocean freight service between India and US

FedEx Trade Networks, the freight forwarding arm of global shipping giant FedEx Corp., announced the launch of its FedEx International Direct Priority OceanSM service in India.

This innovative, end-to-end ocean solution is now available from four

India origins: Bangalore, Chennai, Delhi, and Mumbai. The addition of these new India origins extends the reach of the specialized ocean service and provides customers who export to the United States with additional ocean freight forwarding options.

With FedEx International Direct Priority Ocean, cargo is shipped from the origin to North America, with final delivery available throughout the contiguous United States. This specialized service includes premier ocean freight forwarding, U.S. customs brokerage, online visibility, and reliable delivery for both less-than-container-load (LCL) and full-container-load (FCL) cargo.

FedEx Trade Networks introduced FedEx International Direct Priority Ocean in 2011, providing a more economical option to air freight forwarding, while offering faster, reliable ocean transit times than traditional ocean shipping. Customers can enjoy better control of the supply chain with dependable predictability of final delivery, while receiving an individual point of contact, a single rate, and a single invoice.

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

**WITH 45 YEARS IN PROVIDING UNDERWATER CONNECTIVITY SOLUTIONS SEA CON® LEADS THE WAY IN CONNECTOR TECHNOLOGY**

ELECTRICAL DRY-MATE  
ELECTRICAL WET-MATE  
OPTICAL HYBRID DRY-MATE  
ELECTRICAL UNDERWATER MATEABLE  
OPTICAL UNDERWATER MATEABLE

UNDERWATER SWITCHES  
ELECTRICAL / OPTICAL PENETRATORS

Scan for SEA CON's FREE Product Catalog CD

[www.seaconworldwide.com](http://www.seaconworldwide.com)

EXHIBITING AT SUBSEA SURVEY 2013  
EXHIBITING AT TIDAL ENERGY SUMMIT 2013  
EXHIBITING AT UNDERWATER INTERVENTION 2014

NOVEMBER 12TH - 14TH  
NOVEMBER 26TH - 27TH  
FEBRUARY 11TH - 13TH

GALVESTON, TEXAS, USA  
LONDON, UK  
NEW ORLEANS, LOUISIANA, USA

BOOTH #201  
BOOTH #705

# **Extraordinary Quality**

# **High Affordability**



- Highly Robust and Accurate Acoustic Doppler Technology
- Significantly Longer Range
- Highly User Friendly And Cost Competitive

## **FlowQuest Acoustic Current Profilers**

- Range: up to **900 m**
- Accuracy: up to  $0.25\% \pm 2.5 \text{ mm/s}$
- Depth: up to 6,000 m
- Data Fusion and Acoustic Modem Options



- The World's Smallest DVL
- Significantly Longer Range
- Ideal For Underwater Precision Navigation
- Smallest Minimum Altitude

## **NavQuest Doppler Velocity Logs (DVL)**

- Range: up to **300 m**
- Depth: up to 6,000 m
- Minimum Altitude: 0.3 m
- Accuracy: up to  $0.2\% \pm 1 \text{ mm/s}$



- The Best Selling USBL Systems In The World
- Broadband Acoustic Spread Spectrum Technology
- Highly Accurate, Robust and Cost Effective

## **TrackLink USBL Tracking Systems**

- Range: up to 11,000 m
- Accuracy: up to 0.15 degree
- Depth: up to 7,000 m
- Price: from \$15,000
- Targets: up to 16



- The Best Selling Acoustic Modems In The World
- Broadband Acoustic Spread Spectrum Technology
- Transport 95% of The World's Acoustic Communication Data

## **High Speed Underwater Acoustic Modems**

- Data Rate: up to 38,400 baud
- Range: up to 10,000 m
- Bit Error Rate:  $< 10^{-9}$
- Depth: up to 7,000 m



- Highly Robust, Accurate and Power Efficient
- Broadband Acoustic Spread Spectrum Technology
- Integrated High Speed Acoustic Modem Functions

## **PinPoint LBL Acoustic Positioning Systems**

- Accuracy: up to 0.05 m
- Range: up to 10,000 m

**LinkQuest Inc.** [www.link-quest.com](http://www.link-quest.com)

Tel: (858) 623-9900, 623-9916 Fax: (858) 623-9918  
6749 Top Gun Street, San Diego, CA 92121, USA  
Email: sales@link-quest.com

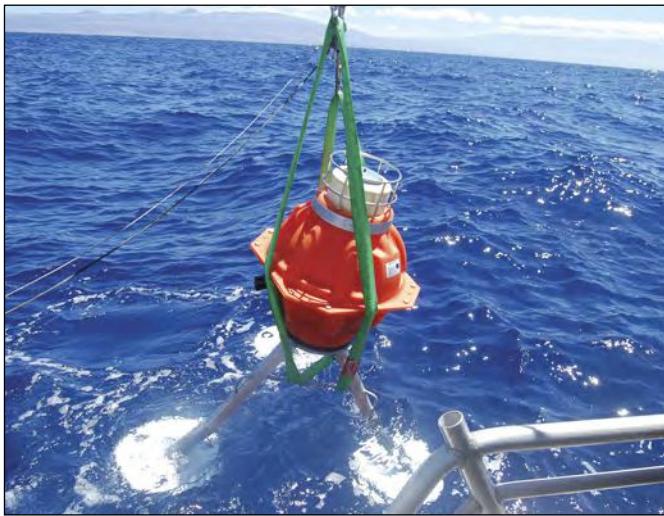
### **NOAA awards \$27.2M for ocean and coastal observing technology**

NOAA is awarding \$27.2 million to sustain current critical ocean, coastal, and Great Lakes observing efforts and to support innovative marine sensor technologies, with a goal of helping us better understand our coastal and marine environment. The funding is provided through the U.S. Integrated Ocean Observing System (IOOS®), other federal agencies, and NOAA programs. This year's awards include \$2.9 million for marine sensor innovation projects to enhance our understanding of the coastal and marine environment; \$1 million to the Southeastern Universities Research Association to make operational the U.S. IOOS® Coastal and Ocean Modeling Testbed, an infrastructure for the testing and improvement of non-federal and federal models and prediction tools; \$1 million to the Alliance for Coastal Technologies for technology transfer and accelerating development of promising new marine observing technologies; \$340,000 provided through the Northeast IOOS® Regional Association in support of Woods Hole Oceanographic Institute and McLane Industries efforts to transition cutting-edge observing platforms monitoring the emergence of harmful algal blooms and improve harmful algal bloom forecasts in the Gulf of Maine; and \$574,000 to fund projects in five IOOS® Western regional associations. These projects will develop ocean acidification sensor technology to support West Coast and Alaska shellfish industry monitoring needs, improve measurements of the state of ocean acidification in the Pacific Islands, and develop workforce capacity to work with ocean acidification sensors. In addition to the marine sensor innovation projects introduced this year, the U.S. IOOS® awarded \$24.3 million to sustain critical coastal, ocean, and Great Lakes efforts. As part of this effort, the U.S. IOOS® Program and NASA will continue to jointly fund, at \$250,000 each per year, projects to improve satellite sea surface temperature data from existing and new sensors, produce a blended output of sea surface temperature data from U.S. and international datasets, and target these products for coastal applications and regional IOOS® usage.

### **World authority leads ocean energy research**

Dr. Ken Lee will head a multidisciplinary team of over 200 CSIRO scientists and technical staff to provide the science to support the healthy and sustainable coexistence of the ocean energy industry with all other marine industries and communities. Dr. Lee, a Canadian, was formerly the executive director of Canada's Centre for Offshore Oil, Gas and Energy Research, a Centre for Expertise in the Canadian Department of Fisheries and Oceans. He is internationally recognized for his expertise on the environmental impacts of offshore oil and gas production and oil spill counter-measures. Dr. Lee led the Canadian contingent helping to deal with the 2010 Deepwater Horizon, BP oil spill in the Gulf of Mexico. He contributed to a recent report on the oil spill by the U.S. National Research Council, which noted the importance of understanding the wider economic and social impacts of the spill in addition to immediate ecological and environmental damage. Dr. Lee said Australia has the potential to lead the world in ocean energy research and set environmental protection standards. To achieve this, his research team plans to increase its collaboration with the Australian and international oil and gas industry. "Offshore oil and gas will play a critical part in Australia's future energy needs," Dr. Lee said. "In the past few months, 13 new offshore petroleum exploration permits have been granted in the Indian Ocean off the coasts of Western Australia and Tasmania. The Great Australian Bight is another example of a potentially vast, untapped oil and gas resource. We need to ensure regulators, industry, governments and marine park managers are equipped with the best possible scientific information available." Dr. Lee said a holistic and coordinated approach was needed to understand the full impacts of offshore oil and gas activities on the environment and surrounding communities — from exploration through to decommissioning operations.

### **Sonardyne, Liquid Robotics, and NOAA collaborate on ocean observation**



*Long-life subsea logging node Fetch was deployed in 550 ft of water to measure ocean temperature and pressure. The Liquid Robotics Wave Glider® uploaded the logged data via its high-speed acoustic modem, transmitting it to shore via satellite*

In early August off the east coast of America, a team from Sonardyne International Ltd., Liquid Robotics, and the National Oceanic and Atmospheric Administration (NOAA) concluded the second leg of an extensive ocean observation technology demonstration project. Using Sonardyne's Fetch and Tsunami sensor nodes and a Liquid Robotics Wave Glider®, the project was performed in collaboration with MARACOOS (Mid-Atlantic Regional Association Coastal Ocean Observing System) and NOAA National Data Buoy Center (NDBC) and managed by NOAA U.S. Integrated Ocean Observing System (IOOS®) Program Office with the objective to test new, long-endurance ocean observation instruments that have been designed to work in tandem. The results were displayed at the recent MTS/IEEE Oceans 2013 conference and exhibition in San Diego, California.

The Fetch node was deployed in 550 ft of water to measure ocean temperature and pressure, and the Tsunami sensor in 8,000 ft, while the Wave Glider® recorded data on the wind, waves, water temperature, and salinity as it transited between the two sensors. Once the Wave Glider® was stationed above the location of each instrument, it acoustically uploaded both real-time and logged data, which were then transmitted onwards via satellite to shore-based operators for analysis.

Sonardyne's Fetch and Tsunami sensors are long-life subsea sensor logging nodes that enable data to be extracted on demand from platforms such as Wave Glider® via their integrated high-speed acoustic modems. Fetch can be configured with an array of different sensors dependent on the monitoring application with standard sensors including high accuracy pressure, temperature and sound velocity. The Wave Glider® itself is an autonomous ocean observing platform designed to support a wide variety of sensor payloads. Capable of travelling long distances and monitoring vast areas without refuelling, Wave Gliders® can transmit data via radio satellite without ever requiring a ship to leave port, thereby dramatically reducing risk and survey costs.

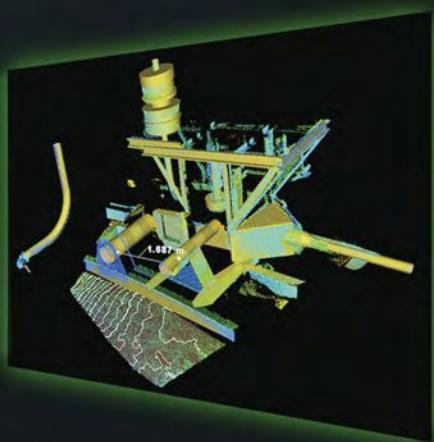
For more information, visit [www.sonardyne.com](http://www.sonardyne.com).

THE FUTURE IN MOTION



RUN TO THE LIGHT

**SWITCH ON TO INSCAN NOW**



**INSCAN:** WORLD'S  
FIRST 3D SCANNING SUBSEA LASER  
DESIGNED FOR THE OIL & GAS INDUSTRY

- RUGGED DESIGN
- UNDERWATER LIDAR SYSTEM
- INTEGRATES WITH ROV AND AUV
- FAST, HIGH RESOLUTION 3D DATA COLLECTION
- SUPPORTS VARIOUS WORKFLOWS & ENVIRONMENTS



TO LEARN HOW CDL CAN HELP YOU  
EMAIL: [INFO@CDLT.NET](mailto:INFO@CDLT.NET)  
VISIT: [WWW.CDLTD.NET](http://WWW.CDLTD.NET)



## CSA Ocean Sciences Inc. mobilizes for 316(b) support

When a ruling on Section 316(b) of the Environmental Protection Agency's (EPA's) Clean Water Act rolls out in 2013, CSA Ocean Sciences Inc. is prepared to support those facilities expected to bear the brunt of the regulation's impact. Intended to reduce the entrainment and impingement of marine life as well as other adverse environmental effects, the EPA's 316(b) regulation will impact industries that withdraw at least 2 million gallons of water per day for cooling purposes. Expected to be released on 4 November 2013, Section 316(b) will affect approximately 1,260 facilities across the country by requiring the installation and utilization of the best technology available for minimizing the negative effects of cooling water intake. When the new rule takes effect, existing facilities must implement impingement requirements as quickly as possible, but may be allowed up to 8 years to comply and provide additional studies to their permitting authority. However, new facilities must have the technology in place when they initially come online.

Mr. Ernesto Calix, a project scientist with CSA noted the enormity of this undertaking: "These facilities will be required to complete vast comprehensive studies, especially regarding entrainment. This will be a huge effort. Some facilities have prepared themselves for these studies, but many have not. There are a lot of moving parts that must be considered, and the need for awareness is critical." Mr. Calix has more than 24 years of experience in marine monitoring programs, including a number of studies directly related to 316(b) entrainment programs and 316(a) thermal effects surveys. Presently, he is leading efforts within CSA to assist impacted facilities understand the importance of ichthyoplankton taxonomy and analysis with regard to the requirements of the 316(b) regulation. Mr. Calix has served as the lead taxonomist and consultant on several 316(b) programs and has developed techniques and matrices to support the efficient identification of ichthyoplankton and fish eggs. As the regulation's release approaches, Mr. Calix is preparing his team to help educate affected facilities understand the support methodologies they will need during 316(b)'s implementation.

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

## Why are some corals flourishing in a time of global warming?

As Earth's temperature climbs, the stony corals that form the backbone of ocean reefs are in decline.

It's a well-documented story: violent storms and coral bleaching have all contributed to dwindling populations, and increasing acidity of seawater threatens to take an additional toll.



Credit: Howard Lasker

Less discussed, however, is the plight of gorgonian corals — softer, flexible, tree-like species that can rise up like an underwater forest, providing a canopy beneath which small fish and aquatic life of all kinds can thrive.

Divers have noted in recent years that gorgonian corals seem to be proliferating in certain areas of the Caribbean, even as their stony counterparts struggle.

Now, a new study will look to quantify this phenomenon.

Scientists from the California State University, Northridge and University at Buffalo will examine 27 years of photographs from reefs off the Caribbean island of St. John to determine how gorgonian numbers have changed and run field experiments to see how competition with stony corals — or a lack of it — influences gorgonian growth.

The study will also document what gorgonian coral populations look like now at St. John, which is part of the U.S. Virgin Islands, and track future development there.

The nearly \$1 million project is being funded by the National Science Foundation (NSF).

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

## University researcher calls new database the "Who Eats Who" of the Gulf of Mexico

About 1,500 marine fishes make the Gulf of Mexico their home. From birds, to fish and marine mammals to crustaceans, the Gulf of Mexico Species

Interaction database (GoMexSI), created by a researcher at Texas A&M University-Corpus Christi, currently has diet data on over 600 of the marine fishes. It is the first and only database of its kind for the Gulf of Mexico that shows how the cataloged animals interact with each other in the food web.

"Unless you're a scientist or grad student, you may have never wondered what preys on porcelain crabs," said Dr. James Simons with the University's Center for Coastal Studies. "But if you're a fisherman, you would probably like to know what type of critters your favorite game fish likes to eat."

Simons started collecting data on how the different species of the Gulf interact in 1987, but it wasn't until 2002 that he got the idea to put all of the information he had collected into one, easily accessible place: the worldwide web.

The scope of data in GoMexSI includes the estuaries and coastal waters of Cuba, Mexico, and the United States and all of the Gulf waters to the deepest realms. Simons says the database has already proven valuable to various research projects, including the NOAA's Integrated Ecosystem Assessment program that is using the data for diet information on fish that will aid in the construction of fishery ecosystem models. The effort has also enabled the detection of data gaps that will help to direct future data gathering efforts.

For more information, visit <http://gomexsi.tamucc.edu>.

## NOC contributes to key climate report

National Oceanography Centre researchers have contributed to The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC).

The report, entitled Climate Change 2013: The Physical Science Basis, presents a synthesis of current climate science research and an assessment of the extent to which the climate changes can be attributed to human activity. It builds on a series of earlier reports on this subject, the most recent of which was published in 2007. These reports are critical for informing the climate policies adopted by governments.

Based on the review and analysis of several thousand published scientific papers, the report has been written and edited by scientists, experts in their field, drawn from 39 countries. More than 10% of these authors are from the



## Marine Sciences and Environmental Services

# USV

## *Unmanned Surface Vessel*

- Ideal for remote, inaccessible, contaminated, and hazardous bodies of water
- Portable and easily shipped – can be operated by a two-person team worldwide
- Real-time data collection and viewing and on-board computer for client software
- Ethernet and serial connections allow interfacing of a multitude of survey sensors



**Credibility • Experience • Performance**

CSA provides high-quality technical and scientific services to energy, government, academic, and commercial clients



**CSA Ocean Sciences Inc.**  
Phone: 772-219-3000  
[www.csaocean.com](http://www.csaocean.com)

UK. Many of them are Natural Environment Research Council (NERC) funded and include NOC's Professor Simon Josey (lead author for Chapter 3 Observations: Ocean) and Dr. Svetlana Jevrejeva (lead author for Chapter 13 Sea Level). NOC's Professor Phil Woodworth was a review editor (individual chapters were released online on Monday, 30 September).

NERC funds research on the whole Earth system that contributes to the evidence base from which IPCC draws its conclusions. Sea level data from the Permanent Service for Mean Sea Level databank (PSMSL, [www.psmsl.org](http://www.psmsl.org)), hosted at NOC, are the primary source of information on long-term global "mean sea level" change used by the IPCC.

The peer-reviewed papers of NERC-funded researchers in HEIs and in NERC's research centers like NOC and the British Antarctic Survey have made a major contribution to the report in areas such as ocean circulation and ocean warming, climate history, loss of ice from ice sheets and glaciers, climate modeling, sea-ice cover, and sea-level rise.

For more information, visit [www.noc.ac.uk](http://www.noc.ac.uk).

### Microscopic life scavenging for oxygen deep in oceanic crust

Although long thought to be devoid of life, the bottom of the deep ocean is now known to harbor entire ecosystems teeming with microbes. Scientists have recently documented that oxygen is disappearing from seawater circulating through deep oceanic crust, a significant first step in understanding the way life in the "deep biosphere" beneath the sea floor is able to survive and thrive. The new research findings were published in the journal *Nature Communications* and are helping to redefine our concepts of the limits of life on our planet.

A team of researchers led by Dr. Beth Orcutt of the Bigelow Laboratory for Ocean Sciences used the JOIDES Resolution, a sophisticated 470-ft scientific drilling vessel operated by the international Integrated Ocean Drilling Program (IODP), to sample the muddy and sandy sediments that blanket the rocks on the seafloor as well as drill into the hard crustal rocks themselves — considered by many to be the largest reservoir of life on Earth — in order to understand how microbes can "breathe" and get the energy necessary to live in

this remote environment.

The team measured oxygen concentrations in sediment cores collected above the rocky oceanic crust, almost 3 mi below the sea surface, on the western edge of the remote Mid-Atlantic Ridge. These measurements then allowed the researchers to determine oxygen concentration in seawater circulating in the rocks of the oceanic crust itself.

"Our computer models showed that the crustal oxygen concentrations in the region were most likely the result of microbial life forms scavenging oxygen in the crust as seawater moves through fractures and cracks deep in the rocks," said Orcutt. "Under the cold conditions of the crust in this area, purely chemical oxygen consumption is minimal, which suggests that microbes in the oceanic crust are responsible for using the oxygen that's down there."

"We know there's a vast reservoir of life in the ocean crust, but unless we take steps to quantify its metabolism, we'll never know how vast it is," said co-author Dr. Sam Hulme, from Moss Landing Marine Laboratories.

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

ROVS      Video Systems      Sonar Systems      Magnetometers      Diver Delivery Systems      Tether Management      Diver Held Sonar Imaging and Navigation



**CRS-Mini**

The CRS-MINI is a portable and dependable reel that allows for quick deployment of cable.



**CR Series**

These light weight reels will handle cables for small ROVs, camera systems, sonar equipment as well as many other applications. They are available in two drum sizes (11" x 24" and 19" x 24" both with 11 inch cores).



**Contained Cable Reel**

The Contained Cable Reel is designed for easy handling and storage of smaller diameter cables. It's an all-in-one tethering solution for camera systems, scientific instruments, side scan sonar and many other applications.



**LARS**

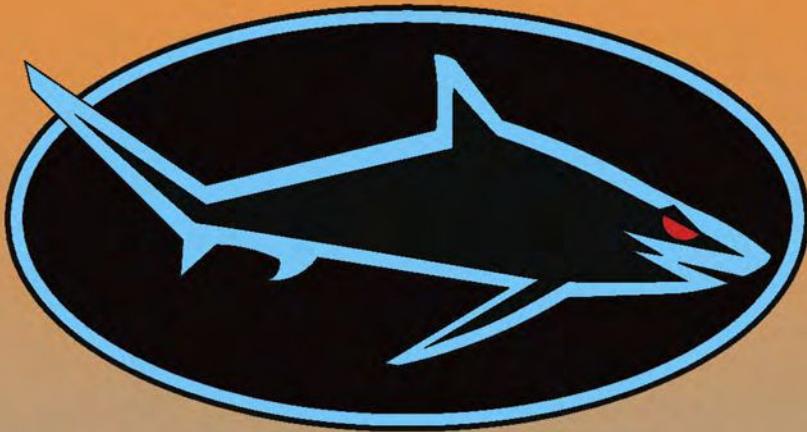
Our Launch and recovery systems are designed for medium to large sized ROVS towed sonar equipment. These hydraulic / electric systems can be tailored to suit any customers application.



**Smart Sheave**

The Smart Sheave provides information such as cable payout, payout rate, actual cable tension and alarms.

**www.sharkmarine.com**      **sales@sharkmarine.com**      **Ph: (905) 687-6672**



**OKEANUS**  
SCIENCE & TECHNOLOGY

# Oceanographic and Marine Scientific Research Equipment

*Rental Equipment with Integrated Support*

**Phone: 985-346-4666**  
**Fax: 985-346-8444**  
**E-mail: Info@okeanus.com**  
**Web: www.okeanus.com**



## U.S. Energy Department invests \$16 million to harness wave and tidal energy

The U.S. Energy Department announced \$16 million for 17 projects to help sustainably and efficiently capture energy from waves, tides and currents. Together, these projects will increase the power production and reliability of wave and tidal devices and help gather valuable data on how deployed devices interact with the surrounding environment. Tidal and wave energy is a clean, renewable resource that can be harnessed wherever changing tides, waves or currents move a significant volume of water — including off the coasts of many U.S. cities where there is high electricity demand. The Department's latest nationwide wave and tidal energy resource assessments identify up to 1,400 TW hours of potential generation per year. One TW hour of electricity is enough to power 85,000 homes, and developing a small fraction of the available wave and tidal energy resource could allow for millions of American homes to be powered with this clean, reliable form of renewable energy. The Energy Department announced about \$13.5 million for eight projects to help U.S. companies build durable, efficient wave and tidal devices that reduce overall costs and maximize the amount of energy captured. The projects will develop new drivetrain, generator and structural components as well as develop software that predicts ocean conditions and adjusts device settings accordingly to optimize power production. For example, ABB will develop an affordable, efficient generator that is half the size of a traditional generator, while Ocean Energy USA will develop and test a hull design for a floating wave device. Dehlsen Associates will develop new software for its Centipod wave device to predict future wave conditions and adjust system settings to maximize power output. As part of the Administration's commitment to developing America's vast renewable energy resources responsibly, the Energy Department announced \$2.4 million to nine projects that will gather and analyze environmental data from wave and tidal projects as well as potential development areas. As this nascent energy industry grows, these projects will help ensure that potential environmental impacts are addressed proactively and that projects can be developed efficiently and responsibly. Through a broader collaborative effort between the Energy Department and the Department of the Interior to build a sustainable, world-class offshore energy industry, the Bureau of Ocean Energy Management is providing \$300,000 towards these awards.

## Scotland gives go ahead for Pentland Firth tidal project

Development of the largest tidal array in Europe today can now progress after Scottish Ministers awarded consent to build the first tidal energy project in the Pentland Firth. MeyGen Limited, a competitor in the Scottish Government's Saltire Prize, has been given the go ahead to install the tidal array in stages, beginning with a 9 MW demonstration project of up to six turbines. The Energy Ministry also announced that Scottish wave developers Aquamarine Power Limited and Pelamis Wave Power are to share a slice of a £13 million wave first array support program — part of the Scottish Government's Marine Renewables Commercialisation Fund (MRCF). MeyGen Limited is a Scottish-registered company and joint venture between investment bank Morgan Stanley, independent power generator International Power, and tidal technology provider Atlantis Resources Corporation. MeyGen's tidal energy project is located in the Inner Sound of the Pentland Firth off the north coast of Caithness. The Scottish Government's £18 million MRCF was refocused in May 2013 in line with industry calls. The Wave First Array Support program, a fund of up to £13 million, is aimed at accelerating wave energy technologies towards commercial readiness alongside their tidal counterparts. The remaining £5 million of the MRCF will be used to support the enabling technologies needed alongside the first wave and tidal arrays. The Scottish Government's Array Technology Innovation Programme is currently welcoming applications.

## Alstom, ScottishPower Renewables sign MoU for tidal power devices



International engineering company Alstom and ScottishPower Renewables have signed a Memorandum of Understanding (MoU) to incorporate Alstom's tidal power devices within the Sound of Islay project.

The tidal array, between the islands of Islay and Jura on the west coast of Scotland, will include up to four of Alstom's tidal devices, one of which is currently on test at the European Marine Energy Centre in Orkney, alongside four Andritz Hydro Hammerfest turbines. The new development is expected to result in the Sound of Islay project becoming the largest tidal array in the world when fully operational.

The Islay program remains on schedule for the first unit to be deployed in late 2015, with full site deployment during 2016. Operations are planned for 25 years and the demonstration project is anticipated to be the launch pad for future, larger scale sites around the Scottish coast, with ScottishPower Renewables working on plans for a potential 95-MW tidal project off the north coast of Caithness at Duncansby.

The Islay development will also utilize tidal devices from Andritz Hydro Hammerfest and will be capable of generating up 10 MW of electricity in total.

ScottishPower Renewables applied to Marine Scotland to build the Sound of Islay project in July 2010 and, after determination, consent was received in March 2011.

The company is committed to working with its community partner, the Islay Energy Trust (IET), to maximize the social and economic benefits of the project for the local community. This includes identifying opportunities for local businesses and liaising with stakeholders to minimize impacts.

Alstom's prototype tidal turbine consists of a three-bladed, pitch-controlled rotor, with a diameter measuring 18 m; a standard drive-train and power electronics inside the nacelle. The 22-m long nacelle is installed onto a separate seabed-mounted foundation and weighs less than 150 tons.

This tidal stream turbine has a number of notable features. First, it is simple and easy to transport. Its buoyancy means that it is easily installed and retrieved in a single tidal cycle using small vessels, reducing installation and maintenance costs. Secondly, it has an intelligent nacelle. Thrusters rotate the nacelle to reflect the direction of the tide, managing ebb and flood tides seamlessly as well as maximizing energy production. Thirdly, with its efficient blades, turbine blade pitching can be altered to control load on the turbine and optimize use of the tidal conditions locally.

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

## Wave Hub applies for floating wind consent

Wave Hub, the offshore renewable energy test facility in Cornwall, has applied for consent to install and operate a floating wind platform demonstrator.

The application for both a Section 36 electricity consent and a Marine Licence has been submitted to the UK's Marine Management Organisation and follows Wave Hub's selection by the Energy Technologies Institute (ETI) in March this year as the preferred location to test a floating offshore wind platform.

U.S.-based naval architecture and marine engineering firm Glosten Associates is designing the PelaStar tension leg platform prototype in partnership with Alstom, using the Haliade 150-6 MW offshore wind turbine.

The aim of the ETI project is to accelerate the commercial application of floating foundations for wind turbines, which could open up new deep water areas for deployment and dramatically reduce the cost of offshore wind energy technology.

Wave Hub has applied for consent to operate the demonstrator in one of the four berths over a period of 10 years. It could host the project as early as 2015.

In June this year, the ETI and Glosten Associates confirmed the appointment of two Cornish companies — marine contractor and vessel owner Keynvor MorLift Ltd (KML) and offshore drilling specialists LDD — to work on an installation study for the pioneering project.

The two companies have been appointed as part of a £4 million Front End Engineering Study commissioned and funded by the ETI that is expected to be completed by the end of the year.

The ETI will then decide in the new year whether to invest up to £21 million in the construction and deployment of the demonstrator project.

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

## Gunnfleet Sands demonstration site inaugurated

DONG Energy's next generation demonstration site at Gunfleet Sands has been officially opened by Greg Barker MP, the Minister for Climate Change, at a ceremony in Harwich.

Located next to the existing 172-MW Gunfleet Sands wind farm off the coast of Clacton-on-Sea in Essex, the new two Siemens 6-MW wind turbines mark a significant next step in DONG Energy's efforts to reduce the cost of electricity for offshore wind.

As the first two in the world to be deployed offshore, the turbines will undergo a series of tests over the next 3 years, particularly enabling DONG Energy to examine how the new direct drive technology and installation methods used at this project could affect the wider roll out of the 6-MW machine at DONG Energy's future projects in the UK.

The 6-MW turbine type has been tested onshore at the Høvsøre and

Østerild test centers in Denmark. DONG Energy announced in July 2012 that it had signed a framework agreement with Siemens to deliver 300 6-MW turbines for exclusive use at DONG Energy's projects in the UK. DONG Energy also signed an agreement with Siemens for up to 154 6-MW turbines at its German Gode Wind projects from 2015.

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

**Sea Robotics**

**USVs with a Mission**  
from environmental monitoring to surveillance & security

- Hydrographic Surveys
- Bathymetric Surveys
- Environmental Monitoring
- Surveillance & Security
- Hull Inspection

[www.searobotics.com](http://www.searobotics.com)

Contact us today for more information  
7721 SW Ellipse Way, Stuart, Florida 34997, USA  
1-561-627-2676 • [info@searobotics.com](mailto:info@searobotics.com) • [www.searobotics.com](http://www.searobotics.com)



## ABB positions world's most powerful offshore wind connector

ABB has installed the world's highest-voltage offshore converter station in the North Sea. Alternating current electricity generated in three wind farms off the coast of Germany will be converted



on the platform into high-voltage direct current (HVDC) for transmission to the mainland. The 320-kV converter station has an 800-MW power transmission capacity making it the world's most powerful installation of its kind.

In a 3-day operation, the 9,300 metric ton platform (topside), including the

converter station, was transported offshore by barge around 75 km off the German coast. It was then lifted by the world's largest crane vessel Thialf and positioned on top of the already installed jacket.

ABB was awarded the turnkey responsibility for system engineering, design, supply and installation of the offshore wind connection by TenneT. The project scope includes the offshore converter station, the sea and land cable systems, and the onshore converter station. The system features the latest generation of ABB power semiconductors, with increased performance that ensures higher availability and lower losses.

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

and Meerwind to the mainland. Using the Siemens technology installed on the platform, the alternating current power generated by the wind turbines is transformed into low-loss direct current for transmission onto land. Starting next year, this will enable the network operator and purchaser TenneT to supply clean electricity to more than 500,000 German households on the mainland. The land-based station, also supplied by Siemens to TenneT, is located northwest of Hamburg in Büttel, where electricity will be converted back into the alternating current power required for feeding into the grid.

The network operator TenneT contracted the consortium consisting of Siemens and the Italian cable specialist Prysmian for the HelWin1 offshore grid connection in 2010. This consortium is implementing a total of four North Sea grid connection projects for TenneT: HelWin1 and HelWin2 off of Helgoland, BorWin2 off of Borkum, and SylWin1 off of Sylt.

The platform is equipped with a helipad and was fabricated by Nordic Yards at the shipyard in Wismar under contract by Siemens. Nordic Yards has been contracted by Siemens with the fabrication of two more HVDC platforms for the grid connections BorWin2 and SylWin.

The platform is installed 22 m above sea level to protect it against giant waves. HelWin1 is designed for decades of operation in the rugged North Sea.

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

## Denmark opens Anholt wind farm

Denmark's largest offshore wind farm, Anholt Offshore Wind Farm, has been officially inaugurated. With its 400 MW in total, the wind farm generates electricity corresponding to the annual consumption of approximately 400,000 Danish households.

DONG Energy, which has developed, erected and will be operating Anholt Offshore Wind Farm, owns 50% of the wind farm. PensionDanmark owns 30% and PKA owns 20%.

The foundations, towers and turbines are all developed and produced in Denmark. Anholt Offshore Wind Farm is world-class Danish engineering and a manifestation of Denmark's leading position within offshore wind power.

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

## Introducing Oceanic Imaging Consultants' "SAMM" Stand Alone Mosaicking Module for Forward Look Sonar

- Automatically Creates Mosaics in Real Time
- Compatible with Kongsberg, BlueView & Tritech
- Easy to Use Plug-and-Play Add-on to Your FLS
- Automatically Loads Background Charts
- Supports Post-Processing, Swath Layering, Imagery Enhancement, Export and More!



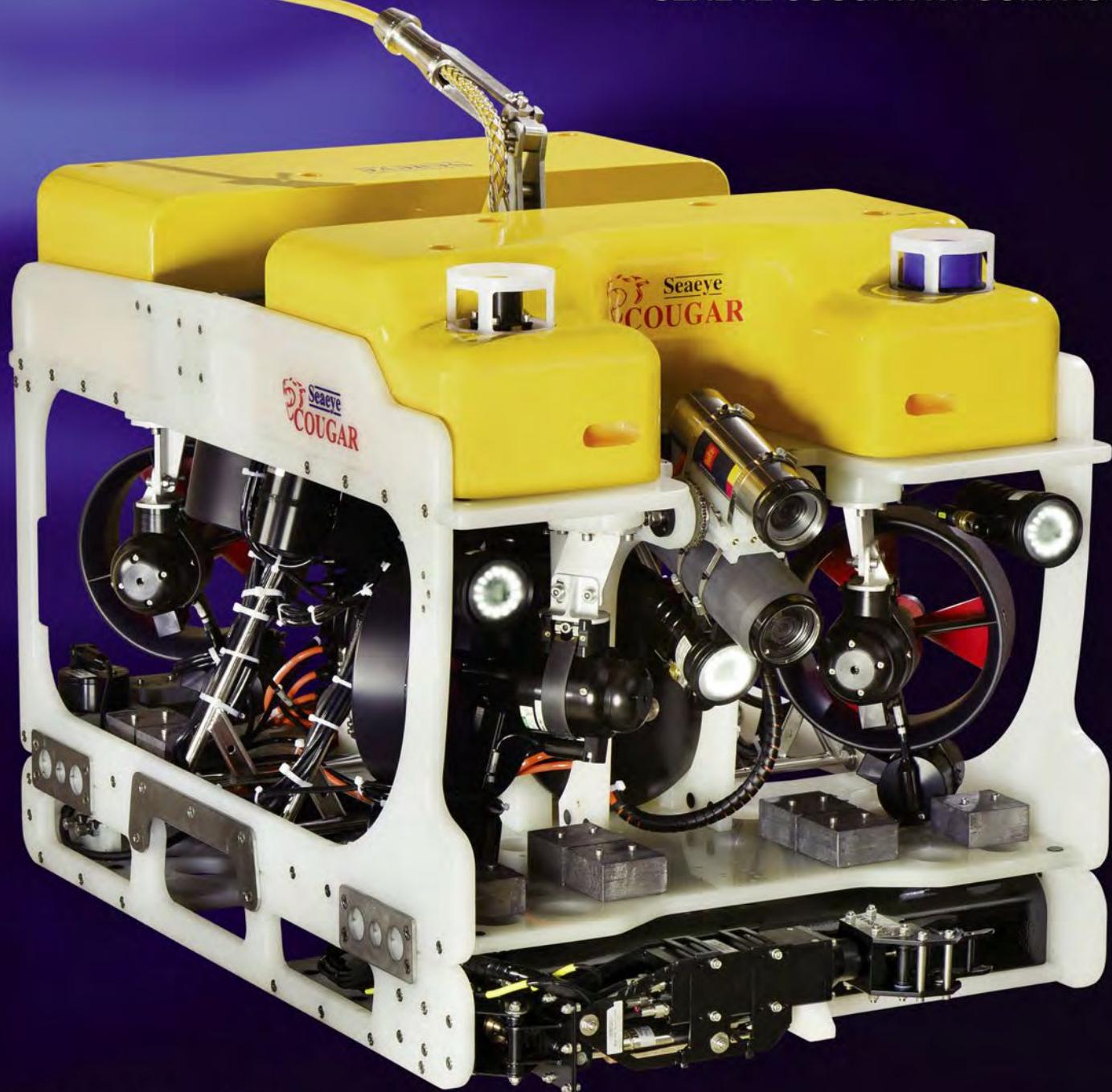
### WATCH THE SAMM VIDEO TODAY!

1. Just scan this QR code
2. Visit our SAMM webpage
3. Watch the video
  - Download a SAMM video
  - Download the SAMM flyer
  - Contact us from this webpage

Or visit: <http://www.oicinc.com/samm.html>



SEAEYE COUGAR-XT COMPACT



The World's  
Leading ROV  
Manufacturer

**TRUSTED**

[www.seaeye.com](http://www.seaeye.com)



**SAAB**

### **U.S. Navy awards General Dynamics \$26M for USS Providence maintenance and modernization**

The U.S. Navy has awarded General Dynamics Electric Boat a \$25.7 million contract to prepare and perform maintenance and modernization work on the USS Providence (SSN-719), a Los Angeles-class attack submarine. Electric Boat is a wholly owned subsidiary of General Dynamics. Under the terms of the contract, Electric Boat will perform a dry-docking continuous maintenance availability, which consists of maintenance work, upgrades and modernization activities required to ensure the submarine is operating at full technical capacity. The work will take place at the Electric Boat shipyard in Groton and involve up to 300 employees at its peak. The work is scheduled for completion in April 2014.

### **Hydroid awarded \$36M for AUVs**

Hydroid Inc, Pocasset, Massachusetts, is being awarded a \$36,323,734 firm-fixed-price, indefinite-delivery/indefinite-quantity contract for the procurement of unmanned underwater vehicles. The unmanned underwater vehicles provide the military force with very shallow water and shallow water mine countermeasures as well as underwater object localization tools. Work will be performed in Pocasset, Massachusetts, and is expected to be completed by September 2018. Navy funding in the amount of \$862,202 will be obligated at the time of award and will expire at the end of the current fiscal year. This contract was not competitively procured in accordance with the statutory authority of 10 U.S.C. 2304(c)(1) as implemented by FAR 6.302-1, only one responsible source and no other supplies or services will satisfy agency requirements. The Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division, Indian Head, Maryland, is the contracting activity (N00174-13-D-0005).

### **Court allows Navy to build undersea training range**

A federal appeals court cleared the way for the U.S. Navy to build its Undersea Warfare Training Range off the coast of Georgia and Florida. In August 2009, the U.S. Navy announced that it would construct its Undersea Warfare Training Range near the only known calving ground for the endangered North Atlantic right whale. Right whales gather in the calving ground off southern Georgia and northern Florida each winter through spring to give birth and raise their calves. It is designated as critical habitat for the species of which only 350 to 400 individuals remain. According to the Navy, the \$100 million undersea range would be used for anti-submarine warfare training for periods up to 6 hours about 470 times a year. The simulated warfare would use submarines, surface ships and aircraft and would include the use of torpedoes and sonar. The Southern Environmental Law Center, which represents a dozen or so conservation groups, had opposed the range and filed suit against the Navy. The 11th U.S. Circuit Court of Appeals issued an opinion upholding a lower court ruling that said the Navy had appropriately studied the location as of the range to determine if it posed a risk to whales. The three-judge panel also agreed that further studies to determine whether certain activities on the range might be harmful to endangered animals could be completed later.

### **Littoral Combat Ship Coronado (LCS 4) completes acceptance trials**

Independence-variant Littoral Combat Ship Coronado (LCS 4) successfully completed Acceptance Trials (AT) in the Gulf of Mexico. This milestone achievement involved the execution of intense comprehensive tests by the Navy while underway, which demonstrated the successful operation of the ship's major systems and equipment. This is the last significant milestone before delivery of the ship.

## **Submarine Artful takes a bow during grand unveiling**



Artful — a 7,400-ton, 97-m long attack submarine — was officially named in front of thousands of guests in an event to mark the end of its build process.

The ceremony was performed by Amanda Lady Zambellas, wife of the Royal Navy's First Sea Lord, Admiral Sir George Zambellas, inside BAE Systems' giant Devonshire Dock Hall submarine construction facility.

John Hudson, managing director of BAE Systems Maritime – Submarines, said: "The design and build of a nuclear powered submarine is as challenging as it is complex, so today represents a significant milestone in Artful's program."

"With this ceremony Artful moves one step closer to joining her sister vessels HMS Astute and HMS Ambush in the Royal Navy fleet, equipping the submarine service with a class of highly capable vessels."

Following the ceremony, Artful will remain in the DDH to complete a series of commissioning activities, before being launched in early 2014 for further test and commissioning.

BAE Systems is the prime contractor for the Astute submarine program, designing and building seven nuclear-powered attack submarines for the UK Royal Navy. It is also the industry lead for the design of a replacement for the Vanguard class submarines, employing more than 5,000 skilled employees across its Maritime – Submarines' sites.

The MoD's three main contractors in the submarine enterprise are BAE Systems, Rolls Royce, and Babcock, while thousands of other small and medium size enterprises make up the supply chain. In 2012 alone, BAE Systems Maritime – Submarines spent more than £375 million with over 3,000 suppliers.

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

### **Zycraft completes Phase 1 development of Vigilant unmanned surface vessel**

Zycraft Pte. Ltd. (Zycraft) announced that it has successfully completed the Phase 1 development of the Vigilant Class independent unmanned surface vessel (IUSV). A lead vessel named the LongRunner has already completed over 24 months of in-water testing in Singapore waters and traveled a total of 2,000 nmi. During this period, the vessel also participated in several fleet battle experiments and demonstrated continuous unmanned operations exceeding 48 hrs and traveled 100 nmi into the South China Sea. The LongRunner was



remotely commanded and controlled from Zycraft's headquarters ashore using satellite communications.

The 16.5 m length IUSV has an endurance exceeding 1,200 nmi, thus allowing it to operate base to base and independent of a mother ship. Once launched from its base, the IUSV transits to the area of operations and can remain on station for extended periods, requiring infrequent refueling at sea to extend its endurance. Smaller USVs depend on a mother ship and often face difficult launch and recovery operations that hamper safe operations. With the IUSV concept, navies also do not need to build bigger ships simply to carry small USVs but instead can rely on the size of the bigger IUSV to have high endurance and carry the needed payloads. The LongRunner is built using the world's most advanced composite material called Arovex™. The carbon nanotube-infused carbon fiber material provides exceptional hull strength resulting in a lighter hull that uses less engine power to achieve the desired speed. Conversely, it allows more payload and fuel to be carried for enhanced range and operational capabilities.

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

### BMT delivers study for Royal Australian Navy

Melbourne-based BMT Design & Technology (BMT), a subsidiary of BMT Group Ltd, has completed a study for the Commonwealth of Australia to examine a range of options for the Life of Type Extension (LOTE) of a wide range of Defence Maritime Platforms. This included the entire surface fleet of the Royal Australian Navy (RAN), through to the LCM (Landing Craft Mechanised) and LARC (Lighter Amphibious Resupply Cargo) vehicles of Army Marine.

Undertaking the study in two stages over the course of 12 months, BMT developed a risk-based approach to assess the viability of LOTE for 11 classes of ship. Unlike the approach taken by others, BMT recognized the importance of ensuring the study was not limited solely to material/condition surveys and incorporated the Fundamental Inputs to Capability (FIC). This allowed the full cost of operating the fleet within the various LOTE scenarios to be identified.

As well as identifying the costing options, the study provided an understanding of any impact on achieving availability targets while satisfying safety, environmental and technical risk imperatives.

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

### Newport News Shipbuilding installs 30-ton propellers on aircraft carrier Gerald R. Ford

Huntington Ingalls Industries announced that the nuclear-powered aircraft carrier Gerald R. Ford (CVN 78) has put on significant weight in the dry dock at its Newport News Shipbuilding division with the installation of four 30-ton, 21-ft diameter bronze propellers.

"Installation of the propellers culminates more than 10 months of focused work by numerous trades in support of installing the underwater shafting," said Rolf Bartschi, NNS' vice president, CVN 78 carrier construction.

The Gerald R. Ford will be christened on 9 November 2013 at Newport News Shipbuilding. The ceremony will celebrate the beginning of a new class of aircraft carriers and the legacy of President Ford.

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



## Your work demands the right solutions.

### We have the technology.

A family of Gigabit Ethernet solutions, for 1000 Mbps data transmission over fiber, offers high reliability and long life for the marine market.

#### NEW 907-E (1 GbE, 2 video, data)

This compact all-in-one card is ideal for Tether Management Systems (TMS) and small vehicles.

#### FOCAL™

##### Fiber Optic Multiplexers

Field-proven solutions designed for subsea telemetry applications:

- ✓ 907V, 6 video channels
- ✓ 907PLUS, 2 video, data
- ✓ 907HDM2, 2 HD video, data
- ✓ Pressure tolerant multiplexers
- ✓ Daughtercards available for a wide range of signals and protocols

#### 907-GBES (4 switched ports)

For high traffic systems, four switched ports share the Gigabit link. Ideal for multi-device communication.

#### 907-GBE2 (2 isolated ports)

Providing two independent Gigabit channels with one transceiver, this card is designed for high data rates on exclusive channels. Ideal for sonar applications.

#### 907-GEM Expandable Gigabit Ethernet (GbE)

This multiplexer provides four independent and switchless 10/100/1000 Mbps Ethernet links using a single optical transceiver.



**Visit the website to browse our comprehensive  
Moog Focal™ Multiplexer Product Catalog.**

+1-902-468-2263 | [mcg@moog.com](mailto:mcg@moog.com)  
[www.moog.com/marine](http://www.moog.com/marine)

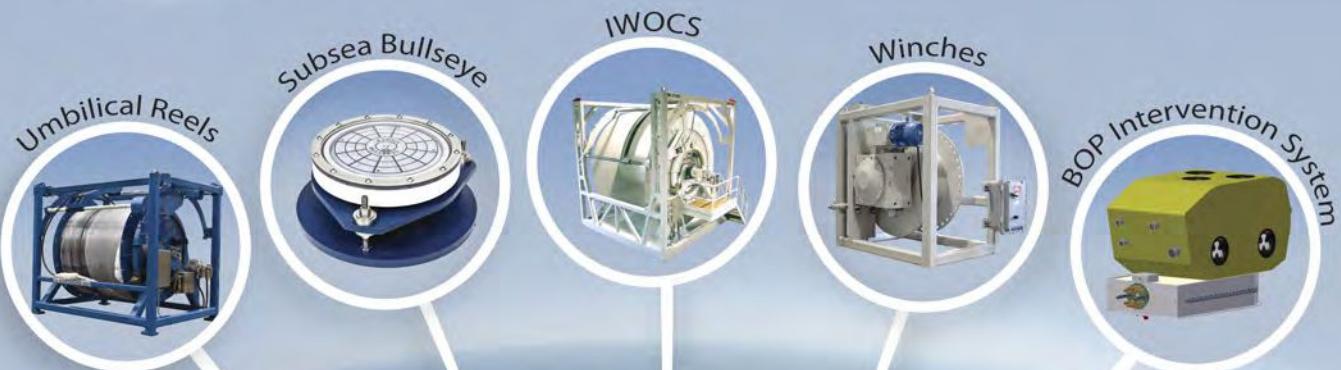
**FOCAL™**

**MOOG**  
COMPONENTS GROUP



## DESIGN TO DELIVERY

FIND MORE AT: [WWW.RADOIL.COM](http://WWW.RADOIL.COM)  
SURFACE & SUBSEA PRODUCTS



### WE SOLVE DEEPWATER PROBLEMS

Radoil, Inc. offers a combination of full manufacturing and project engineering on a wide variety of products. Our blend of experience and capability prove "fast-track performance" and "quality results" are not mutually exclusive.

### ISO 9001:2008 CERTIFIED

Radoil, Inc. | 12251 FM 529 | Houston, TX 77041 | (713)-937-4494 | [www.radoil.com](http://www.radoil.com)



Scan QR code or go to  
[vhttp://goo.gl/KocU0](http://goo.gl/KocU0)

# OFFSHORE INDUSTRY

## Declining shallow water reservoirs driving Asia Pacific into deepwater

Douglas-Westwood says Asia Pacific is emerging as a high-growth opportunity as depleting shallow water fields drive the industry into deeper waters. Deepwater currently accounts for 7% of regional offshore production, but prospects are for a rise to 17% by 2020, Douglas-Westwood reports in its 2013 Asia Pacific Deepwater Opportunities and Challenges study.

This will result in Asia Pacific accounting for 20% of the global \$223 billion in deepwater capital expenditures over the next 5 years. Spending on drilling and completion of deepwater development wells could rise from some \$400 million in 2012 to exceed \$2 billion by 2017, according to the study.

This opportunity is not without its challenges. Many believe the region's vessel fleet is not up to it, with concerns over technology that is 30 years old and station-keeping near platforms.

"It seems like this region is where the old vessels come to die," said one company executive. Technical challenges also include on-going repercussions for increased drilling equipment specifications following the U.S. Gulf of Mexico Macondo incident, the need to develop HPHT reservoirs, and ones with high CO<sub>2</sub> and H<sub>2</sub>S content.

## Approval of remaining LNG export permits can help U.S. economy

The U.S. Department of Energy's approval of the Cove Point liquefied natural gas (LNG) export facility is a sign that the agency may be moving more quickly to process the remaining 15 applications to export LNG to countries that do not have free trade agreements with the United States, said Erik Milito, director of upstream and industrial operations for the American Petroleum Institute.

"This demonstrates progress toward an enormous opportunity for the administration to bolster job creation and economic growth," Milito said, explaining that the shale gas revolution has fundamentally changed the energy equation, positioning the United States as an energy superpower that can provide ample, affordable supplies to the domestic and international markets and in a way that has helped reduce carbon dioxide emissions to near 20-year lows.



*The LNG tanker Arctic Princess*

Milito said timely approval of LNG export authorizations could create tens of thousands of domestic jobs while having only minimal impacts on domestic U.S. natural gas prices, according to a recent report by ICF International.

The report also concludes that LNG exports would spur strong growth in U.S. GDP but that U.S. companies would face considerable competition for LNG sales abroad, with at least 63 international LNG export projects currently planned or under construction.

## China to invest 80 billion yuan in oil and gas exploration this year

China will invest 80 billion yuan (\$13.07 billion) in oil and gas exploration in 2013, state media reported recently, as it tries to boost energy supplies and reduce its dependence on energy imports.

Oil and gas investment in China rose from 19 billion yuan in 2002 to 67.3 billion yuan in 2011, the official Xinhua news agency said, citing Ministry of Land and Resources figures. More than 5 billion tons of petroleum reserves and 2.6 tcm of natural gas were discovered between 2008 to 2011, Xinhua said.

China, the world's biggest energy consuming country, has promised to cut its growing dependence on overseas oil and gas supplies. Still, some analysts expect China to overtake the United States as the world's biggest crude oil importer as soon as 2017. Much of it comes from the Middle East and Africa and is transported via vulnerable sea lanes.

Gas imports are important to China because domestic production is not sufficient to meet growing demand. Imported gas is delivered via pipeline from Central Asia and by ship from countries such as Australia, Indonesia, and Qatar. China bought 42.5 bcm of gas from overseas last year. That was up more than 30% compared with 2011 and a nearly 10-fold increase from 2007.

## in this section

Offshore Industry Headlines	35
Upstream Oil & Gas	38
Underwater Intervention	52
Maritime Communications	56
Subsea Cables	60

### Industry top investor in lowering greenhouse gas emissions: study

Oil and natural gas companies are America's top investors in zero and low-greenhouse gas (GHG) emission technologies, according to a new study released by the American Petroleum Institute (API).

"America's oil and natural gas companies have invested more to reduce GHG emissions than the Federal government and almost as much as all other industries combined," said Kyle Isakower, API's vice president for policy and economic analysis.

The study by T2 and Associates examined investments in GHG mitigation technologies from 2000 through 2012. During that period, the U.S. oil and natural gas industry directly invested about \$81 billion in GHG mitigation technologies. Other U.S. industries invested an estimated \$91.2 billion, and the Federal government invested an estimated \$79.7 billion.

Oil and natural gas industry expenditures on GHG mitigation more than double to \$165.4 billion when the total includes shale investments, which have unlocked an abundance of affordable natural gas, allowing America to supplant more carbon-intensive fuels.

"It is our hope that the Federal government will seize upon the demonstrated, positive economic, and environmental protection and energy security opportunities provided by the oil and natural gas industry and enact common sense regulations that encourage energy development or at a minimum don't hinder it," said Jack Gerard, API's president and chief executive officer.

During the study period, the oil and natural gas industry was responsible for about \$11.4 billion, or one out of every six dollars, invested in non-hydrocarbon resources, including wind, solar, geothermal, and biomass technologies.

The industry also has adopted methods to reuse excess heat from refineries and permanently sequester CO<sub>2</sub>, according to the study.



*Jack Gerard*

# OFFSHORE INDUSTRY HEADLINES

Research & Development • Environmental Assessment • Discovery

## Without reforms, Mexico likely to become net oil importer: study

Without reform and a resulting uptick in foreign investment, Mexico is set to switch from being one of the largest oil exporters in the world to a net importer by the latter part of its 10-year forecast period, according to Business Monitor's recent Mexico Oil & Gas Report. Business Monitor provides analysis and forecasts on global emerging markets.

The firm's bearish view of Mexican oil production is reinforced by several interconnected fundamentals, including state-owned Pemex's relative inexperience in deepwater drilling as well as high tax and debt burdens. Also, the current inability for the company to work with foreign partners also prevents it from spreading capital risk, while also not being able to capitalize on foreign expertise and technology.

The report forecasts a steady decline in both Mexican proven oil reserves and production over the next decade, on top of several years of declining production, combined with the recognition that it will take a significant amount of time for any new production to come online.

Furthermore, the country's most productive fields, especially Cantarell, are maturing at a rapid rate, resulting in a steady trend of reserve depletion. Business Monitor forecasts 2013 oil production of 2.94 million bbl/d, falling to 2.82 million bbl/d in 2017. Production will end the forecast period in 2022 at 2.59 million bbl/d.

The report says that while Mexico's ruling Partido Revolucionario Institucional has recently introduced a proposal to remove long-standing limits on private sector involvement in upstream activity — considered a key first step — Business Monitor believes that whether there is substantial interest from the major international oil companies will be largely determined by the wording of secondary legislation and specific contractual details.

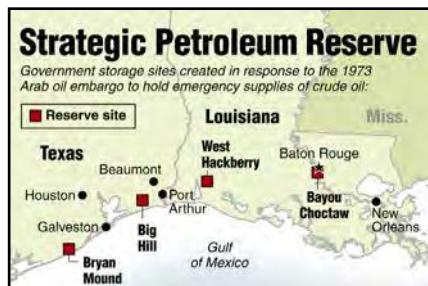
## Fluor lands contract to manage U.S. Strategic Petroleum Reserve

Fluor Federal Petroleum Operations, LLC has won a U.S. Department of Energy (DOE) contract for the management and operation of the Strategic Petroleum Reserve (SPR). The contract has a base term of 5 years with an option to extend the contract term for an additional 5 years, for a total contract period of 10 years.

The value for the base contract period is about \$697 million. The Fluor Corp.-led FFPO also includes MRIGlobal, Booz Allen Hamilton, and APOM as

integrated subcontractors.

"We have a strong legacy supporting our country's national security objectives and welcome the opportunity to further our expertise at the SPR," said Bruce Stanski, president of Fluor's Government Group. "Our history as a prime contractor committed to our DOE customer, underpinned by our 100-year legacy in the oil and gas



industry, makes us well suited to enhance the critical mission of securing and maintaining our nation's energy reserves."

The SPR is the world's largest supply of emergency crude oil. The Federally-owned oil stocks are stored in underground salt caverns in Louisiana and Texas. Decisions to withdraw crude oil from the SPR are made by the U.S. president. In the event of an energy emergency, SPR oil would be distributed by competitive sale. The SPR has been used under these circumstances only three times, most recently in June 2011 when President Obama directed a sale of 30 million bbl of crude oil to offset disruptions in supply due to Middle East unrest.

## Brazil judge dismisses civil lawsuit against Chevron and Transocean

A Federal judge in Brazil has dismissed a civil lawsuit against Chevron Corp. and driller Transocean Ltd. filed in connection with a 2011 oil spill off the coast of Rio de Janeiro. A court official said Judge Raffaele Felice Pirro decided to dismiss the case last month after Chevron agreed to pay the equivalent of about \$150 million in "compensatory activities."

Federal prosecutors had been seeking about \$20 billion in damages for an estimated 110,000 gallons of crude that seeped into the ocean near the Chevron well in November 2011. The leaks resumed several months later, and the company's production in the Frade field was suspended. The field had been producing around 62,000 bbl/d.

In August 2012, Chevron said it underestimated the pressure in an underwater reservoir, causing crude to rush up a bore hole and eventually escape into the surrounding seabed. Judge Pirro said in his ruling that Transocean had no responsibility regarding the spill.

## Skills shortage in oil, gas sector 'pushing wages up': survey

A survey of more than 2,200 oil and gas companies has revealed that the average wage in the industry will rise 15% this year from £64,000 to £73,600 due to a severe shortage in qualified staff. The survey, undertaken by Oilandgaspeople.com, a popular recruitment website, especially among UK job seekers, found that 70% of oil and gas companies were worried that wages were rising too fast.

The survey of oil and gas companies found they blamed different reasons for the skills shortage, with 35% suggesting it has been caused by too little investment in apprenticeships due to an assumption that North Sea oil was in decline. About 37% suggested that industry did not expect the success of new technology to pump low-grade oil, so recent growth and investment was unexpected, while 46% suggested the skills shortage in the UK had been caused by growing demand for UK staff to work abroad.

"Our survey shows that with increased investment in North Sea oil, demand for qualified staff is set to reach an all-time high, which will exacerbate an already serious skills shortage, a problem that is being further exacerbated as UK candidates head abroad to earn even higher wages with a huge demand for qualified expats globally," said Kevin Forbes, chief executive officer of Oilandgaspeople.com.

"Terms and conditions are increasing at the same time as UK oil and gas companies try to compete for a dwindling number of skilled staff. The companies are right to pinpoint the dual impact of historic lack of training and pressure from well-paid jobs abroad."

He said that with the record investment in North Sea oil in the last few months, this pressure on wages and skilled staff does not look likely to end any time soon. There is a solution. The government needs to step in and incentivize companies to invest more in people urgently.

"So many people want to get into the industry but there is very little out there in the way of guidance in how to go about that. A lot more needs to be done, and now is the time for the industry and government to take action," he said.

Oilandgaspeople.com matches up to 4,000 companies with the most relevant candidates. Founded in Aberdeen in 2009, the website matches potential candidates with vacancies in the international oil and gas sector. It has one of the largest social media presences online with LinkedIn groups with over 800,000 members, the firm claims.

## Feds to release rules for offshore emergency equipment this year

The top U.S. offshore drilling regulator said he hopes to unveil new requirements for blowout preventers by the end of this year, nearly 4 years after the Deepwater Horizon disaster revealed vulnerabilities in the emergency devices.

The hulking devices sit atop wells and can be activated in an emergency to cut drill pipe and block the hole, trapping oil and gas inside. But a forensic investigation of the blowout preventer used at BP's failed Macondo well concluded that a powerful rush of oil and gas caused the drill pipe to buckle and shift, ultimately preventing powerful shearing rams on the device from cutting the pipe and sealing the hole. In response, the nation's three main blowout preventer manufacturers are developing and selling newly robust shearing rams and other designs to slash through thick pipe connections and debris. A new Federal rule would give those voluntary changes the force of law.

The Bureau of Safety and Environmental Enforcement (BSEE) aims to issue those proposed requirements by the end of 2013, said agency director Brian Salerno.

"Blowout preventers are an integral part of the safety systems on drilling rigs," Salerno said in a letter to Rep. Pete Olson, R-Texas, and other lawmakers. BSEE "is working to continue to advance blowout preventer improvements."

In July, the lawmakers told the Safety Bureau they were concerned that regulators were "failing to provide clarity for rig operators" while preparing potentially "sweeping new rules" for blowout preventers.

Regulators at the Safety Bureau are likely to lay out specific performance standards for the devices, such as a mandate that they be capable of cutting through casing and drill pipe and effectively sealing a well.

## BP applying new drilling technology in post-Macondo world: Platts radio

BP is using the lessons learned from the Macondo disaster to apply new technology as it looks to drill in more challenging environments around the globe, the group's head of technology said on 6 October on Platts Energy Week, an all-energy news and talk show program.

"We've learned a lot. I think the industry has learned a lot from that," BP official David Eyton said of the 2010 Macondo blowout in the Gulf of Mexico. "We've tried to share much of what we've learned with people as we go."

The blowout of the BP-operated well and the resulting explosion on

## Decommissioning starts on Norway's oldest producer

ConocoPhillips Norge has shut down Ekofisk 2/4A, the longest-serving oil production platform offshore Norway. It began producing from the Ekofisk field in the southern Norwegian North Sea in spring 1974.

The platform produced a total of 872 mmboe, and 70,000 bbl/d at peak. The last well to be shut in, A-20, contributed more than 87 mmbbl.

Ekofisk 2/4A's steel jacket was built in France. To speed development, construction of the field's first platforms was spread across multiple locations and countries.

Until 1996, the platform had a crew of around 35 people, but it has since been remotely monitored, initially from the control room on the Ekofisk 2/4 K platform, and more recently from ConocoPhillips' onshore operations center in Tananger. An eight-strong maintenance team has visited 2/4A

daily. Now that production has stopped, preparations for pugging and abandoning 23 wells have started. The jack-up Rowan Gorilla 6 will start this program early next year and the work is expected to be completed in 2016.

Elsewhere on the Ekofisk field, the new Z17 well has been drilled and is ready to start producing from the same reservoir zone as 2/4 A when the newly installed platform Ekofisk 2/4 Z enters service toward end-2013. This facility will have 35 production wells.



*Ekofisk field complex in the Norwegian North Sea*

Transocean's Deepwater Horizon rig killed 11 workers and caused the largest marine oil spill in U.S. history — some 4.2 million barrels of oil, according to claims made by the U.S. government.

New technology and processes are at the forefront of that effort, Eyton said, including a diagnostic system that keeps tabs on critical equipment.

"We want to know at all times that any safety-critical pieces of equipment are ready to go to work, especially if it's one of your fallbacks when things go wrong," he said. "So (with) the so-called blowout preventers which were one of the things that people have talked about a lot, we need to know that its vital signs are always healthy at any point in time and so we've developed a new diagnostic system that gives a readout on that all the time when we're drilling."

The company has also developed something called "BP Well Advisor," which integrates in real-time the many pieces of data being collected by the various groups working on a rig.

"Until now, we haven't managed to pull it together in such a way we can instantly make decisions to improve the safety and reliability of that operation," Eyton said.

But has the new technology made

drilling operations safer?

"I'm very confident indeed that these will make things safer and more reliable," he said. "It's impossible to give anyone cast-iron guarantees about anything, but I'm very confident that these are making operations safer and they are based upon the lessons learned from the Macondo incident."

The post-Macondo technology is being employed by BP as it looks to take on more challenging environments, Eyton said, including drilling deeper than before.

"It takes a heavier and stronger drilling system to go deeper...and you are covering higher temperatures and pressures as you go deeper," he said. "You're looking at well over 30,000 to 35,000 ft down in the ground, and it's pretty hot and high pressure down there."

And while BP does not have any operated developments in the offshore Arctic, it is involved as a joint venture partner in the environmentally sensitive region.

"Drilling in the offshore Arctic is comparatively new for everyone...the big challenges, in doing that have to do with ice, frankly," Eyton said. "These are new challenges and we participate in a number of joint industry projects to make sure we carry on pushing ahead the safety standards."

**DeepOcean wins services contract from Petrobras**

DeepOcean, part of the DeepOcean Group, together with its Brazilian partner Companhia Brasileira de Offshore (CBO), has received a 2-year contract from Petróleo Brasileiro (Petrobras) E&P Services. The contract, with 2-year options, includes sub-sea inspection, maintenance, and repair (IMR) work on Petrobras' subsea installations in Brazilian waters. DeepOcean will use a multi-purpose offshore subsea support vessel, MV CBO Isabella, for the contract. The vessel will be equipped with 1 WROV and 1 OBSROV, as well as various subsea tooling. DeepOcean's Brazilian organization will manage the work, which will be executed by a team of ROV operators, survey personnel, and offshore management.

**Sigur Ros awards pipelay contract to Jumbo for anchors**

Malaysian pipelay contractor Sigur Ros has awarded a contract to shipping and offshore transportation and installation contractor Jumbo for the installation of 126 gravity anchors in deepwater. Under the contract, Jumbo will oversee transportation and installation of the anchor spreads with the HLV Fairplayer, in water depths up to 1,400 m, starting from the fourth quarter of 2013 to the first quarter of 2014. Jumbo will also carry out project management and engineering, besides undertaking the collection of the materials in the port of Mersin Tasucu Seka in Turkey, along with transportation to the offshore location and installation. Using the vessel's 900-ton mast cranes, the materials will be loaded by the company on board. The anchor spreads will comprise of a 230-ton gravity anchor, tether wire, and subsea buoy and will be used to moor a pipeline with a 1,600 mm diameter, which runs 80 km from Turkey to northern Cyprus.

**Technip contracts ArcelorMittal for oil, gas development**

French project management, engineering, and construction company Technip has awarded a \$272 million contract to ArcelorMittal for the development of oil and gas offshore fields. Under the 5-year contract, the steel and mining company ArcelorMittal will supply high-performance steel wires to the French company. Technip's contract is expected to bolster ArcelorMittal's wire activities in Bourg-en-Bresse, which will see an increase in its production to support the offshore exploitation market. Technip Subsea executive vice president and chief operating officer Frédéric Delormel said the technological excellence of the projects that the company develops is one of its strategic priorities. "Our know-how and solutions are a competitive advantage for our oil and gas clients," Delormel said. ArcelorMittal's site in Bourg-en-Bresse, in the Rhônes-Alpes region of France, is part of its distribution solutions division and will supply Technip's manufacturing plants in France, Brazil, and Malaysia. The site will fabricate semi-manufactured rolled products, which will be used on flexible sheaths for the development of deeper oil and gas fields worldwide. As part of the agreement, new wire solutions will be developed to meet Technip's needs.

**Subsea 7 awarded contract for Cardona field in U.S. Gulf**

Subsea 7 S.A. announced a contract award by Stone Energy valued in excess of \$70 million for the development of the Cardona field in the U.S. Gulf of Mexico. The contract scope includes engineering, procurement, installation, and commissioning of flowlines, risers, pipeline structures, and a gas lift umbilical. Project management and engineering work was to commence immediately at Subsea 7's offices in Houston, Texas. Offshore operations are to commence in the third quarter 2014, with stacking of the risers and flowlines and welding being performed at Subsea 7's Port Isabel spoolbase.

**Group achieves first oil from giant Kashagan field**

*Kashagan oil field in Kazakh sector of the Caspian Sea*

The North Caspian Operating Co., led by Italian oil company Eni, reported that production has begun from Kashagan, the largest oil field to be discovered in the past 35 years. Since the field's discovery in June 2000, the consortium, including its four original members — Eni, Shell, Total, and ExxonMobil — has invested nearly \$50 billion in the project in attempts to overcome technical, political, and geographical challenges, making Kashagan not only the largest oilfield outside the Middle East, but also one of the world's most expensive. The field is located in the Kazakh sector of the Caspian Sea.

The recent start of the first of the 21 production wells included in the first phase of production comes 8 years later than originally anticipated. The start was in advance of an October 2013 deadline set in the terms of the consortium's production sharing agreement (PSA). Had this deadline not been met, the consortium would have had to forfeit compensation for expenditures. Eni forecasts output from the initial development to reach 200,000 bbl/d by the end of 2013 and then rise to the full phase-one target of 370,000 bbl/d in 2014.

Kashagan is considered to be an extremely complex project. Challenges to production include the field's great depth of 15,000 ft below the seabed, reservoir pressure exceeding 10,000 lb/sq. in. with lethal levels of hydrogen sulfide, and cold temperatures that make it unsuitable for typical fixed or floating drilling platform designs. Many of the participants have developed expertise in managing projects in remote cold areas, but few have managed projects with so many technical challenges.

Kashagan has an estimated 13 Bbbl offshore proved oil reserves and is roughly equivalent to Brazil's entire proved oil reserves, both onshore and offshore. A possible second phase would boost production to 1.5 million bbl/d. However, the partners will need to determine if they will be able to recoup their expenses and reach an acceptable level of profitability before the project's PSA terminates in 2041.

Because Kashagan is located in the northern section of the landlocked Caspian Sea, bringing oil from the field to market also presents significant logistical hurdles. Pipelines likely would bring the oil to the Russian port of Novorossiysk on the Black Sea.

NCOC acts on behalf of seven co-venture consortium partners as operator, appraising and developing the hydrocarbon assets of 11 offshore blocks under the North Caspian PSA. Their equity interests are KazMunayGas 16.81%, Eni 16.81%, ExxonMobil 16.81%, Shell 16.81%, Total 16.81%, ConocoPhillips 8.40%, and INPEX 7.56%.

## Noble Energy discovers oil at Gulf of Mexico Troubadour prospect

Noble Energy has discovered oil at the Troubadour prospect in deepwater Gulf of Mexico. The well, which is in 7,273 ft of water, on Mississippi Canyon Block 699, was drilled to a total depth of 19,510 ft. Troubadour is located in the company's Big Bend-Troubadour "Rio Grande" area.

Approximately 50 ft of net natural gas pay has been identified by reservoir and fluid measurement logs in a high-quality Miocene reservoir, the company said.

Noble Energy senior vice president, Gulf of Mexico, West Africa, and Frontier Ventures, Susan Cunningham, said the discovery follows on the company's previous exploration success at Big Bend, combining to provide another development opportunity for its Gulf of Mexico business.

"Results from the well have provided critical new information that indicates a greater than previously predicted oil recovery in the Rio Grande complex," Cunningham added.

Discovered gross resources in the area are expected to be between 50 to 100 million boe, 75% of which represent oil volumes, the company said.



The company, which plans to move forward its development planning as sub-sea tiebacks to an existing host facility, will target initial project sanction by the end of 2013, while first production is planned towards the end of 2015.

For future development, the company will temporarily abandon the Troubadour discovery and, upon completion of operations, will move the drilling rig to the Dantzler prospect on Mississippi Canyon 738/782.

Noble Energy operates Big Bend with a 54% participating interest and Troubadour with a 60%, with other interest owners including Red Willow Offshore with 15.4%, Houston Energy Deepwater Ventures V with 10.6%, and W&T Energy VI with 20%. W&T Energy VI and Deep Gulf Energy II participate in Troubadour with 20% each.

## Feds won't lift threat to ban Black Elk Energy in wake of fatal accident

Black Elk Energy needs to make more safety improvements before regulators will lift a year-old threat to ban it from Federal waters, following a fatal platform fire last year.

The Houston company must "demonstrate further improvement in reducing" offshore violations, the Bureau of Safety and Environmental Enforcement (BSEE) said in a letter to John Hoffman, Black Elk's chief executive officer.

Federal investigators were still probing what caused an explosion and fire last November at Black Elk Energy's West Delta 32 production platform in the Gulf of Mexico. Three people died and two others were injured in the accident.

A third-party investigation financed by Black Elk and conducted by ABSG Consulting linked the incident back to a pipe welding operation conducted by contractors and subcontractors on the facility. According to the probe, an open pipe was not cleared of flammable vapors before the workers began welding a flange, ultimately triggering an explosion in connected oil tanks. Since the accident, the company is reportedly racking up fewer violations per offshore inspection.

November 2013

39

Ocean News & Technology

Supplying quality grocery  
and janitorial products to the  
Gulf of Mexico since 1964.



CUSTOMER LOYALTY & SERVICE  
IS STILL OUR TRADEMARK  
AFTER NEARLY A  
HALF-CENTURY IN BUSINESS!



LAND & MARINE  
FOOD DISTRIBUTORS INC



*The Maersk Discoverer*

### BP scores with first deepwater well in concession offshore Egypt

BP Egypt has discovered gas in the Salamat structure in the East Nile Delta offshore Egypt. The semi-submersible Maersk Discoverer drilled the well, the first in the North Damietta offshore concession awarded outright to BP in February 2010. The water depth of 2,129 ft was deepest to date in the Nile Delta region, the company said.

Total drilling depth was close to 22,966 ft. Wireline logs, fluid samples, and pressure data confirmed gas and condensate in 124 ft net of Oligocene sands. Further appraisal will be needed to define the resources and evaluate development options, the company said.

"Success with Salamat proves hydrocarbons in the center of a 31-mi long structure," said Mike Daly, executive vice president of exploration at BP. "With a hydrocarbon column in excess of 591 ft, the discovery increases our confidence in the materiality of the deep Oligocene play in the East Nile Delta."

Hesham Mekawi, BP Egypt regional president, added: "Standalone and tieback to the nearby Temsah infrastructure development options are currently being evaluated."

The well was drilled around 46.6 mi north of Damietta city and 21.7 mi northwest of the Temsah offshore facilities.

### Statoil strikes oil northeast of Norne field in Norwegian Sea

Statoil has together with partners in PL128 made an oil discovery in the Svale North prospect in the Norwegian Sea, about 9 km northeast of the Norne field. Exploration well 6608/10-15, drilled by the Songa Trym drilling rig, has proven a 45-m oil column in the Åre formation and a 45-m oil column in the Melke formation. The reservoir properties were as expected in both targets. The preliminary

estimated volume of the discovery is in the range of 6 to 19 mmbbl of recoverable oil. The discovery could lead to a further extension of the Norne field production life, the company said. Exploration well 6608/10-15 is situated in PL128 in the Norwegian Sea. Statoil is operator with an interest of 63.95455%. The partners are Petoro AS (24.54546%) and Eni Norge AS (11.5%).

### Noble Energy to drill deepwater well offshore Israel on SW Tamar

Noble Energy Mediterranean and its partners have agreed to drill an exploration well on the South West Tamar prospect offshore Israel. The structure is in the Tamar I/12 lease and Eran/353 license in the Levantine basin. A report by consultants Netherland Sewell and Associates estimates potential gas resources at 684 bcf, with a 90% probability of success.

According to Delek Group, parent company of two of the license partners, the budgeted cost of the well is \$122 million, excluding production tests.

Drilling is expected to start soon after drilling and production testing of the Aphrodite A-2 well offshore Cyprus and will last around 4 months. Planned water depth for the Tamar SW well is around 5,513 ft, with a total drilling depth of 17,388 ft below sea level.



*The drillship Deepsea Metro I*

### Solid results from BG-Ophir's deepwater well offshore Tanzania

The drillship Deepsea Metro I has completed BG-Ophir's latest appraisal well offshore Tanzania. Pweza-2 was drilled 1.2 mi south of the Pweza-1 gas discovery well in Block 4.

The downdip location was chosen to improve understanding of the distribution and quality of the reservoir sands across the field. The well intersected 65.6 ft of net pay and confirmed pressure communication with Pweza-1. Ophir now assesses recoverable resources for Pweza at 1.7 tcf.

The drillship has moved 3.1 mi to the west to spud the Pweza-3 well, which is scheduled to include a drillstem test. The partners aim to confirm reservoir deliver-

ability from the cluster of Block 4 discoveries that will provide a second hub for an LNG development onshore Tanzania.

### Ministry invites bids for 18 oil and gas blocks in Indonesia

Indonesia's Ministry of Energy and Resources has invited international companies to bid for onshore and offshore oil and gas working areas, which are located mostly in the eastern part of the country. The government will offer 18 oil and natural gas areas of work in the first bidding round of 2013.

The working areas that are offered through a regular tender include the Block of East Seringapatam, offshore of East Nusa Tenggara, and Eternal East block, offshore of Maluku.

Working areas offered through a direct offer include the New Palmerah block, onshore South Sumatra and Jambi; Milky block, offshore Central Java and East Java; North Madura II block, offshore East Java; North East Madura VI block, offshore East Java; Anugerah block, offshore East Java; and Bontang East block, East Kalimantan.

Other areas include Block of North Adang, Makassar Strait offshore; I block of South Sulawesi, West Sulawesi and South offshore; South Sulawesi II block, offshore South Sulawesi; I block of South East Sulawesi, Southeast Sulawesi and Central offshore; II block of South East Sulawesi, Southeast Sulawesi offshore; and West Abadi block, offshore Maluku.

The Ministry said bid documents for the regular tenders are available through 27 January 2014 and must be submitted by 27 January 2014.

### Gas find confirms new deepwater presalt play offshore Gabon

Total has discovered gas-condensate with its first deepwater presalt well offshore Gabon. According to partner Marathon Oil, the Diaman-1B exploration well encountered 160 to 180 net ft of hydrocarbon pay. Early analysis suggests natural gas with condensate content.

The well was drilled to a total depth of 18,323 ft in around 5,673 ft of water in the Diaba license G4-223. It confirms the existence of a working petroleum system and is the first discovery in the deepwater portion of the presalt play.

The location is more than 60 mi from the nearest other presalt commercial discovery. Evaluation of the well results continues. The well will be temporarily abandoned pending further analysis of the data. Other partners are Cobalt International Energy and Gabonese Republic.

## Partners make significant discovery offshore Canada

Statoil Canada and co-venturer Husky Energy said their first Bay du Nord exploration well has discovered between 300 and 600 mmbbl of recoverable oil.

The Bay du Nord discovery, located about 500 km northeast of St. John's, Newfoundland and Labrador, Canada, was announced in August. A sidetrack well was completed and confirmed a high impact discovery. Additional prospective resources have been identified that require further delineation.

The Bay du Nord discovery is Statoil's third discovery in the Flemish Pass Basin. The Mizzen discovery is estimated to hold a total of 100 to 200 mmbbl of recoverable oil. The Harpoon discovery, announced in June, is still under evaluation and volumes cannot be confirmed at this stage.

All three discoveries are in approximately 1,100 m of water. Mizzen was drilled by the semi-submersible rig Henry Goodrich in 2009. The Bay du Nord and Harpoon wells were drilled by the semi-submersible rig West Aquarius in 2013. Statoil is the operator of Mizzen, Harpoon, and Bay du Nord with a 65% interest. Husky Energy has a 35% interest.

## Venezuela, Trinidad agree to offshore Chevron gas deal

Venezuela and Trinidad and Tobago said that Venezuela's state oil company PDVSA will work with U.S. company Chevron to develop an offshore natural gas field, one of three that span the Caribbean countries' maritime border.

The deal follows 6 years of binational talks about how to share the reserves fairly. Venezuela wants to develop its neglected natural gas fields, in part to feed demand for electricity that is straining its hydropower production network.

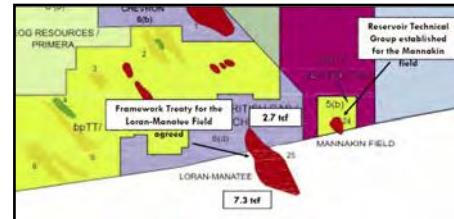
The PDVSA-Chevron joint venture will explore the largest

of the shared fields, the Loran-Manatee block, Venezuela's Energy Minister Rafael Ramirez said at a signing ceremony.

The Loran-Manatee field has proven reserves of just over 10 tcf. Under the agreement, 73.75% belongs to Venezuela and the rest to Trinidad and Tobago.

Venezuela was allocated 64% of the second-largest block, Cucuina Manakin, which has 0.74 tcf of reserves, Ramirez said, while Trinidad and Tobago has 84% of the third, the 0.31 tcf Dorado-Kapot field.

The minister did not specify when the joint venture would start work. There was no immediate response from Chevron to a request for comment. Chevron currently participates in six onshore and offshore production projects in the country, in partnership with PDVSA. Under the agreement, PDVSA will build a gas pipeline of about 170 mi from the Loran-Manatee block to the Paria Peninsula on the Venezuelan coast. That area is the focus of a high-profile but long delayed Venezuelan offshore natural gas project called Mariscal Sucre, where reserves are estimated at 14.7 tcf. Venezuela's gas projects have languished for years, stalled by low domestic market prices and industry fears of expropriations by the government of the late socialist leader Hugo Chavez that left PDVSA struggling to attract partners. Chavez nationalized almost all the OPEC nation's oil industry during his 14-year rule. Before his death from cancer earlier this year, he said his government hoped to certify as much as 400 tcf in natural gas reserves, up from 195 tcf now.



November 2013

41

Ocean News & Technology

## Are bulky subsea hydraulic rack-n-pinion or scotch yoke rotary valve actuators creating space and weight problems for you?

ITT Turn-Act subsea hydraulic rotary vane valve actuators are *the answer!*

- Reliable remote actuation of popular 10,000 psi subsea quarter-turn 3/8", 1/2" and 1" ball valves
- 316 stainless steel shaft, body and fasteners or hard-anodized aluminum with 316 stainless steel shaft and fasteners
- Special seal materials for reliable operation with most hydraulic oils and water-glycol mixes
- Sizes available to deliver torque output from 875 to 10,400 in-lbs. (99 to 1175 Nm) with up to 500 psi (34.5 bar) inlet pressure
- Subsea position sensors, valve mounting brackets and stem coupling kits can be added upon request
- Double-acting and spring return versions available
- ROV torque-tool override option
- Reliable duty cycles in the millions!

Come Visit Us!  
SubSea Survey 2013  
November 11th - 13th,  
Galveston, TX • USA  
Booth #206

Proven Results  
to 12,000 feet

73 ft-lbs of torque  
in a coffee cup !!



Compact Automation Products  
105 Commerce Way  
Westminster, SC 29693  
Tel.: 864.647.9521  
Fax: 864.647.9574  
Email: CAP\_CustomerService@itt.com  
www.ittoilgas.com



**ITT**

ENGINEERED FOR LIFE



### Newbuild drillship Pacific Khamsin set to embark on 2-year contract

Pacific Drilling S.A. said it has taken delivery of its newest drillship, the Pacific Khamsin. The drillship was to begin mobilizing in September to Nigeria, where it was to commence a 2-year drilling contract. Pacific Khamsin, which features some of the most advanced drilling technology in the offshore drilling industry, including dual-load path capability and dual-drilling fluid systems, is capable of operating in water depths of up to 12,000 ft and drilling wells up to 40,000 ft deep.

### Bourbon launches 10-year vessel charter with Chinese company

Bourbon has started a 10-year bareboat charter for nine of its offshore support vessels. This follows transfer of ownership of the vessels to Chinese company ICBC Financial Leasing as part of a 51-vessel sale and bareboat commitment and payment of \$144 million.

An additional 15 vessels in operation will be transferred under a similar arrangement within 2 months, with 27 more vessels under construction to follow within 10 months.

Last April, Bourbon signed the terms for the first phase of its "transforming for beyond" action plan with ICBCL. This involved a 10-year fixed rate (10.66%) bareboat charter of up to 51 supply vessels either in operation (24 on that date) or under construction (27 with delivery expected before June 2014), for a total of up to \$1.5 billion.

### Jurong Shipyard wins \$346M rig contract from Helix Energy

Jurong Shipyard, a subsidiary of Singapore's Sembcorp Marine, has won a \$346 million contract from Helix Energy Solutions Group to build a second semi-submersible well intervention rig.

According to the global marine and offshore engineering group Sembcorp, the rig, named Q7000, will be built based on a design developed by its research & development subsidiary Sembcorp

Marine Technology (SMTP) and Helix.

The purpose-designed rig can perform a range of tasks, including conventional and extended top hole drilling, subsea construction, decommissioning well intervention, coiled tubing operations, and twin ROV deployment.

The Dynamic Positioning (DP) class three unit has the ability to operate in deepwater operations globally, including the North Sea and west of Africa.

The semi-submersible light well intervention rig is scheduled for delivery in mid-2016. Helix Energy Solutions announced the deal in July 2013, after ordering another semi-submersible rig at the yard in March 2012.

### Keppel Shipyard secures FPSO conversion contracts worth \$152M

Keppel Shipyard has won two contracts worth \$152 million from SBM Offshore and M3energy Offshore for the conversion of floating production storage and offloading (FPSO) vessels.

The Singapore-based company, which is a subsidiary of Keppel Offshore & Marine, has secured a contract from SBM Offshore for the conversion of an FPSO vessel that will host the Stones ultra-deepwater development by Shell in the Gulf of Mexico.

Under the contract, Keppel Shipyard will be expected to carry out refurbishment and life extension works, upgrade living quarters, fabricate and install the internal disconnected buoy BTM system and topside module supports, and install and integrate topside modules.

The FPSO design is said to have a processing facility capacity of 60,000 bbl/d and 15 mmscf/d of gas treatment and export. According to Keppel, the converted FPSO will have the capacity to store 800,000 bbl of crude oil, while its topsides will weigh 7,000 tons.

Keppel Shipyard has also won a contract from M3energy Offshore to convert an FPSO for deployment on the Bukit Tua Field. As part of the contract, the shipyard will undertake refurbishment and life extension works, fabrication, and installation of new structures, piping systems, spread-mooring system, and upgrading of the living quarters. Keppel will also install and integrate the topsides process modules.

Set for completion in the second quarter of 2014, the FPSO has been chartered by PC Ketapang II for its operations in the Bukit Tua field, offshore of Indonesia. The conversion contract for the field was awarded to the consortium PT Trasamudra Usaha Sejahtera — M3energy Offshore. It has a storage capacity of up to 630,000 bbl.

### Ulstein Verft delivers platform supply vessel Blue Protector

Ulstein Verft has delivered the platform supply vessel (PSV) Blue Protector. The vessel, which is owned by Blue Ship Invest and managed by Atlantic Offshore, will head to the North Sea spot market.

Blue Protector is the last of six new-builds of the PX121 design. Atlantic manages two others. All have been adapted for work in the Norwegian sector with features that include more power in order to maintain position at rig in bad weather and reduced nitrogen oxide



*Platform supply vessel Blue Protector*

(NOx) for the exhaust emissions. In addition, all the vessels have light ice class (ICE-C) notation, making them suitable for service further north.

Blue Protector is 274 ft long with a beam of 59 ft, IMO Class II dynamic positioning, and a maximum speed of around 16 kts. The vessel's load capacity is 4,519 tons and the 9,149 sq. ft cargo deck can carry a deck load of 2,425 tons. There is accommodation for 23 people. In addition to tanks for oil, water, and drilling fluids, the vessel has four stainless steel tanks for flammable liquids.

### Maersk Drilling orders jack-up rig from Korea's Daewoo Shipbuilding

Maersk Drilling has ordered a new ultra-harsh environment jack-up drilling rig, XL Enhanced 4. This will be built at the Daewoo Shipbuilding and Marine Engineering (DSME) shipyard in South Korea and delivered in mid-2016.

The total cost is \$650 million, including a turnkey contract with the yard, owner, furnished equipment, and project management. DSME has options to deliver up to two more rigs in 2016 to 2017.

Maersk needs the newbuild to handle a 5-year contract from BP Norway for P&A work on the Valhall field in the Norwegian North Sea, valued at \$812 million, including mobilization from South Korea. BP has options to extend the contract up to a total of 10 years.

The rig will be designed to be powered by electricity sent directly from the Norwegian mainland to the Valhall complex. Maersk Drilling now has two rigs contracted to BP in Norway.

## SBM delivers FPSO OSX-2 for work offshore Brazil

SBM Offshore N.V., The Netherlands-based floating solutions provider, has delivered the FPSO OSX-2 to OSX 2 Leasing. It will operate offshore Brazil. The vessel took 27 months to build following contract award. It has a total topside weight of more than 10,000 tons and a production capacity of 100,000 bbl/d of oil. Bruno Chabas, chief executive officer of SBM Offshore, commented: "We are pleased to announce the delivery of OSX-2, a turnkey project that was constructed on time and on budget for our client OSX. In particular, I would like to recognize our global project management team for a job well done." In April 2011, the construction contract for OSX-2 was signed with SBM Offshore.



## Noble to spin-off offshore drilling business, creating two companies

Swiss offshore drilling contractor Noble said it will create a spin-off of its offshore drilling business and create two separate companies. The new company, which is expected to comprise many of its standard specification drilling units, will own and operate 5 drillships, 3 semi-submersibles, 34 jack-ups, 2 submersibles, and 1 floating production storage and offloading (FPSO) unit.

The high-specification assets will be owned and operated by Noble with a focus on deepwater and ultra-deepwater markets for drillships and semi-submersibles and harsh environment and high-specification markets for jack-ups.

Under the new plan, the standard specification business will be separated through the distribution of shares of the new company to Noble shareholders in a spin-off that would be tax-free to shareholders. According to Noble, the purpose of the separation is to split the company's existing rig fleet into deepwater and ultra-deepwater assets, which will remain with it. Both companies will also have respective focused business as well as operational strategies. Noble expects to complete the spin-off by the end of 2014.

## Centrica Energy keeps oil flowing from Chestnut field in North Sea

Centrica Energy has agreed to keep the FPSO Hummingbird Spirit on the Chestnut field in the UK North Sea through March 2016. The Teekay-owned cylindrical platform has operated on the field since 2008, producing more than 13 mmbbl of oil. Current output is around 7,000 bbl/d. Chestnut was originally expected to deliver no more than 7 mmbbl over 3 years. However, Centrica's studies suggest a total of 18 mmbbl can be recovered via a water injection side track well, sustaining high-production efficiency and continued work with the company's partners Dana Petroleum and Atlantic Petroleum, Teekay, and duty holder Wood Group PSN. Hummingbird Spirit can store over 200,000 bbl of oil.

**SIMPLE, RUGGED AND RELIABLE**



**17H Hi Torque Tool**



**Class 1-4 Torque Tool**



**Smart Tool**



**Class 5 Adapter**



**Class 6/7 Adapter**

**Seanic's ROV  
Torque Tool options  
available for  
rent or purchase**

**Available Worldwide**



**Ashtead  
TECHNOLOGY  
OFFSHORE DIVISION**

[www.ashtead-technology.com](http://www.ashtead-technology.com)



**SEANIC**

[www.seanicusa.com](http://www.seanicusa.com)



The jack-up drilling rig GSP Prometeu

### Petroceltic begins production at Kaliakra gas field, offshore Bulgaria

Petroceltic International has commenced production at its new well on the Kaliakra gas field, offshore Bulgaria. The well has been completed with a subsea wellhead and connected to the existing Kaliakra pipeline for export through the Galata platform.

According to the company, the GSP Prometeu jack-up drilling rig and Big Foot 1 lay barge have performed the well and flow line works. The well is flow tested at rates in excess of 12 mmcf/d and the oil is being produced through the Galata facilities, which are shared with the Galata and Kavarna fields.

Upon rebalancing the production from the three fields, the combined rate is expected to stabilize at around 30 mmcf/d, the company said. Irish production company Petroceltic owns 100% working interest in the fields and associated infrastructure.

### Macedon plant sees first gas from offshore Western Australia

Western Australia's Premier Colin Barnett has inaugurated the \$1.5 billion Macedon domestic gas project in Onslow. First gas flowed on schedule at the BHP Billiton-operated facility, which handles natural gas from offshore production lease WA-42-L in the Exmouth sub-basin.

"Macedon is BHP Billiton's largest operated Australian domestic gas project and is expected to supply domestic gas for the wholesale market in Western Australia until at least 2033," BHP Billiton asset president conventional Steve Pastor said, noting that the operation will supply 20% of the state's daily domestic gas supply for consumers and industry.

The plant has production capacity of up to 200 terrajoules per day of gas. Processed gas will be exported to the Dampier-Bunbury pipeline for sale into the Western Australian market. Macedon is a joint venture between BHP (71.43%) and Apache Northwest (28.57%).

### Jackets, pipeline in place for Forouzan gas injection scheme

Production from the Forouzan oil field in the Persian Gulf is estimated to increase to 100,000 bbl/d by March 2015, following implementation of gas injection and installation of two new production and living-quarter platforms.

Forouzan overlaps Iranian and Kuwaiti waters. Currently it delivers 20,000 to 40,000 bbl/d of oil via 36 wells drilled from 12 wellhead platforms, in turn connected to two production platforms.

The present phase of field development is expected to add 258 mmcf/d of associated gas to Iran's production, according to Iranian new service Shana. This will be piped to an LNG complex in Kharg Island.

Iranian Offshore Engineering and Construction Co. (IOEC) has installed 97 mi of new subsea pipeline. IOEC has fabricated and installed the jackets for the new FY-A and FZ-A platforms. Petroiran Development Co. is the general contractor and IOEC is the manufacturer and installer.

### Santos stops gas production at Bangladesh's only offshore field

Australian oil and gas producer Santos has ceased production at Bangladesh's only offshore gas field because of commercially unviable levels of production, according to Reuters. A senior government energy official told the news agency that Santos, which operates the field, could produce only 2.5 mmcf of gas daily.

The offshore gas field's low production is said to fall far short of the 15 mmcf of gas a day required, without which the well would not be economically viable. Initially, the field produced up to 180 mmcf of gas daily, with a decline in production witnessed gradually. Santos attributed the closure to the steeper-than-expected decline at the well.

UK-based Cairn Energy commenced drilling on the field in 1994 and started production in 1996, before 50% of its interest was sold to oil firm Shell. Shell sold its share back to Cairn Energy.

In November 2010, Cairn Energy's wholly owned subsidiary Capricorn Energy signed a conditional sale and purchase agreement with Santos International, wherein Santos acquired the entire issued share capital of Cairn Energy's Sangu Field.

Cairn Energy Sangu field owns a 37.50% interest in the producing Sangu gas field, offshore Bangladesh, and a 50% interest in block 16 exploration acreage. Santos initially invested in Bangladesh in 2007 with the purchase of

Cairn Energy Bangladesh and drilled three wells in the Sangu area in 2011 after acquiring seismic surveys in 2010.

Santos, which has the largest exploration and production acreage position in Australia, has also developed major oil and liquids businesses in Australia and operates in all mainland Australian states and the Northern Territory.

### Structural issues prolong Njord shutdown offshore Norway

Statoil has postponed a resumption of production at the Njord field in the Norwegian Sea after completing a maintenance turnaround. Extensive analysis and inspection work performed during the summer shutdown revealed a need for reinforcements to numerous beams in the platform structure. The work required may continue into mid-2014.

At the same time, Statoil has performed a wide-ranging analysis and inspection program to assess the status of the entire platform to verify its strength under varying weather and load conditions. Analysis suggests some of the deck's structures are too heavily loaded.

Production at Njord was stopped on 27 July and the platform was then emptied of oil and gas. The plan at the time was to resume production in mid-September.

Njord has already undergone significant upgrades, including further riser replacements and commissioning of the water injection system for the Hyme sub-sea satellite that came onstream in March, which also is presently shut-in.

### SOCO reports strong results from well tests offshore Vietnam, Congo

Drillstem tests on the latest exploration well on the Te Giac Trang field offshore southern Vietnam have exceeded expectations, according to partner SOCO International. Combined peak production from two of the three zones tested in TGT-10XST1 in the H5 fault block is more than 16,500 bbl/d of oil. A third DST is now under way in the well, which encountered 820 ft of gross pay in Miocene and Oligocene reservoir intervals.

The well is located 3.7 mi south of the H4 wellhead platform in the southern part of the TGT field in Block 16-1 in the Cuu Long basin. Offshore Republic of Congo, SOCO's Lideka East Marine-1 (LDKEM-1) well, which has been targeting a postsalt structure updip from the Lideka Marine-1 well, encountered oil shows in the Sendji Formation (iS3).

LDKEM-1 was tested over a 65.6-ft interval in the iS3 and S4 horizons. T-flowed 30° to 35° API oil at a sustained rate of 350 bbl/d.



### Four Crowley tugs deliver U.S. Gulf's largest offshore platform

Four of Crowley Maritime's ocean class tugboats — Ocean Wind, Ocean Wave, Ocean Sky, and Ocean Sun — recently completed the successful delivery of the offshore oil production and drilling platform, Olympus, to the Gulf of Mexico. The project was significant because it provided the first opportunity for all four of the company's new high-bollard-pull, ocean class tugboats to work together on any single job.

The rig, owned by Royal Dutch Shell, is also considered the largest tension-leg platform ever to be developed for the U.S. Gulf.

The tugs worked together in both nearshore and offshore waters to relocate the 120,000-ton, 406-ft tall platform from Ingleside, Texas, 425 mi to its deepwater location. During the first stage of work, called the nearshore phase, the Ocean Wind and Ocean Wave provided assistance in pushing the Olympus away from the Keiwit facility through the Port of Aransas and out to deeper waters. During this initial phase, the Ocean Sky was also available and equipped to provide push assistance, if needed.

Once safely outside of the port, the Ocean Wave, Ocean Wind, and Ocean Sun towed the vessel to its final location at Shell's Mars deepwater field in more than 3,000 ft of water. The Olympus, which was constructed in South Korea, features 24-slot drilling units and a deck large enough to process crude from a six-well subsea development on site. The platform will produce and process 100,000 boe/d once operating at full capacity.

During this second stage, called the offshore phase, the Ocean Sky took on the role of escort tug, which helped to ensure the towing vessels' and platform's safety. Providing additional support was the Crowley-contracted, offshore tugboat Harvey War Horse II. In the final stage, called the positioning phase, the Ocean Wind, Ocean Wave, and Ocean Sun vessels helped to position the platform in its final location.

**Subsea Networks  
connecting your business**

**Globally**

**in the Field**

**Network development from  
business plan to commissioning**

**at Depth**

**OSI**  
Ocean Specialists Inc.  
[www.oceanspecialists.com](http://www.oceanspecialists.com)  
Florida - Boston - Houston - Singapore

QR code

# Conoco, Chevron to develop Enochdhu in UK North Sea

ConocoPhillips and co-venturer Chevron have received approval from the UK Department of Energy and Climate Change (DECC) to develop the Enochdhu discovery in the UK central North Sea.

Enochdhu discovery, which is said to be the fourth field to be developed in the Greater Britannia area, is expected to produce at an initial peak rate of more than 10,000 bbl/d of oil in late 2014. Other fields in the area include Britannia, Brodgar and Callanish, which altogether have produced around 600 million boe to date.

Enochdhu, which is operated jointly by ConocoPhillips and Chevron, is a black oil Palaeocene reservoir in 459 ft of water in Block 21/5a of license P.103 in the central North Sea.

The discovery is located 18 km southwest of the Britannia platform and 8 km southeast of the Callanish subsea manifold.

As part of the development a two-slot production manifold will be tied back to the Callanish subsea manifold through a multiphase production pipeline and gas lift pipeline, as well as electro-hydraulic controls umbilical.

Close to the Callanish manifold, a tie-in manifold will be stationed and the manifolds, pipelines, and umbilical will be incorporated into a subsea bundle. Gas that is processed on the Britannia platform will be transported through a dedicated pipeline to the Southern Area Gas Evacuation (SAGE) terminal at St .Fergus in eastern Scotland. Liquids will be transported through the Forties Pipeline System to the Kinnel Terminal. ConocoPhillips and Chevron each own 50% interest in Enochdhu exploration well.



*Enochdhu is the fourth field to be developed in the Greater Britannia area*

## More platforms planned for Ebok and Okoro fields offshore Nigeria

Front-end engineering design (FEED) and planning has started for the Okoro Further Field Development (OFFD) project offshore Nigeria. According to operator Afren, the partners have sanctioned fabrication of a new 12-slot wellhead platform capable of sustaining 12 trees, allowing it to host up to 24 wells. It would additionally accommodate wireline and coil tubing systems.

The platform will be bridge-linked to the existing Okoro Main wellhead platform. It is not possible to upgrade the existing Okoro FPSO, so a new mobile offshore production unit (MOPU) will be installed as close as possible to the OFFD facilities.

Afren's new central fault block extension platform for the offshore Ebok field was to set sail for Nigeria in November. Wells from this platform will target reservoirs containing reserves of around 38 mmbbl. The partners are considering options for Ebok's northern fault block, the most likely being development wells drilled from an extended WFB platform and producing through

the existing MOPU. As for the offshore Okwok discovery, this will probably be developed via a dedicated production processing platform tied back to the Ebok FSO vessel 8 mi to the west. The Basin PSC produced an average of about 6,168 boe/d in 2012.

## RH Petrogas completes drilling Klalin-14 well in Indonesia

Subsidiaries of RH Petrogas have completed drilling the Klalin-14 development well in the Kepala Burung PSC, which is located in Indonesia's West Papua region. The company has a 60% working interest in the Basin PSC, held through its wholly owned subsidiaries Petrogas and RHP Salawati basin.

The well is said to be part of the Klalin field development program. According to the Singapore-based oil and gas company, the Klalin-14 development well encountered 81 ft of total net pay. The well, which tested 220 bbl of condensate per day on a 24/64 in. choke from two zones, is expected to produce 3 mmcf of gas per day, depending on the gas demand, upon commencement of production expected in the near future.

## WorleyParsons to supply subsea components for Snøhvit in Barents

GE Oil & Gas has contracted Rosenberg WorleyParsons to supply 14 subsea structures for the latest phase of development on the Statoil-operated Snøhvit field in the Barents Sea. Contract scope comprises engineering, procurement, and construction of manifolds, pipeline end terminations, and pig launch-receivers. WorleyParsons' subsidiary INTECSEA will provide engineering support. Deliveries are expected to be completed by May 2015. The contract value is \$10.7 million.

## Shell orders Phase 3 deepwater systems for BC-10 expansion

Shell has ordered subsea systems from FMC Technologies for the Parque das Conchas Phase 3 development offshore Brazil. FMC will supply seven subsea trees, two manifolds, and associated subsea control systems. It also will supply tie-in connections and subsea distribution hardware and associated tooling and services. Phase 3 of the development, also called BC-10, is the second expansion of the original block offshore in 5,000 to 6,000 ft water depth.

## Otto completes Phase 2 drilling at Galoc field offshore the Philippines

Otto Energy's Galoc 5H well offshore the Philippines reached total depth of 14,759 ft to conclude Phase 2 drilling. Galoc 5H and 6H combined drilled 10,421 ft horizontally through the reservoir with 5,396 ft of net oil pay. Well completions and subsea tree installation are next on the list. At the same time Otto says upgrades to the FPSO Rubicon Intrepid also were completed in anticipation of the additional production from the new completions. Subsea equipment delivery and installation vessel arrivals are on schedule, with first oil from the two new wells expected in November 2013.

## First Stella development well in place in North Sea: Ithaca Energy

Ithaca Energy said a flow test was completed on the first development well for its Stella field in the UK central North Sea. The A1 well flowed at a maximum rate of 10,835 boe/d on a  $\frac{7}{8}$ -in. choke, comprising 6,499 bbl/d of 42° API oil and 26 mmcf/d of gas. Production was constrained by the capacity of the well test equipment on the drilling rig ENSCO 100. Following suspension of A1, the rig was to drill the second Stella development well from the same drilling center location. Otherwise, Technip UK has completed much of this year's subsea work on the project.

### Lukoil commissions additional platforms for V. Filanovsky

Lukoil has awarded contracts for the second-stage development of the Vladimir Filanovsky field in the Russian sector of the Caspian Sea. OAO Globalstroy-Engineering will be responsible for engineering documentation, purchase of equipment and materials, construction and commissioning, and start-up of ice-resistant stationary platform No. 2 (IRP-2).

The IRP-2 drilling complex will be used to drill 15 directional wells with horizontal borehole completions, comprising nine production wells and six injectors.

The Astrakhan OAO Krasnye Barrikady shipyard will be responsible for development of engineering documentation, purchase of equipment and materials, construction and commissioning, and start-up of living quarter module platform No. 2 (LQP-2) and a connecting bridge to IRP-2.

LQP-2 will accommodate 55 people and will include a helicopter pad. The IRP-2 will be connected to the first-stage riser block via a 3.7-mi multi-phase subsea pipeline. Both complexes are due to be commissioned in fall 2016.

### AMEC delivers topsides for Chirag project, Azerbaijan

Engineering and project management company AMEC and its partners in the AMEC-Tekfen-Azfen (ATA) consortium delivered topsides to the Azerbaijan International Oil Co. (AIOC) for its Chirag oil project. The Chirag project, West Chirag (COP-WC) topsides facility in Baku, is said to have a load-out weight of 20,000 tons.

COP-WC platform is being installed as part of the fourth phase of the Azeri-Chirag-Gunashli (ACG) development, which is operated by BP on behalf of AIOC in the Azerbaijan side of the Caspian Sea. The facility is a single integrated deck com-



*Topsides sail away to Chirag oil project in Caspian Sea*

prising a production platform, drilling module, utilities, and living quarters.

The new facility will be connected to the existing ACG infrastructure through new subsea pipelines and will be used to improve oil production and recovery by drilling more wells. Construction on the project commenced in July 2010 after 6 months modernization and expansion of the ATA yard.

As part of the yard upgrade, an on-site welder training school was opened, which was used to assess, coach, and test more than 1,000 welders. A separate training facility was also established to train and develop the electrical trades to make sure the installation quality was of the highest standard.

November 2013

47

Ocean News & Technology

## "Your search begins by removing the water with Fishers Side Scan Sonars"



-Jack Fisher,  
President



Shrimp Boat on the Bottom



Splash Proof PC Available

Side Scan System  
Only \$19,995

**JW**  
**FISHERS**

Call for a free catalog or visit our web site: [jwfishers.com](http://jwfishers.com)



**MC-1**  
Mini Camera  
**\$2,045**



**DDW-1**  
Depressor Wing  
**\$1,295**



**Pingers**  
Pingers and Receivers  
**\$695**



**Proton 4**  
Marine Magnetometer  
**\$12,995**

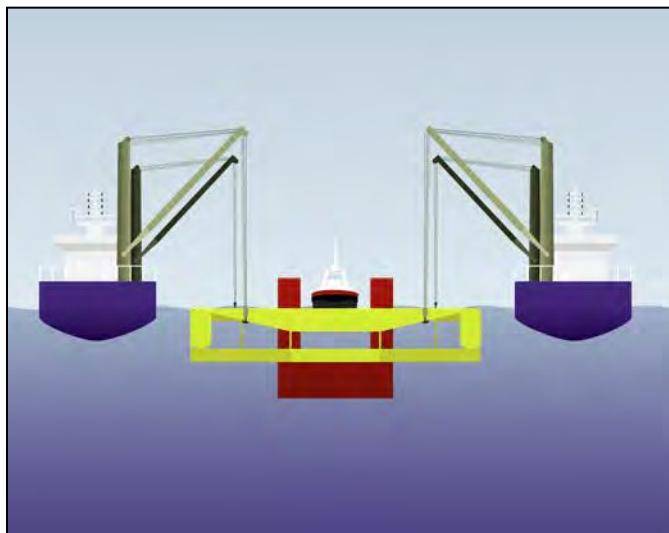


**ROVs**  
**\$19,995**

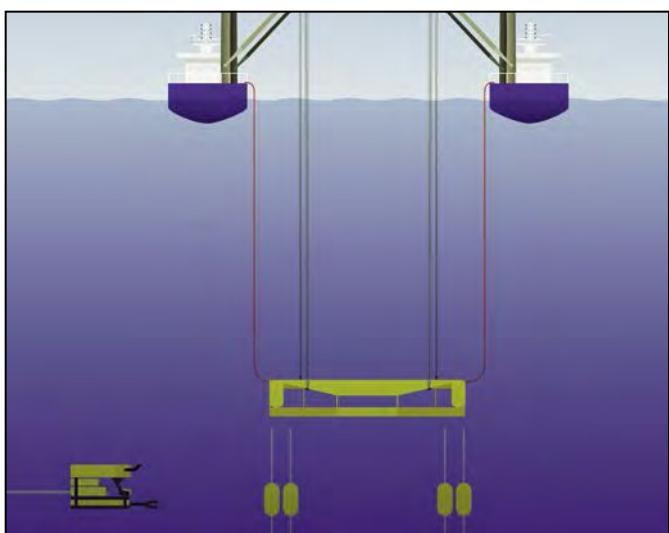


**P12**  
Boat-towed Metal Detector  
**\$9,495**

# DNV students propose new subsea solution



*Platform installation procedure images: DNV*



November 2013

**48**

Ocean News & Technology

Tasked by DNV with developing new ideas for oil recovery at 2,500 m depth in the Gulf of Mexico, a group of 20 international graduating master's students have proposed a subsea concept involving a submerged tension leg processing platform midwater to evade the difficult conditions on the seabed. Additionally, storage tanks at 200 m depth avoid the use of an FPSO and the complications of bad weather risks while still being accessible for shuttle tankers and intervention.

Taking a nuanced approach to what can be done where, the students propose combining existing technology in new ways and new places. By finding an optimal depth for the different processes, it will also be easier to standardize the equipment. This concept, called subsea processing, storage, and offloading (SPSO) Cobia, would be able to operate 300 km from shore.

The proposed processing facility at a depth of 1,000 m will have a robotic arm that can reach all platform elements for intervention and component replacement tasks, supplemented by a connected ROV to carry out intervention on the platform, seabed, and crude storage tanks. The entire SPSO Cobia would be powered electrically directly from shore using a long-distance, low-frequency power cable coupled with high-voltage motors.

Based on initial assessments, the students argue that the concept is technically feasible and may become profitable at oil prices as low as \$66 per bbl and have an internal return rate of nearly 14%. Capital spending is calculated to be NOK 22 billion (USD 4 billion) and OPEX NOK 750 million annually.

Representatives of DNV and the industry who saw the students' presentation and documentation have expressed interest in the ideas and solution, citing the students' familiarity with other projects and existing technology as additional strengths.

DNV's CEO Henrik O. Madsen said the ideas and reasoning behind them were impressive and worth further research as the concept struck him as feasible, adding that "fresh knowledge from students is giving DNV different perspectives and the summer project is a unique way to add new impulses to our organization."

About DNV's annual summer project: a group of graduating master's students from all over the world is chosen in an application process, the students solve relevant and challenging R&D tasks during seven summer weeks, with coaching from DNV experts, the solution is presented to the company and industry players at the end of the project. In 2013, students were accepted for the project, and half of the students involved in 2012 were offered a job at the end of the project.

## HCL launches downhole cable protector

HCL Clamping, specialists in subsea and downhole clamping systems, is launching Smart® Protector, a new polymer-based range of downhole cable protectors developed in cooperation with Shell. The new range was showcased at ATCE New Orleans in September and at ADIPEC Abu Dhabi in November.

Smart® Protector will complement the Boss Clamp portfolio purchased by HCL in May 2013. The light-weight, patented Smart® Protector range can be used for a variety of cable sizes and configurations. It is the first product of its kind capable of withstanding temperatures of up to 250°C and fits any tubing diameter.

Smart® Protector can be used alongside HCL's industry-leading Smart® Tie range of robust high-strength straps. It's already used widely across the downhole industry and making it simple and fast to install.

HCL director Peter Coles said: "The Smart® Protector is already attracting significant attention from a broad range of oil majors and service companies involved in onshore and offshore

exploration, drilling, and completions. It avoids the use of metal and can be exposed to the extreme environments present in today's wells. It also guarantees lower friction than metal alternatives, can be used for multilane installations and will not hang up in the BOP stack."



The launch of Smart® Protector follows hot on the heels of the successful launch of the high-speed SM-FT-3000 Air Tool used for both Smart® Ties & Smart® Band, as HCL Clamping invests heavily in expanding its portfolio of products for both subsea and downhole applications.

"We intend to build on our experience of developing polymer products for the oil and gas sector and double our range of cables protectors, ties, and bands in the next 12 months," Coles said.

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

## TDW to provide pipeline isolation services using SmartPlug®

TDW Offshore Services (TDW) has signed a frame agreement with Centrica Storage Ltd. (CSL) to provide pipeline isolation services with its SmartPlug® tool. The tool makes it possible to safely isolate pressure in an active pipeline and maintain production while necessary maintenance is carried out. By doing so, operators realize significant benefits in the form of reduced downtime and associated costs.

"The 5-year agreement effectively extends the agreement between TDW and CSL, which the two companies entered into in 2010," said Larry Ryan, director of SmartPlug® operations for TDW Offshore Services.

During the past 10 years, TDW has performed several pipeline isolation operations for CSL on its Rough Gas Storage assets in the Southern North Sea using the SmartPlug® isolation system. Recently, CSL isolated the main sea-line that connects the offshore 47/3B platform with its Easington Gas Terminal using a TDW SmartPlug® system installed in the riser at the platform end.

"This allowed change-out of the platform Emergency Shutdown Valve



*TDW carrying out an operation at the CSL Easington Terminal, which forms part of its Rough Gas Storage assets in the Southern North Sea*

(ESDV) without the requirement to vent down the 30-km long pipeline, thus minimizing the greenhouse gas emissions associated with natural gas venting," said Paul Hardy, integrity engineer for CSL. "In addition, CSL prefers to keep the pipeline at pressure, thereby reducing the number of pressure cycles and minimizing fatigue life usage. Isolating the pipeline using the TDW SmartPlug® achieves this objective."

He added, "an added advantage of

using SmartPlug® tools that incorporate a pressure test module is that the new or repaired valve can be service pressure-tested and seat leakage tested in situ from both sides using nitrogen prior to releasing the isolation and admitting gas, thus ensuring integrity before hydrocarbons are present."

## Repsol Sinopec selects Paradigm's software for exploration projects

Repsol Sinopec has implemented Paradigm's interpretation software suite SeisEarth, for its exploration projects carried out in deepwater in the pre-salt Campos Basin offshore Brazil. According to Paradigm the agreement provides licenses for the company's software, which includes applications such as VoxelGeo and Stratimagic and also the Epos data management and interoperability system. Repsol Sinopec exploration geophysicist Diana Sineva said after evaluating the software, the company concluded that Paradigm's applications would give it accurate results in a short span of time. "In such a geologically complex environment, we need advanced and powerful interpretation and modelling solutions," Sineva added.

# Outstanding Applications

Reliable imaging and ancillary equipment.

We understand your underwater needs.

#whatsyouruse

*StarFish side scan sonar image of a diver on the seabed >*



#SAR

Visit: [www.tritech.co.uk](http://www.tritech.co.uk)  
to discover more.

Visit us on Booth 16

at Hypack

13 – 16 January

UK • NORTH AMERICA • BRAZIL



Visit us on:



**Tritech**  
ジ

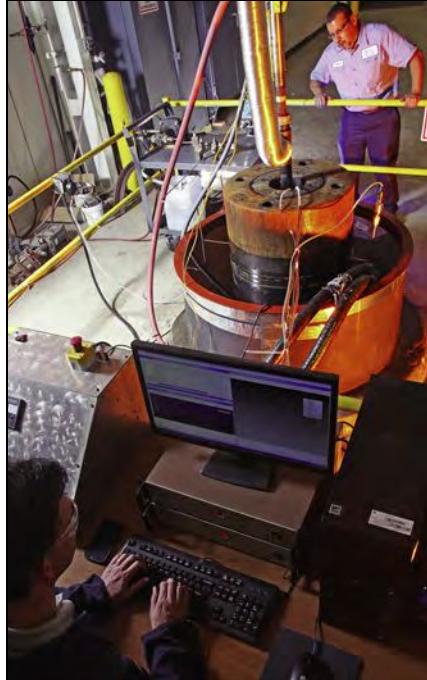
### SwRI adds five chambers for deepwater simulation testing

Five additional chambers for high-pressure, high-temperature testing are now available for use at Southwest Research Institute (SwRI). The deepwater ocean chambers are capable of attaining pressures of 30,000 psig at a rated temperature of 650°F. The chambers complement a suite of test facilities in SwRI's Ocean Simulation Laboratory and will also be used to test components for manned and unmanned submersibles.

Measuring just over 15 ft in length with a 13-in. inner diameter and a 6.5-in. wall thickness, the cylindrical simulators are crafted of HY 100 steel with a tensile strength of 126,000 psi.

The chambers are rated to 30,000 psig, enabling SwRI to perform high collapse tests on oil country tubular goods (OCTG) casing and testing for subsea technologies requiring proof-test pressures beyond ocean depths.

"These vessels will be used for various purposes, including long-term simulated service testing of items that must withstand harsh undersea conditions, such as subsea connectors, cable assemblies, valves, pipe joints, and other



equipment for the oil and gas industry," said Joseph Crouch, manager of the marine and offshore systems section in SwRI's mechanical engineering division. "The chambers will also be used to test components for manned and unmanned submersibles."

SwRI has offered test services to the offshore oil and gas industry and marine industry for more than 50 years.

For more information, contact Joseph Crouch at (210) 522-4295 or visit [deepoceansimulation.swri.org](http://deepoceansimulation.swri.org).

### Exxon licenses Alternate Path technology to Weatherford

ExxonMobil Upstream Research has awarded Weatherford International a limited international license to use the Alternate Path gravel packing cased and open hole completion technology. The license allows Weatherford to produce and deploy Alternate Path technology for ExxonMobil affiliates around the world and for ventures in which ExxonMobil participates.

Alternate Path provides alternate flow paths, called shunt tubes, in the downhole tool used for packing gravel in the producing sections of a well. Shunt tubes enable the Alternate Path packing operation to continue when sand prematurely blocks the well annulus, which would stop a conventional packing operation. The shunt tubes divert the gravel slurry around sand blockages and through distributed portholes to fill voids in the annulus until a complete pack is in place.



## Cut your equipment some slack

High-quality, cost-effective winches for survey & deployment operations

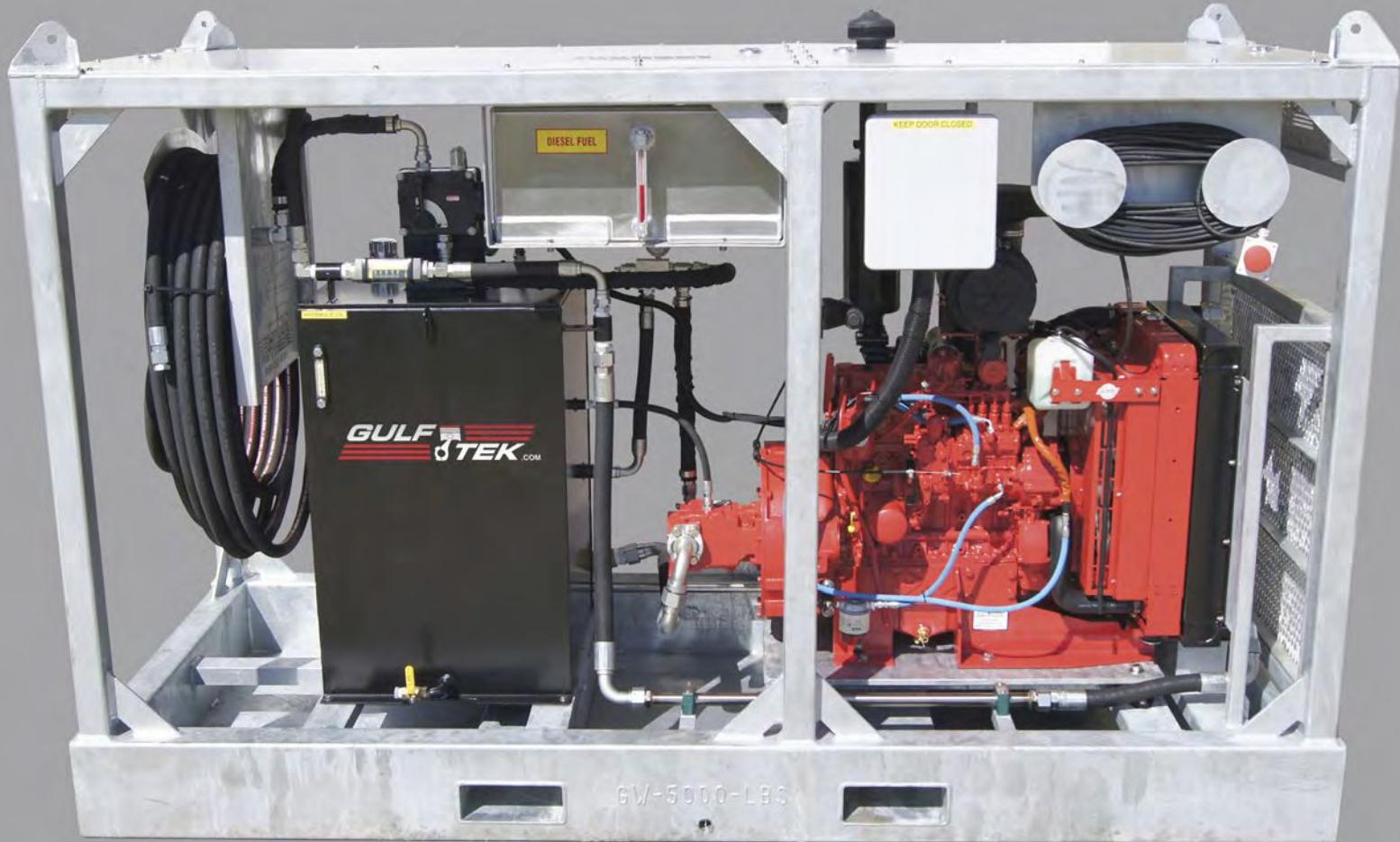
The OceanEnviro™ product range offers you five different high-quality and cost-effective electrical winches for deployment of oceanographic and hydrographic equipment.

Whether you are looking to tow sonars, magnetometers, etc. or to vertically deploy equipment such as ADCPs, CTDs and the like, the OceanEnviro™ product range will fit your exact needs. By choosing the exact size and features you want, you save both money and deck space.

[www.eiva.com/oceanenviro](http://www.eiva.com/oceanenviro)



# need hydraulic power?



**800-925-4966**

2306 Engineers Road  
Belle Chasse, LA USA 70037-1196

## Deep Trekker showcases the DTG2 ROV

Deep Trekker introduced its premiere product, the DTG2 submarine micro Remotely Operated Vehicle (ROV), to the commercial marine market at the International Workboat Show in New Orleans. The show, which ran from 9-11 October was attended by many marine professionals including ship operators, engineers, marine surveyors, and port authorities. The show provided a perfect opportunity to display the strong capabilities of Deep Trekker for inspections, surveying and security.

Deep Trekker exhibited with its 250-gallon tank of water with continuous live demonstrations and piloting opportunities so that attendees could gain firsthand experience of the maneuverability and portability of the ROV. "Smaller marine businesses may not realize a compact, portable, and easy-to-use ROV is available at an affordable price," commented Deep Trekker president, Sam Macdonald. "The International Workboat Show was the perfect place for us to show Deep Trekker to this market with our fun, live demonstrations that always draw a crowd."

The portability and ease of use make this ROV attractive to commercial marine and security professionals. With onboard batteries, the DTG2 is fully self-contained, with no



need for external power, topside box, or other installations. Deploying in less than 30 sec, the Deep Trekker DTG2 can easily be used at any job site and on any vessel. These qualities make the Deep Trekker ROV an invaluable tool for the commercial marine market.

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

## Seabee divers work on the Pacific Missile Range Facility

52

Ocean News & Technology  
November 2013

Diving in the Pacific Ocean off the Pacific Missile Range Facility (PMRF), Seabee divers assigned to Underwater Construction Team 2 spent 2 months conducting maintenance and repair on the world's largest underwater training range.



Construction Mechanic 2nd Class Trevor Buckett, from Beacon, New York, assigned to Underwater Construction Team (UCT) 2, inspects and cleans a deepwater buoy at the Pacific Missile Range

Facility (PMRF) Barking Sands. Seabee divers from UCT 2's Construction Dive Detachment Bravo are at PMRF inspecting, protecting and stabilizing underwater cables on their first of three stops across the Pacific during their 6-month deployment

(Photo by Steel Worker 2nd Class Metro Sayre)

The project represents both valuable operational experience for UCT-2 and much needed maintenance to the range.

"PMRF is a valuable training ground; the underwater cables allow communication and tracking capabilities with submarines during underwater training exercises," said Mike Dick, range manager. "We have tried to accomplish this mission with commercial units but no one has been able to match the quality, efficiency or cost savings provided by the Seabees. They have been invaluable in the maintenance of this range."

The team put in 6-day work weeks inspecting cable systems; installing and stabilizing protective split pipe; and replacing cathodic protection, correcting damage due to abrasion, corrosion, and sand scouring from the winter storms. They totaled 86 dives to depths ranging from 7 to 110 ft with a total bottom time of 216 hrs.

The repairs and maintenance ensure that the range will remain operational in order to support future fleet-wide exercises. Seabee divers are a special breed of the Navy Seabees that encompass both the construction skills of a Seabee with that of a deep sea Navy diver.

The divers come from Naval Construction Battalions where they hone their individual job skills in the construction field and then spend 6 months at the Naval Diving Salvage Training Center learning the application of those skillsets in an underwater environment, which makes them unique within both the Seabee and diver communities.

The next deployment stop for UCT-2 is Timor Leste, where they will construct a rubble mound pier and conduct both dive and construction training with the Timorese military.

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

## New Fugro SRV simulator delivers improved submarine rescue support

Fugro Subsea Services has launched a new Submarine Rescue Vehicle (SRV) simulator designed to enhance emergency response planning, crew training and live visualization.

This simulator has been developed by the Aberdeen-based company's robotics technologies business using the established DeepWorks ROV support platform. It offers true subsea physics-based simulation in a user-friendly package that can be run on a desktop PC or integrated into a submarine rescue vehicle's hardware control console.

Among the new simulator's key enhancements is the ability to navigate to the distressed submarine using both camera and sonar views. The system also emulates industry standard 5- and 7-function manipulators for intervention tasks such as clearing debris, opening and closing valves, and rigging installation.

Other activities that can be simulated to optimize operating procedures include:

- Crane lifting and recovery operations

in variable sea conditions and tidal currents;

- Trim and ballast control;
- Failure modes; and
- Thruster modeling.

The original LR5K was the first system capable of 3D rescue operations simulation, and Fugro also pioneered "ray tracing" — a technique providing highly realistic sonar simulation for navigation training — along with altimeter-based ranging for hatch mating, and control pod installation. Models have been developed for a range of SRVs including the Perry Slingsby LR7, the OceanWorks Merlion 500, and the ADS 2000.

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

## Sonar Equipment Services delivers first multi-sensor ROV survey package

Great Yarmouth-based Sonar Equipment Services has successfully delivered its first multi-sensor ROV survey package to Calecore's marine survey division, Calesurvey.

The leading supplier of marine sur-

vey equipment to the offshore energy industry has integrated, tested and mobilized a complex array of survey and subsea equipment complete with offshore support personnel for the survey in Norwegian waters.

The pipeline route survey with environmental and geotechnical studies is being carried out using a work-class ROV fitted with an extensive range of geophysical and bathymetry survey sensors and equipment supplied by Sonar Equipment Services. As part of the scope of work, an Innova Matrix MKII fibre optic multiplexer has been supplied to provide stand-alone transport of all survey data over a single fibre. The Matrix MKII is a compact, plug-and-play interface solution for all subsea sensors and equipment that can be fitted to any hosted platform.

Sonar Equipment Services' dedicated engineering team carried out a full sensor integration and factory acceptance test at their facilities, ensuring that the mobilization on the vessel went smoothly.

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



# U.S. UNDERWATER SERVICES, LLC

**Deeply Committed to Excellence**

**OFFSHORE & SUBSEA IRM**

**ABS AND DNV CLASS UWILD INSPECTIONS**

**CERTIFIED SUBSEA & TOPSIDE WELDING**

**NEPSYS DRY UNDERWATER WELDING**

**PLATFORM INSPECTIONS**

**PIPELINE REPAIRS AND ABANDONMENTS**

**SHIP HUSBANDRY / HULL CLEANING**

**THRUSTER REPLACEMENT / REPAIRS**

**SITE SURVEYS, SITE CLEARANCE & DEBRIS REMOVAL**



**123 Sentry Drive, Mansfield TX 76063 • Phone: 817 447 7321 • Toll Free: 1 800 860 2178**  
**[www.usunderwaterservices.com](http://www.usunderwaterservices.com)**

## MSHIPCO teams with Ocean Aero to build the SUBMARAN unmanned vehicle prototype

MSHIPCO's research and development team is working with the creative Ocean Aero design and engineering group to build and test the first prototype of their unmanned vessel called the Submaran. The completely autonomous platform operates on the high seas for months at a time, using wind and solar energy with the ability to "disappear" for extended periods of time by diving below the surface.

MSHIPCO specializes in custom composite projects ranging from complete ships like the Stiletto — the U.S. Navy's largest carbon fiber ship — to smaller parts like wings and sensor pods for unmanned vehicles.

The Ocean Aero Submaran project is led by Manager Johnny Smullen who recently delivered a complicated carbon fiber passerelle (or gangway) for Mediterranean-based yacht BEIJA FLOR. Captain Brendon Pomeroy stated that "not only was their final product well built with the highest regard for craftsmanship and quality, the whole process from brainstorming to design-



ing to assembling, modifying, installing, rigging, etc. was nothing short of world class."

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

## World diving specialists train at the National Hyperbaric Centre

Doctors from around the world are now attending in-depth courses at the National Hyperbaric Centre (NHC) in Aberdeen. The training involves practical exercises within the world's only independently run saturation diving complex, capable of taking divers to simulated depths of 450 m, located in the center of Aberdeen at the NHC. Doctors experience the restraints and

difficulties of practising diving medicine in confined conditions, along with learning the restrictions of equipment for use under such pressures.

The course is run by experts in diving medicine from NHS Grampian's Hyperbaric Medical Team who are supported by specialists from all over the UK, including the Navy and Hyperbaric consultants.

"We are trying to develop the next generation of diving medical experts to successfully continue supporting commercial divers in the event of injury or illness whilst living under pressure onboard the new-age diving vessels..." said Scott Graham, Operations Manager of the NHC. "...Even though Divers are separated only by the 12-mm thick steel wall of the saturation diving chamber, it can take up to 5 days for their bodies to gradually adjust to normal atmospheric conditions where they can receive normal hospital treatment. We need to ensure that a team of experts is always available and their knowledge of these conditions is fully up to date."

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

# SeaLite® Sphere

*The Perfect LED Replacement for Halogen Lights.*

## Evolution in Action

- Quick & Easy In-Field Connector Replacement
- Wider Range of Dimming
- New Mounting Bracket with Titanium Inserts in Metric or Imperial Threads
- Separated Compartments to Eliminate Flooding due to Potential Connector Failure
- Covers Wide Range of AC/DC Voltages

**DEEPSSEA Power & Light®**

[www.deepsea.com](http://www.deepsea.com) 1-800-487-3775

### Bluefin adds Klein 3500 sonar to AUV payload list

Bluefin Robotics, a leading provider of Autonomous Underwater Vehicles (AUVs), announced that the company has added the L-3 Klein UUV-3500 Side Scan Sonar to its growing list of vehicle payload offerings. The integration effort was internally funded to support company initiatives to expand sensor options and continue to provide state-of-the-art technology to the market. The L-3 Klein UUV-3500 sonar is one of several next-generation, compact digital sensors available on Bluefin vehicles that provide both side scan sonar and interferometric bathymetry data particularly suited for mine countermeasures applications.

"We are pleased to offer new payload options to the community," said David P. Kelly, president and CEO of Bluefin Robotics. "The combination of our vehicle stability and navigation capability, along with the sonar's exceptional imagery makes for a very high-quality tool for our customers."

In 2012, the Ocean Technology Lab at the University of Victoria first integrated the sonar on a Bluefin-12 by utilizing Bluefin's standard payload interface. Their team conducted successful demonstrations and survey work in Canadian Arctic and provided valuable feedback to both Bluefin and L-3 Klein regarding system level performance.

Demonstrations to the community will be scheduled for spring of 2014.

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

### Global Marine Exploration Inc. seeks \$12M investment in emerging deep diver technology

Global Marine Exploration Inc. (GME), a successful treasure salvage company, seeks to raise \$12 million dollars for their deep underwater salvage division GME Deep. This effort is the next step in the company's plan to rescue billions in gold and treasure from the ocean depths.

GME, in collaboration with world renowned shipwreck explorer and archaeologist Sir Robert Marx, will be hosting a private investment event in Orlando, Florida. Investors will be treated to an in-depth look at the new age of historic shipwreck exploration. In this seminar Marx will explain why now is the time to get involved in this developing industry and why GME will quickly become the industry leader. Mr. Marx

has published 64 books, more than 900 archaeology reports and popular articles on the subject, and has been knighted in three countries. His work in shipwreck exploration and salvage spans 50 years and 60 countries.

Recent advances in deepwater technology are opening up a trove of immensely profitable and previously unobtainable ship wrecks. GME's use of Nuytco Research's 'DeepWorker' submersibles and the new state-of-the-art 'Exosuit' one atmosphere pressure suit will position GME as the only organization in the world using these deep-ocean tools in treasure salvage operations. The Nuytco Research devices are currently in use by the U.S. Navy, a number of international navies, NASA, NOAA, and several other deep-ocean research institutes.

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

### Bibby Remote Intervention Ltd opts for DVECS-S on SMD ROVs

SMD is pleased to announce that Bibby Remote Intervention Ltd has opted for DVECS-S on its recently ordered work-class ROVs.

This investment in SMD's new advanced vehicle control platform DVECS-S will feature on BRIL's new orders for two Quasar MkII 150-hp, 3,000-m rated work-class ROV systems. The DVECS-S control system will further enhance Bibby's expanding fleet of subsea vehicles, giving the new Quasar work-class ROVs the most advanced dynamic positioning system in the market, providing functions that are not available on other work class ROVs.

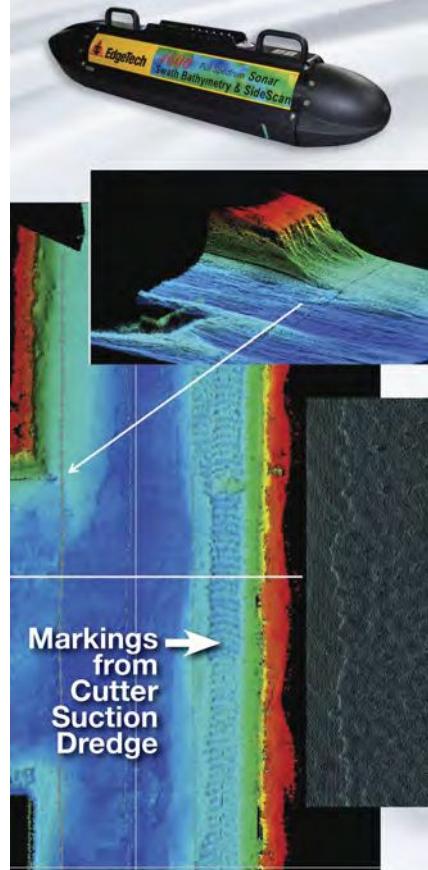
DVECS-S will enable Bibby pilots to perform typical IRM and construction support tasks with increased accuracy and reliability, helping reduce task-based operational costs while offering greater versatility and minimized risk.

In March of 2012, SMD entered into an exclusive agreement to integrate automatic control functionality based on SeeByte's SeeTrack CoPilot with SMD's work-class ROVs and existing DVECS-II control system. This has culminated in the development of DVECS-S, a capability that provides us with control features not available to any of our competitors and allows hands-free hovering and navigation enabling the pilot to concentrate on the job in hand.

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

## Swath Bathymetry & Side Scan Sonar

### EdgeTech 4600



- Wide Swath Bathymetry up to 12 Times Water Depth
- Co-registered High Resolution Side Scan Imagery
- Full Swath and Nadir Coverage
- Complete Turnkey System

 **EdgeTech**

The Leader in Underwater Technology

[info@edgetech.com](mailto:info@edgetech.com)  
USA 1.508.291.0057

## Thuraya wins Philippines maritime contract

Thuraya Telecommunications Company has been selected by SMART Communications of the Philippines for the launch of its new crew calling service, Marino PhonePal. The multi-year deal will see SMART partner with Thuraya on network services and hardware for its maritime voice service, which connects thousands of Filipino seafarers to their loved ones. Marino PhonePal is an expansion of SMART's current crew calling service from an existing Asia Pacific footprint now to include major sea lanes in Australia, New Zealand, Indian Ocean, Middle East, Africa, and Europe. Marino PhonePal customers will now benefit from a seamless and reliable connection at fixed prices. Through this partnership, SMART will offer low-cost prepaid calls to seafarers while at sea using Thuraya's SF2500 voice terminals.

## Wasserstein & Co. to acquire Globecomm Systems

Globecomm Systems Inc. announced that an affiliate of Wasserstein & Co. has entered into a definitive agreement to acquire Globecomm for \$14.15 per share in cash. The purchase price represents a premium of 21.9% over the closing price on 14 January 2013, the day on which Globecomm announced that it had retained Needham & Company to assist it in a review of potential strategic alternatives to enhance shareholder value. The transaction is valued at approximately \$340 million. The transaction was unanimously approved by Globecomm's board of directors and is expected to be completed in the fourth calendar quarter of 2013. The merger is subject to antitrust clearance and other governmental approvals, Globecomm stockholder approval, the satisfaction of certain financial conditions, and other conditions. The transaction is expected to be financed through a combination of cash provided by Wasserstein & Co. affiliates and other co-investors as well as debt financing. Highbridge Principal Strategies, LLC, on behalf of its affiliates, has entered into a commitment letter for the debt financing, subject to the terms thereof.

## Arianespace selected to launch Intelsat 34 satellite

Arianespace has been picked to launch Intelsat's latest satellite, which will provide a variety of services, including broadband for maritime users. This is the fourth Intelsat satellite launch contract that Arianespace has signed in 2013. Intelsat 34 will provide maritime and aeronautical broadband services in the North Atlantic, as well as being designed to meet the media distribution requirements of leading programmers serving Latin America. Scheduled for launch in 2015, Intelsat 34 will replace Intelsat 805 and Galaxy 11 at 304.5° East longitude. Intelsat 34 is designed to deliver service for 15 years or longer. Weighing over 3,000 kg at launch, Intelsat 34 will be injected into geostationary transfer orbit by an Ariane 5 ECA during the second quarter of 2015. The launch will take place at the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana. Intelsat 34 will be built by Space Systems/Loral of Palo Alto, California.



## Swedish icebreaker testing new monitoring system for Arctic traffic



Maritime traffic in the Arctic is rising dramatically, leading to a greater need for safety and environmental protection. Consequently, as part of the icebreaker Oden's Arctic expedition, the Swedish Maritime Administration (SMA) is testing a new tracking system for maritime traffic. The World Wildlife Fund is also positive to the project.

The system is based on using vessels as base stations to communicate information regarding the surrounding traffic and the vessel's own course, speed, position, and other relevant data. The information is interchanged with a shore-based coordination center via a satellite link. The same satellite link is used for the interchange of navigation routes and other necessary communications between the vessel and the shore-based center.

The Arctic is one of the world's most environmentally sensitive areas, while also being one of the most difficult to protect against accidents. Thus, the need to support the maritime industry is crucial in guaranteeing safety for navigation and the environment. The SMA is now testing a new system for monitoring maritime traffic that will improve the potential for sea rescue, icebreaker assistance and environmental protection.

MONALISA Ice (MICE), is the designation of the research and development project being conducted in cooperation between the SMA and the Chalmers University of Technology in Gothenburg. MICE is aimed at capitalizing on the more wide-ranging MONALISA project, which the SMA leads and that permits the global monitoring of maritime traffic without the need for shore-based infrastructure, such as AIS base stations or radio communications.

For more information, visit [www.sjofartsverket.se](http://www.sjofartsverket.se).

## Smart to help promote welfare of Filipino seafarers

Filipino shipboard personnel whose careers are being managed by Aboitiz Jebsen Company, Inc. (ABOJEB), a leading international maritime services provider, and its crewing arm, Jebsen Maritime, Inc. (JMI), now have access to a more affordable and dependable means of keeping in touch with their families back home.

Philippines wireless services provider Smart Communications, Inc. has signed an agreement with ABOJEB to provide customized wireless communication services that will help address homesickness among seafarers, generally regarded as the top cause of resignation, and eventually improve the welfare of Filipino seafarers and their families.

Under the partnership, Smart will provide a suite of the newest and most relevant maritime communication technology services to Filipino seafarers, whose careers are managed by ABO-JEB and JMI. These services, collectively called Smart Satellite Services, are expected to bring better, more reliable and more affordable ways for seafarers to keep in touch with their families and loved ones.

Initially, ABOJEB and JMI will use the Marino Phonepal, allowing Filipino seafarers sailing in Australia, Middle East, Africa, Europe, and Asia-Pacific waters to soon be able to call their families in the Philippines at an affordable rate and enjoy reliable connection and superior call quality.

Other services under the Smart Satellite Services umbrella of products are Marino Textmate, which allows users to send text messages for only P2 per text, and Link Plus, an online application that will have both mobile and desktop versions will enable users to make calls, send text messages, and access the Internet through the app.

With this new and pioneering portfolio of services, Smart offers delivery of wider coverage, outstanding quality, and reliable signal, all within the reach of Filipino seafarers.



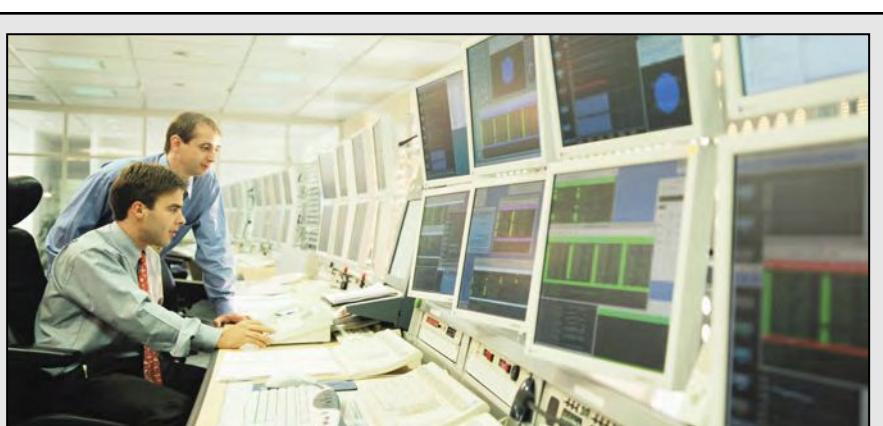
A B O J E B , through JMI, boasts of an experienced pool of over 7,800 crew working in over 320 ships of various types such as cruise ships, barges, cargo-passengers, ferries, log and bulk carriers, and tankers, among others.

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

#### Inmarsat selected as communications partner for Rolex Fastnet Race

The Royal Ocean Racing Club (RORC), organizer of the Rolex Fastnet Race, selected Inmarsat, the leading provider of global mobile satellite communications services, as its satellite communications partner for the 2013 race.

Inmarsat's FleetBroadband service was provided via RORC to eight boats in the Rolex Fastnet Race. The iconic 88-year old event is considered one of the world's classic offshore races, which tests both the inshore and offshore skills of competitors.



#### KVH taps more SES capacity to meet rising demand

SES and KVH Industries have signed an expanded capacity agreement to connect luxury, government, and commercial ships across the Caribbean and beyond.

As part of the multi-year deal, KVH will utilize a 36-MHz Ku-band transponder aboard SES' AMC-21 satellite to provide high-speed Internet access and voice over IP services over its mini-VSAT broadband network to vessels traversing the Caribbean, the Gulf of Mexico, and coastal waters off the U.S. Eastern Seaboard.

KVH is expanding its mini-VSAT broadband network capacity around the world to provide mariners with the connectivity they need at sea. This latest agreement with SES is aimed at delivering the reach and reliability a growing number of luxury yachts, commercial vessels, and U.S. Coast Guard cutters need to seamlessly operate in deep and coastal waters.

KVH's mini-VSAT broadband ser-

vice is growing at a rate of 35% a year, reflecting its growing customer base and the increased emphasis being placed on improving ship crew welfare and operational efficiencies ranging from real-time data to better voyage planning and reduced emissions.

The SES-KVH agreement will benefit the U.S. Coast Guard and its mission-critical use of reliable mobile broadband throughout North America. KVH's pact with the government homeland defense agency represents the largest maritime VSAT agreement to date.

The all Ku-band satellite, AMC-21, at 125° West provides coverage to all 50 states, the Gulf of Mexico, Central America, and the Caribbean. In addition to enabling maritime communications, it also supports broadcasting services.

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

By using Inmarsat's global mobile satellite fleet, the eight yachts were able to provide the RORC with an ongoing flow of video, audio and social media content. This made the challenging event accessible to journalists and sailing enthusiasts across the world. A ninth yacht used IsatPhone Pro, Inmarsat's rugged, global handheld satellite phone, for communication and media purposes.

Four of the yachts, among a record fleet of over 350 entries, were fitted with FleetBroadband 150 terminals bundled with complimentary airtime. Four others, which already had either a FleetBroadband 500 or 250 installed for broadband communications and safety services, were allocated complimentary airtime. These yachts were able to provide footage to the RORC, allowing the

media, sponsors, and public to see what life is like aboard the yachts in this grueling race. This was possible using technology developed by Inmarsat and Livewire Digital for the Volvo Ocean Race that was redesigned for the requirements of the Fastnet Race.

Besides providing up-to-the-minute stories from on board the boats in the form of video diaries, blogs, and social media posts, FleetBroadband let crews keep in contact with family and friends via email and satellite phone as well as to download the latest weather data and view RORC's online tracker for the race. This is in addition to the enhanced safety services, which are used on all Volvo Ocean Race yachts and by merchant vessels in every ocean in the world.

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

## DMCA, TRA to ease issuing of permits for wireless devices

Dubai Maritime City Authority (DMCA), the government authority charged with regulating, coordinating, and supervising all aspects of the maritime sector in Dubai, has announced that it has recently signed a memorandum of understanding with the Telecommunications Regulatory Authority (TRA) of the United Arab Emirates to jointly work on easing the issuance of permits for wireless devices to licensed marine crafts. The agreement was signed by engineer Majid Sultan Al Mesmar, TRA deputy director general, and Ali Al Dabbous, executive director of operations at DMCA, in the presence of a number of senior officials and managers from both sides.

The two parties agreed that TRA will equip DMCA's employees with the required technical skills to effectively handle the marine wireless devices permit applications. Further, DMCA will provide detailed data on the licensed marine crafts that are equipped with wireless devices in Dubai as well as comprehensive information about the wireless devices in terms of the name, type, and serial number.

The issuance of permits for wireless devices for licensed marine crafts in Dubai will play a vital role in further upgrading the maritime licensing services in line with best practices to strengthen Dubai's position as a leading maritime center at the regional and international levels.

For more information, visit [www.dmca.ae](http://www.dmca.ae) or [www.tra.gov.ae](http://www.tra.gov.ae).

## Nordic IT appointed agent for C-Bird™ VSAT in Germany

Maritime Broadband Inc. announced that Nordic IT has been appointed as agent of the company's groundbreaking C-Bird™ VSAT in Germany. Nordic IT will use more than 10 years of knowledge in sales and support in the maritime industry to introduce the C-Bird™

system to its existing and new client base. C-Bird™ offers ship managers and owners a comprehensive solution with unlimited data and voice communications, providing a cost-effective and unique alternative to existing systems.

As an agent in Germany, Nordic IT Marine Communications will have the complete support of Maritime Broadband Inc. for all sales and services, offering a long-term commitment from both parties involved.

Through Nordic IT's introduction, a premier German management company in Hamburg will become the first of Nordic IT's German clients to trial C-Bird™ for its fleet, with installation scheduled to take place in October on the East Coast of the U.S.

The deal offers Maritime Broadband a foothold in the important German marketplace. Nordic IT has over 800 vessels and shore-side users taking advantage of its optimized software and hardware solutions.

Until now, C-Band has been unavailable to the commercial shipping market world because of its size and weight, making it impossible to fit. C-Bird™ changes that. It is easy to assemble and offers affordable service.

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

## Maritime satellite markets on cusp of bandwidth revolution

Northern Sky Research (NSR) projects that the market for maritime communications is entering the next phase of development aided by higher bandwidth offerings, increased regulations, and a more demanding addressable market. In total, NSR forecasts the maritime satcom market to generate almost \$4 billion in revenues, demand for 200 transponders of FSS capacity, 28 Gbps of HTS capacity, and over 1 million in-service units by 2022.

With the launch of GEO-HTS maritime services just on the horizon and MEO-HTS not far behind, the maritime communications market is on the cusp of a bandwidth revolution, according to NSR. Narrowband MSS will account for a majority of maritime satellite terminals, enabling everything from engine monitoring to safety and distress. However, broadband continues to be a major driver of revenues and in-service units across all sectors of the maritime market.

FSS C-band continues to grow, but is vastly outpaced by FSS Ku-band and HTS solutions. GEO HTS from 2012 to 2022 will add almost as many in-service units as FSS Ku-band.

NSR predicts that by 2022, merchant maritime will account for the majority of the 1 million in-service units. However, passenger markets demand more bandwidth, accounting for demand of almost 60 transponders of FSS capacity and over 6 Gbps of HTS capacity. Government and military markets face near-term budget problems, but are expected to recover fully by 2022. The offshore market continues on a growth-path, adding more than 50,000 in-service units over the next 10 years. Although the fishing market is the largest addressable market, it still remains a limited opportunity for satellite players.

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

## EarthSearch to deliver oil tanker tracking devices

East Coast Diversified Corporation, through its subsidiary EarthSearch Communications, Inc., has received orders from its West African regional licensee, Halogen Security based in Nigeria, to deliver 400 oil tanker monitoring devices for its client Oando PLC.

Halogen Security is the exclusive licensee for EarthSearch's products and services for the West African region and one of the largest private security companies in Nigeria and West Africa. As a part of the agreement between both parties, Halogen will expand its security services into areas where the need for radio frequency identification (RFID), global positioning system (GPS), and other sensing technologies provided by EarthSearch is required. This is one of several phases in deploying technology to the Oando fleet of oil tankers. Oando PLC is one of Africa's largest integrated energy solutions providers and a pioneer in fields of private sector pipeline network construction and the distribution of natural gas to industrial and commercial consumers.

Halogen technical, sales and support team have spent several months becoming experts on the EarthSearch products and technology and are now ready to begin penetrating and deploying the product to distributors and customers across the West African region. In addition, Halogen Security will offer products and services from StudentConnect Inc, the sister company to EarthSearch that offers student bus safety technology and class attendance monitoring solution using wireless communication between GPS and RFID.

For more information, visit [www.earthsearch.us](http://www.earthsearch.us).



The Reliable source for  
Deepwater Subsea Fabrication  
Jumpers - PLETs - PLEMs - Suction Piles

*Why trust the success  
of your next deepwater  
project to anyone else?*



**NEW**  
**INDUSTRIES**  
[www.newindustries.com](http://www.newindustries.com)

6032 Railroad Ave.  
Morgan City, LA  
985-385-6789

## Kerite announces upgraded specialty cables



Kerite announces its upgraded underwater specialty cable, custom built for a broad range of applications that require direct contact with water. Kerite's EPR insulation formula enables the cables to operate underwater without the need for an impervious barrier such as a lead sheath, making installation easier and cost-efficient. In addition to the discharge-resistant EPR insulation, the underwater specialty cable offers numerous other features including an additional polyethylene jacket. The cables feature stranded, filled 5 to 35 kV

copper conductors, shielded by a non-conducting Permashield® stress control layer and a copper tape or concentric wire metallic shield. Galvanized steel armor wires with individual HDPE jacketing offer additional protection. Kerite also offers a variety of options for custom builds. Optional 10 mil bronze tape for teredo protection, an optional separate copper grounding wire, and an optional fiber optic member are available. The cable can also be customized to meet the needs of the specific application. Kerite cables installed decades ago are still in use at sea-based facilities. Its history includes cable for the Gowanus Canal in 1898 and Panama Canal in 1908. Founded in 1854, the company has many years of experience working alongside utilities, industrial contractors, suppliers, and consulting engineers to install cables that cross rivers and bays and connect islands and offshore platforms — from the Great Lakes to the Caribbean, the Far East, and the Persian Gulf.

## ATH acquires government's share of FINTEL

In August, Amalgamated Telecom Holdings Ltd (ATH) completed a transaction with the government of Fiji in which ATH acquired the government's 51% share of FINTEL, Fiji's international telecom carrier and submarine cable operator. With the purchase, FINTEL becomes a fully-owned subsidiary of ATH. FINTEL owns and operates Fiji's connection to the Southern Cross submarine fiber optic cable system. It is also involved in the recently completed Tonga-Fiji cable and the upcoming Vanuatu-Fiji system, both of which will tie into the Southern Cross system in Fiji and provide Tonga and Vanuatu with their first submarine cable connection to the global Internet. ATH is a public company listed on the South Pacific Stock Exchange and is Fiji's principal telecommunications holding company. Besides FINTEL, the ATH Group of Companies includes Telecom Fiji Ltd, Vodafone Fiji Ltd, Fiji Directories Ltd, ATH Technology Park Ltd, and Pacific Emerging Technologies Ltd.

## MMT wins UXO contract for TenneT cable route

Swedish marine survey company MMT has been awarded an Unexploded Ordnance (UXO) search and clearance project for TenneT offshore GmbH in the German Bight. TenneT Offshore GmbH (TOG) is responsible for the electrical connections of offshore wind parks within German territorial waters in the German Bight (North Sea) and EEZ to the German electricity distribution network. As result of the UXO threat that was identified in the Threat and Risk Assessment for the HelWin 2 HVDC and HVAC cable route, a requirement for a geophysical survey was raised by TenneT for the offshore platform and all cable routes. The HelWin

2 offshore cable route, including the HVDC platform area, will be surveyed using a magnetometer array to find any anomalies. The survey will be conducted from the MMT survey vessel Triad. This survey will be followed by an identification and removal operation/possible detonation in 2013 and in the beginning of 2014.



## ABB commissions Thornton Bank cable connection

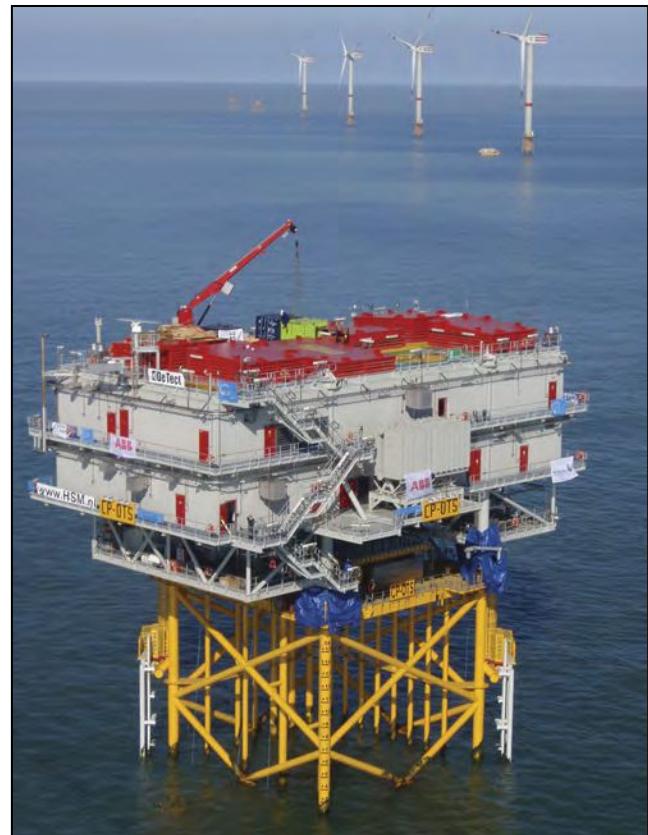


ABB has successfully commissioned the subsea transmission cable connecting one of the largest offshore wind farms in Europe to the Belgian grid. The Thornton Bank project, executed for the Belgian company C-Power NV, was completed on schedule.

The transmission link was constructed as part of an expansion of the Thornton Bank wind farm. In the first phase of its development, six wind turbines with a total capacity of 30 MW were built and temporarily connected to the mainland by ABB. The second and third phases of the project involved adding 48 wind turbines to the wind farm and connecting the complete wind farm, taking its overall capacity to 325 MW. The transformer station platform collecting and transmitting the power to the coast of Belgium is placed 30 km offshore in the North Sea.

As part of the turnkey project, ABB was responsible for the system engineering, design, supply, and commissioning of the alternating current subsea cables, the land-based cable systems, as well as the offshore substation and platform that houses it. The wind turbines are connected via underwater medium-voltage cables to the offshore transformer station where the voltage is boosted to 150 kV and connected to the mainland grid. The electricity is then fed into the grid at the Slijkens high-voltage substation located at Bredene, about 3 km inland.

The wind farm has a generating capacity of more than 1,000 GW-hours of electricity per year, equivalent to the annual consumption of about 300,000 households in Belgium. It will contribute approximately 7% of Belgium's

targeted renewable energy commitment by 2020. The Thornton Banks wind farm helps avoid CO<sub>2</sub> emissions of approximately 415,000 tons per year compared to a traditional gas-fueled power plant.

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

### BTC selects Huawei Marine for BDSNi upgrade

Huawei Marine Networks Co., Ltd. announced that the Bahamas Telecommunications Company (BTC) has selected Huawei Marine Optix BWS 1600S to upgrade the Bahamas Domestic Submarine Network International (BDSNi).

The BDSNi system links more than 20 sites between Bahamas and Haiti and stretches across about 3,500 km, the longest section of which is 343 km. It has played an important role in ensuring a robust telecommunications network to meet the expanding requirements of e-Commerce, e-Education, e-Trade, and e-Government on these islands.

Huawei Marine will enable BDSNi to deliver more flexible and cost-effective services with the implementation of



this upgrade capacity, providing 640 Gbps through the application of proven enhanced Raman technology. This connectivity and the ability to implement the new services between the main islands of the Bahamas and Haiti will provide a future proof platform to enable BTC to service expanding regional demand. The application of the Optix BWS 1600S with in-service upgrades and a compact footprint will enable BDSNi to capitalize on a small footprint, thus providing further operational benefits.

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

### Hawaiki signs NZ ISP Orcon for transpacific cable

Interest in Hawaiki's new 14,000-km transpacific cable continues to grow apace, with cable developer and owner Hawaiki Cable Limited announcing another customer signature.

New Zealand ISP Orcon has confirmed its intention to acquire interna-

tional bandwidth on the New Zealand, Australia, and U.S. segments of the Hawaiki submarine cable system.

The letter of intent outlines a multi-million dollar deal with Orcon, which was acquired by a consortium of local businesspeople earlier this year and will see the ISP purchase 40-Gbps capacity in year one, with substantial increases planned in additional years, that it said will help to unlock the potential of New Zealand's broadband market.

Hawaiki, a 14,000-km transpacific cable, is scheduled for completion in late 2015 and will link New Zealand, Australia, and Hawaii to the U.S. west coast.

In July of this year, Hawaiki Cable Limited signed a memorandum of understanding with the regional economic development body Northland Inc. to land its cable in Whangarei. Last month TPG Telecom Limited group signed a letter of intent confirming its intention to acquire fiber capacity on the Australia-U.S. segment of Hawaiki's cable.

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

November 2013

61

Ocean News & Technology

# Submarine Cable World™

Daily Newsfeed • Industry Analysis • Consulting Services

## Subscribe to the Submarine Cable World Daily NewsFeed™

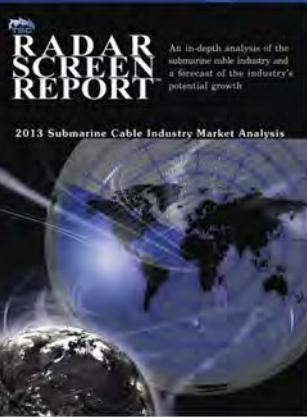
**Delivered electronically every weekday,  
the Submarine Cable NewsFeed™  
includes the latest developments in:**

- Submarine Fiber Optic Communications
- Power Cables
- Marine Cable Installation & Maintenance Services
- Regulation of Cables
- International Telecom Carrier Activities
- International Internet Markets



## Order the 2014 Radar Screen Report

- Review of the contract awards for 2013
- Forecast for demand for new systems from 2014-2019
- Analysis of the major factors impacting the submarine cable market, including Internet demand, availability of financing and implications of the financial crisis
- A listing of 200 submarine, fiber optic, & power cable projects under contract during 2013 or planned for the future



Subscribe and order at [www.subcableworld.com](http://www.subcableworld.com)

[www.subcableworld.com](http://www.subcableworld.com) • 772 219-3067

Published and distributed by TSC



## ABB, Statoil to develop deepwater power and control technologies

ABB has entered a joint industry program (JIP) with the Norwegian oil and gas company, Statoil. The program will develop solutions for transmission, distribution and power conversion systems designed to power and control subsea pumps and gas compressors at depths of 3,000 m and over vast distances. The agreement is an important step on the path to develop complete subsea oil and gas producing facilities.

Transformers are one of the components that need to be equipped to withstand the pressure of standing on the seabed for several decades. This is from the testing in Finland of a transformer for the Norwegian Continental Shelf from an earlier project. Statoil is leading the JIP on behalf of other participating oil companies, while ABB is responsible for developing the new technology. It follows an extensive subsea power study executed by Statoil and ABB during 2012. The total value of the agreement is \$100 million, which will be jointly funded by all participating companies.

The 5-year program is pivotal to the development of technologies required to power and control large-scale subsea pumping and gas-compression projects planned for the Norwegian continental shelf, the Gulf of Mexico and other places around the world. Subsea pumping and gas compression contribute to improved utilization of oil and gas resources through greater recovery rates, reduced production costs and the further

development of deep water production.

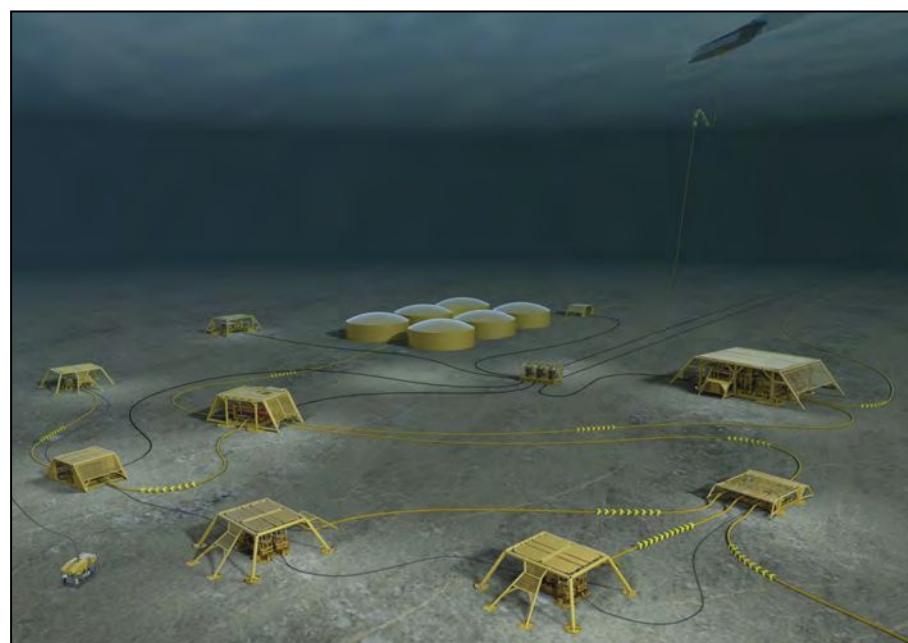
The JIP will provide solutions for transmission of electrical power up to 100 MW over a distance of 600 km and to depths of up to 3,000 m. This is important for the development of remote oil and gas fields located far from other infrastructure.

ABB is manufacturing its own semiconductors, which is an important component of the electrical system needed to power subsea installation with reliable power.

This subsea electric power distribution technology enables several electric loads, such as pumps and compressors, to be supplied through a single power cable. This will reduce investment costs significantly compared to existing solutions using one cable for each individual load. The new technology, for example, will make savings of more than \$500 million, if eight loads are linked through a single cable over a distance of 200 km from other infrastructure.

To ensure compact and reliable solutions, the equipment will be enclosed in liquid-filled, pressure-compensated tanks, with components tested extensively under the full pressure they will experience at the target water depth. The program entails material and component qualification, detailed design and full-scale testing of a 36 kV distribution unit and two variable speed drives for pump and gas-compressor applications, respectively.

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



## Export cables are in at Gwynt y Môr offshore wind farm

All four export cables have been installed at RWE npower renewables' flagship Gwynt y Môr Offshore Wind Farm off the North Wales coast. The final subsea cable burial was completed between the coast and one of the two offshore substations on 2 July.

The completion of export cable burial is an important stage in the construction of the wind farm. Four cables have been buried in the seabed between the offshore platforms and the beach at Pensarn. These will carry the electricity generated by the wind turbines to shore, with the onshore underground cable route delivering the power onto a new substation near St. Asaph Business Park.

Work on the export cable has been carried out by Prysmian PowerLink Services, based in Essex, using its barge, Cable Enterprise. The ship has been a regular sight on the beach at Pensarn as the four export cables were buried for connection underneath the sea wall and railway line to the onshore underground cable.

At 576 MW, Gwynt y Môr is one of the largest offshore wind farms currently in construction in Europe. It is a shared investment between partners RWE Innogy, Stadtwerke München GmbH, and Siemens.

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

## VSMC completes cable laying at two wind farms

Dutch marine services company VSMC has completed cable laying works at offshore wind farms in the United Kingdom and Germany.

First, UK wind farm developer London Array Limited instructed the VSMC to demobilize following completion of the last remaining part of the cable laying project, the shallow water trenching program. VSMC started working at the wind farm site in 2009.

For VSMC, the London Array project consisted of the installation and burial of four export cables and the installation, burial and termination of 178 infield cables. VSMC set an impressive record by completing the installation and burial of 216 km of export cables in 12 months and the installation and testing of 202 km of infield cables in just 9 months.

VSMC also was contracted to trench 177 km of infield cables on a very challenging work site with strong currents and areas that fall dry. Managed from the VSMC site office in Ramsgate, the project required innova-



tive techniques and unconventional methods of trenching.

At the second site in Germany, VSMC completed the first phase of laying 52 infield cables for the Nordsee Ost offshore wind farm. VSMC started its work on 3 August and completed the installation of the 25 cables within a month and ahead of schedule.

VSMC was able to bring the start of the project forward by temporarily using the CLV Normand Flower, which had finished the cable installation at Meerwind Süd | Ost ahead of schedule. The works at Nordsee Ost will continue as planned in the first quarter of 2014.

The Nordsee Ost wind farm consists of 48 wind turbines and has a total capacity of 295 MW. Nordsee Ost is situated in the German Bight, the southeastern part of the North Sea.

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

#### Tekmar wins Dong Energy's Westermost Rough contract

Tekmar Energy has been awarded a cable protection contract by DONG Energy for the Westermost Rough offshore wind farm. Situated 8 km off the coast of Hull, Westermost Rough will cover an area of 35 sq. km, generating 210 MW of electricity — enough to supply 200,000 homes. The scheme is part of the UK's Round 2 of wind farm projects. Once complete, Westermost Rough will be the first wind farm in the world to use Siemens 6-MW turbines on a commercial scale.

Tekmar Energy will provide bespoke coverings to protect the infield and export cables from exposure to loads, deformations and fatigue during installation and over the 35-turbine wind farm's service life.

In comparison with other subsea cable installations, Tekmar's Teklink system does not require a j-tube and utilizes a remote installation method. This provides enhanced cable life and resilience — reducing the risk of damage and requirement for maintenance and cost saving on foundation.

Over the past 5 years, Tekmar has installed more than 2,000 cable protection

systems and has a further 1,000 in design or manufacture for the 26 wind farms it has been involved in across Europe.

Founded in 1985, the firm initially specialized in oil and gas before moving into the expanding offshore renewables industry when it developed bespoke cable protection systems for cables connecting wind turbines.

The company recently announced its plan to enhance its service in the oil and gas market, while maintaining its leading position in offshore renewables. As part of this, Tekmar aims to generate £15 million in turnover from its oil and gas operations by 2016 as part of a strategy to increase overall turnover from £22 million to £50 million.

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

#### Nexans awarded Scottish Hydro contract

Nexans has been awarded a contract worth in excess of €120 million by Scottish Hydro Electric (SHE) Transmission plc to supply and install a subsea power link to upgrade the electricity transmission network between the Kintyre peninsula and mainland coast in Southwest Scotland. The upgrade, which

is part of SHE Transmission's wider plans to invest up to €6 billion in its electricity network between 2013 and 2021, will release up to 150 MW of additional grid capacity for renewable projects signaling a significant boost for the Kintyre economy.

Nexans will create a twin subsea cable link, rated at 230 kV and 240 MVA, from a new substation on the peninsula to the mainland coast. The project includes the supply and installation of two 41-km, 3-core submarine cables together with six 5-km, single-core underground cables for the land element. A fiber optic cable for control of the cable link will be integrated within the subsea cables and supplied separately for the land cables. Nexans will also supply a range of accessories.

Due to the route, the installation of the subsea cables in water depths of over 100 m is one of the key elements of the project. The installation will be carried out by Nexans' own cable ship, the C/S Nexans Skagerrak, and the cable will be protected on the seabed by burial using the specialized Capjet system as well as rock dumping.

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



**GLOBAL**  
Diving & Salvage, Inc.

**MARINE CONSTRUCTION  
CASUALTY RESPONSE  
OFFSHORE SUPPORT**

[www.gdiving.com](http://www.gdiving.com)

MORE THAN JUST A DIVING COMPANY

## New underwater connector from Amphenol

Amphenol Industrial Global Operations, a global leader in interconnect systems, now offers a line of high-performance, rugged and reliable underwater electrical connectors for deep submersion applications. The Submariner series of subsurface wet-and dry-mate connectors can be used in depths up to 6,000 m (underwater pressure of up to 600 bar).

The connector is ideal for use by the military and government, diving equipment manufacturers, and remotely operated vehicle (ROV) and autonomous underwater vehicle (AUV) manufacturers as well as deep submergence science and research projects.

The Submariner series is a full line of deep submersion connectors that include dry-mate connectors that are fully compatible with similar products in the industry. For example, these new connectors can be interchanged with existing connections in an ROV without having to replace all of the vehicle's connections.



Designed to meet the rapid growth and rising demand in the global ROV market, the new Submariner series uses Amphenol's molding and adhesion expertise to offer an optional molded-to-cable feature. This feature ensures that the seal between the cable and connector remains intact under water. All polymer-to-metal bonding surfaces are carefully sandblasted, cleaned, primed and molded. The rugged metal shells and recessed pins assure reliable performance in the most demanding environments.

Available in three different shell sizes and a variety of configurations, Amphenol's Submariner series features wire gauges from 10 to 20 AWG, a maximum operating voltage of 600 V, and operating temperatures ranging from -5°C to 65°C.

For longer life and prolonged mating cycles, each connector is designed with gold-plated contacts per MIL-G 45204 at 30 microns. Cable assemblies and pigtails are available.

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

## Aquatic introduces powerful new modular carousel system

**64** Aquatic Engineering & Construction Ltd, an Acteon company, has unveiled its 1500 te carousel (AQCS-01-1500), a powerful, modular drive system representing a significant capability extension for customers requiring installation or replacement of flexibles, umbilicals, power, and telecommunication cables and wire rope products.

Installation in deeper water(s) has become a recent trend in the subsea market, often being performed in depths ranging from 2,000 to 3,000 m. However installation, replacement, or recovery work at this depth requires specialist equipment to accommodate the increasing length and weight of the items being installed. Aquatic's carousel system provides the strength and stability that can withstand the installation of the heaviest equipment in deep water.

In addition, Aquatic is assisting its customers on projects that demand increasingly long subsea tie-backs to processing platforms, thereby demonstrating the carousel's undoubted capability and flexibility in all waters.

The carousel can handle a product load up to 1,500 te, has a maximum reeling speed of approximately 1 km/h, and uses a built-in tensioner with a maximum line pull of 5 tonnes to maintain product tension on the horizontal reel at all times. The tensioner is mounted on a level-wind tower, which ensures proper spooling on and off the carousel. It has a reel diameter of 12 m and a variable hub diameter, which means that it can handle multiple products and can be mobilized onto most vessels of opportunity.

"This new system draws on all of our previous engineering and operational experience," said Aquatic Group president Chris Brooks. "Unlike other designs on the market, our carousel is genuinely modular and can be broken down to

components that fit in standard shipping containers. It is straightforward to assemble and, crucially for our customers, a much less expensive option than buying a new vessel and building a carousel around the ship. The development of this new carousel underlines our commitment to providing services that meet our customers' needs."

Aquatic is part of the Acteon's wider risers, conductors and flowlines offering and joins the other Acteon companies in linking subsea services across a range of interconnected disciplines.

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



**Falmouth Scientific announces two new additions to the "Plus" instrumentation family**

Falmouth Scientific, Inc. (FSI) is pleased to announce two new additions to the PLUS FAMILY of measurement instruments: the ACM-WAVE-PLUS and WAVE-TIDE-PLUS. They join the ACM-PLUS acoustic current meter that has set a new standard for cost-effective single-point current measurement.

The new ACM-WAVE-PLUS provides current speed & direction, wave direction, wave height, and other wave statistics by combining FSI's enhanced ACM-PLUS technology with a high-accuracy, micro-machined silicon pressure sensor.

And the new WAVE-TIDE-PLUS provides an economical solution for applications that only need non-directional wave height and tide characteristics.

All of the members of FSI's PLUS FAMILY offer features, functionality, and benefits that will enhance your ability to measure and characterize salt-water or fresh-water environments, including options to add an integrated CTD module and/or up to two external sensors. The data can either be displayed in real-time via optional cables or captured into memory for later retrieval and analysis.

Falmouth Scientific offers other sensor-based products such as user-friendly, ultra-portable seismic systems; rugged and portable sidescan sonar imaging systems; solutions for drilling and vortex-induced vibration monitoring; and other acoustics-based underwater instrumentation. Service areas include custom design, development, integration, and production of marine systems and acoustic transducers and value-added services such as prototyping, product assembly, encapsulation (potting), calibration, and pressure testing.

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

**12 Mbit/S link enables PGS seismic vessel to transfer survey data to shore**

Marlink has successfully completed delivery of Ku-band VSAT services based on a 12 Mbit/s dedicated return link for the Atlantic Explorer, a Petroleum Geo Services (PGS)-owned seismic survey vessel. The high throughput link was an upgrade to Atlantic Explorer's existing Sealink customized VSAT service supplied by Marlink.

# **FLEXIBLE SUBSEA BLADDERS**



**DEEP SEA RESERVOIRS & CUSTOM BLADDERS  
IN SUPPORT OF EXPLORATION, PIPELINES,  
DRILL RIGS, SALVAGE & ROV/AUV EQUIPMENT.**

**ACCUMULATORS • ACTUATORS • BALLAST  
COMPENSATORS • DAMPERS • DIAPHRAGMS  
FLOTATION • HYDRAULIC RESERVOIRS  
FUEL & BATTERY CONTAINMENT • PIPE PLUGS**

**FLEXIBLE BLADDERS FOR: OIL DISPERSANTS, METHANOL, GLYCOLS, FUEL,  
LUBRICANTS, HYDRAULIC FLUID, CHEMICAL CLEANING COCKTAILS, ETC.**



**Aero Tec Laboratories**  
RAMSEY, NJ U.S.A.

TOLL FREE: **800-526-5330**

WEB: [www.ATLINC.com](http://www.ATLINC.com)

## **Performance Testing Begins at Ohmsett**



▶

**A**t Ohmsett, testing and R&D opportunities abound! Our unique capabilities and realistic marine environment play an essential role in developing new technology that will be cleaning the world's water in the future.

**Features & Capabilities:**

- ❖ Full-scale testing, training and research
- ❖ Independent and objective testing with real oil
- ❖ Measurable and repeatable test parameters
- ❖ Chemical treating agents and dispersant testing
- ❖ Mechanical containment and recovery in ice
- ❖ Evaluation of remote sensing systems
- ❖ Test protocol development



**Ohmsett**  
Leonardo, New Jersey  
732-866-7183  
[www.ohmsett.com/ONT.html](http://www.ohmsett.com/ONT.html)

Ohmsett, the Bureau of Safety and Environmental Enforcement's (BSEE) National Oil Spill Response Research and Renewable Energy Test Facility



**WRIGHT'S**  
Solutions for Oil & Gas  
Operators & Contractors  
in the Gulf of Mexico  
and Beyond

- Well Plug & Abandonment
- Subsea Intervention
- Project Management
- Pipeline Services
- Pressure Pump Services
- Platform Decommissioning

**Deepwater Operations**  
November 5–7  
Moody Gardens  
Hotel & Convention Center  
Galveston, TX  
Booth 517

[www.wrightswell.com](http://www.wrightswell.com)

The service was used during a 4-week North Sea survey project, enabling seamless transfer of survey data to shore where they could be reviewed and addressed while Atlantic Explorer was still at sea. This enabled survey schedules to be amended based on results as they were generated, saving time, costs and resources for PGS' client as there was no need to wait for data to be delivered on return to port or collected by a helicopter, as is usually the case.

"Taking into account overheads, packet loss for instance, the link enabled throughput of approximately 5 GB/hr. To put it into context, this is about 50 times more throughput than an average offshore vessel needs for heavy operational and crew use," explains Tommy-Konkol Dybvad, director, customized VSAT, Astrium Services. "A link of this scale was necessary in order to facilitate the transfer of survey data. The project was a success, with the link providing massive amounts of bandwidth that enabled PGS and its client to conduct a highly operationally and cost-efficient offshore survey."

The connection was ordered by PGS mid-May 2013 and was live by the end of June using the existing 1.5 m Ku-band antenna on board Atlantic Explorer. A Marlink engineer installed a new 40-W BUC (Block Upconverter) prior to the survey to enable the higher throughput, which was activated while the vessel was out at sea. The configuration and service provision reflects Marlink's approach to project-based VSAT, where it can quickly provide extended capabilities for vessels requesting extra temporary or permanent bandwidth.

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

### CTI SonarWiz now supports multibeam and interferometric bathymetry systems

Chesapeake Technology Inc. (CTI) is a world leader in real-time acquisition and GIS-based processing software for seafloor mapping. CTI is pleased to announce a major advance to its flagship software SonarWiz with the addition of post-processing for multibeam echo sounder and interferometric bathymetry systems.

SonarWiz now offers data processing for both multibeam and interferometric bathymetric systems with present support for processing bathymetry

file types of ALL, HSX, JSF, R2S, RDF, S7K, SXI, and XTF. SonarWiz is the software that streamlined the processing of sidescan sonar, sub-bottom profiler, and magnetometer data and now with the new bathymetric processing capability, brings together the data from these different geophysical sensors in one unified workspace. SonarWiz Bathy reads the native data formats directly and gives the user all the tools required to view and edit the bathymetric data to produce high-resolution maps and reports.

By integrating the processed bathymetry data with sidescan sonar data, stunning 3D sidescan sonar mosaics can be generated giving a whole new visual dimension to seafloor data. SonarWiz Bathy will be a great advantage to the data processor and analyst, simplifying the processing tasks, saving time and money.

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

### New multi corer from OSIL

The OSIL Multi Corer has been substantially redesigned to improve usability and handling of both the corer and subsequent samples on deck. This updated version of the multi corer has replaced OSIL's existing range of Multiple Corers that are universally acknowledged as being the only way of reliably collecting an undisturbed sediment sample from the seabed.

The exciting new developments in this multi corer include features that allow the corer to be used with ease while maintaining and improving the corers effectiveness. The handling has been enhanced through the use of a modular weight design and a novel shutter plate mechanism, which prevents the accidental stretching of the shutter plate springs. The corer is also fitted with a new style tube retention system to make it easier to install and remove the sample tubes on deck. While previous multi corers have been manufactured with a lead corer head, the new model uses precision water cut 316 stainless steel plate making this a lead-free version. Overall sampling design of the corer has not been altered and it still maintains the hydrostatic damped coring mechanism that results in near perfect corer. This new development reaffirms the Multiple Corer as the number one corer for environmental impact assessment world wide.

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

## New Powershark tool eats through biofouling in seconds

Serious bio-fouling removal calls for a serious tool. The PowerShark WB3000, a powerful new rechargeable, submersible handheld tool from Waveblade, Inc., removes barnacles and other unwanted growth in seconds. It delivers a new level of efficiency and safety for shallow dive maintenance work on hulls and marine structures and works equally as well for land-based projects.



The PowerShark capitalizes on a patented resonant wave technology. Oscillating at a 3,000 rpm frequency with additional harmonics, the tool's cleaning head actually breaks the chemical bond between materials. In the process, even the most stubborn fouling falls away without damaging underlying surfaces. The completely waterproof tool operates both on land and underwater, with a 20-ft depth rating.

Behind the PowerShark's bite lies a 12.8-V lithium iron phosphate rechargeable battery pack with a 6-Ahr rating. An included battery holster and 4.25-ft cord provide unlimited mobility, freeing divers or workers from surface power connections. The battery provides a continuous running time of up to 90 min and comes with its own custom charger.

The PowerShark WB3000 tool from Waveblade, Inc., measures 16.5 in. x 3 in. x 4.3 in., while its battery measures 4.5 in. x 7 in. x 8.5 in. Tool, blade and battery together weigh under 6 lbs.

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

## EIVA launches high-quality winch product range

The OceanEnviro™ product range of robust and cost-effective winches for survey and deployment operations is now a potential item on orders placed by EIVA's customers.

Offshore survey and engineering

specialist EIVA has delivered winches to the international industry for more than 30 years. As of October 2013, the winches will carry EIVA's logo and the name OceanEnviro™ as the company launches its own range of high-quality winches for survey and deployment in connection with oceanographic and hydrographic operations.

OceanEnviro™ is designed in collaboration with winch-specialist Sepro Technology AS. The winch range is a further development of existing Sepro Technology AS products, pooling the expertise of both companies. This makes for a cutting-edge solution with a proven track record, a competitive price, and customer needs in focus.

The OceanEnviro™ product range offers maximum cable lengths ranging from 600 to 2,700 m, drum diameters from 250 to 480 mm, and motor power from 1.5 to 10.4 KW.

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

## Accurate snow height measurements with the MetOcean snow beacon

MetOcean is pleased to announce the release of the innovative Snow Beacon. Designed and tested in conjunction with the world-renowned Alfred Wegener Institute, the Snow Beacon is an Iridium reporting data collection and processing beacon ideal for remote polar applications. Developed to measure snow height and guaranteed to deliver high reliability, low power consumption, and dependable operation, the Snow Beacon is the perfect turn-key solution to measure snow height for any size project. The Snow Beacon is also equipped with various sensors: GPS positioning, barometric pressure, air temperature, sea surface temperature sensors, and four snow height sonar sensors.

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



## Iver2 Autonomous Underwater Vehicle



**Iver2 AUV—Ideally suited to execute a variety of missions in near coastal environments**

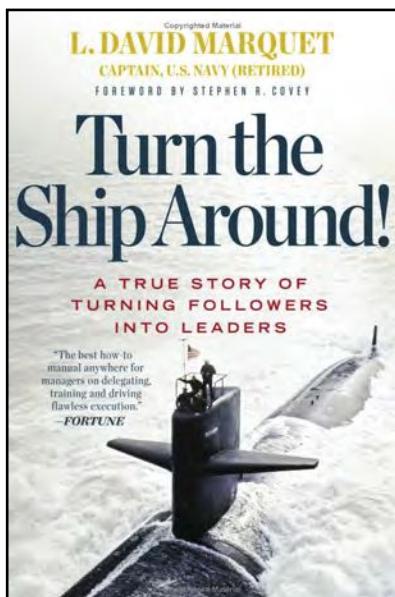
- Easy to operate
- Single person launch and recovery
- Commercial open system architecture
- Intuitive mission planner
- Science payloads available
- Low cost AUV 54K USD

**OceanServer**  
IVER2 Autonomous Underwater Vehicle

[www.ocean-server.com](http://www.ocean-server.com)  
+1 508 678 0550

## Turn the Ship Around! A True Story of Turning Followers into Leaders

By L. David Marquet, Captain U.S. Navy (Retired)



David Marquet, an experienced Naval officer, was used to giving orders. As the newly appointed captain of the USS Santa Fe, a nuclear-powered submarine, he was responsible for more than a hundred sailors, deep in the sea. In this high-stress environment, where there is no margin for error, it was crucial his men did their job and did it well. But the ship was dogged by poor morale, poor performance, and the worst retention in the fleet.

Marquet acted like any other captain until, one day, he unknowingly gave an impossible order and his crew tried to follow it anyway. When he asked why the order wasn't challenged, the answer was "Because you told me to." Marquet realized he was leading in a culture of followers, and they were all in danger unless they fundamentally changed the way they did things.

That's when Marquet took matters into his own hands and pushed for leadership at every level. *Turn the Ship Around!* is the true story of how the Santa Fe skyrocketed from worst to first in the fleet by challenging the U.S. Navy's traditional leader-follower approach. Struggling against his own instincts to take control, he instead achieved the vastly more powerful model of giving control.

Before long, each member of Marquet's crew became a leader and assumed responsibility for everything he did, from clerical tasks to crucial combat decisions. The crew became fully engaged, contributing their full intellectual capacity every day, and the Santa Fe started winning awards and promoting a highly disproportionate number of officers to submarine command.

**Portfolio; ISBN-10: 1591846404  
Hardcover, 272 pages, May 2013**

**MCE DEEPWATER  
DEVELOPMENT 2014**

**8-10 APRIL, 2014  
MADRID • SPAIN**

[WWW.MCEDD.COM](http://WWW.MCEDD.COM)

Co-Hosted by **REPSOL** **bp**

Organized by **Quest Offshore**

Partners with **ICL**

Diamond Sponsors **TOTAL** **SEAWAY HEAVY LIFTING** **CAMERON**

Gold Sponsor **bp** **SUT** **ABS**

Early Career Engineer Sponsors

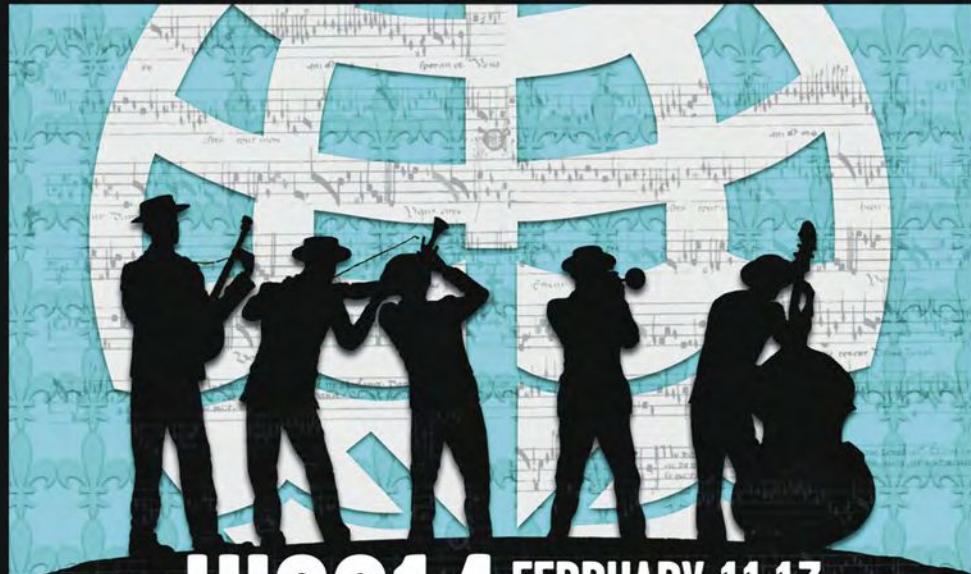
Conference Technology Sponsor

**MADRID • 8 - 10 April 2014**

*Co-Hosts Repsol & BP welcome you to one of the world's premier events, the 11th annual MCE Deepwater Development Conference & Exhibition*

# Underwater Intervention

February 11-13, 2014



**UI2014** FEBRUARY 11-13  
NEW ORLEANS

**ERNEST N. MORIAL CONVENTION CENTER  
NEW ORLEANS, LOUISIANA, USA**

**REGISTER TODAY**

**WWW.UNDERWATERINTERVENTION.COM**

Occidental Petroleum Corp. said that **Marcia E. Backus** was appointed vice president and general counsel of the company. Backus, 59, most recently was a partner at Vinson & Elkins in Houston, Texas. She headed the firm's energy transactions-projects practice group, representing industry and private equity companies in domestic and international mergers and acquisitions, joint ventures, private equity investments, project development, and other energy transactions. She is ranked among the leading business lawyers in oil and gas and energy by both Chambers USA and Chambers Global and was named 2012 lawyer of the year in mergers and acquisitions by The Best Lawyers in America. She has served in numerous leadership positions with Vinson & Elkins, including the firm-wide management committee, co-chair of the corporate department, and as chair of the partnership admissions committee.

Variable Bore Rams, Inc., a large original equipment manufacturer of blowout preventer components and ram providers, named **Cameron McCreary** as sales account manager. Based in San Antonio, Texas, McCreary will be responsible for expanding sales and revenue in the west and south Texas regions.

He will establish productive, professional relationships with key personnel within his accounts while cultivating existing company relationships. McCreary's role also requires management of tickets and invoices within his area. Previously, McCreary held two positions at Drilformance as a city sales representative and a field sales representative. He has also worked with National Oilwell Varco and Hughes Christen Co. Additionally, McCreary has completed various bit selling solutions courses and seminars.

Royal Dutch Shell Plc named **John Abbott** as refining director to succeed **Ben van Beurden**, who will become chief executive officer in January. Abbott, a 30-year industry veteran, has been running about 30 refineries and petrochemical plants at the company. He left his post of executive vice president for manufacturing on 1 October and also joined Shell's executive committee. A British national, Abbott joined the company in 1981 after graduating from Birmingham University in central England. He had several jobs running



McCreary

refineries, petrochemical plants and heavy-crude production projects from North America to Asia. In Canada, Abbott supervised Shell's oil sands ventures and managed an associated carbon-capture and storage project. He has been in charge of the company's investment program to raise heavy oil output by 60% in the decade to 2020 by upgrading assets in North America.

Superior Performance Inc. promoted **Bobby Hodge** to sales manager. Hodge will report to chief executive officer Louis Roth and will work toward meeting sales quotas and company deadlines in the Houston, Texas sales division. He will assist the sales staff by serving the existing customer base and creating new business strategies. Additionally, Hodge will predict revenue volume for existing and new products. With previous experience as a sales representative, Hodge brings a thorough understanding of sales and customer relations to this role, the company said. Hodge holds two degrees from McNeese State University in accounting and computer science. "Bobby is a prominent addition to our sales team and has proven to be a strong leader," Roth said. "We are eager for him to continue to grow within our company."

## Industry News from Around the World - Almost as Fast as it Happens



**Stay Current,  
Stay Competitive  
-Subscribe today!  
(it's free!)**

[www.ocean-news.com](http://www.ocean-news.com)

**WEEKLY  
INDUSTRY  
NEWSFEED**

**Published every week, this electronic industry resource will keep you updated on current events, technology, and opportunities in the global oceans marketplace.**

Aberdeen-based subsea installation contractor Bibby Offshore has appointed **Nicky Etherson** as its new commercial director to help facilitate the company's ambitious growth plans. Ms. Etherson joins the business with almost 20 years of experience in the oil and gas industry, having previously held the position of head of contracts for Total E&P UK Limited. There she was responsible for managing all aspects of the contracts function, supported by a team of 15 personnel, covering a range of services, including drilling, well control, subsea support, logistics, and topside operations. Prior to this, Ms. Etherson worked for oil and gas majors Acergy Limited, AMEC Oil and Gas and Technip Offshore. As commercial director, Ms. Etherson will be responsible for all commercial and contractual governance within the Bibby Offshore group of companies.

InterMoor, an Acteon company, has announced the appointment of **Cohen Guidry** to the role of global QHSE manager. Guidry joined InterMoor in 2006 as HSE manager and has more than 20 years of experience in the offshore oil and gas industry, mostly in quality, health, safety, and security roles. He will be based at InterMoor's offices in Morgan City, Louisiana. Over the past 6 years, Guidry has worked as InterMoor's West Africa operations manager where his responsibilities focused on developing the company's business in Nigeria, Ghana, and Angola as well as coordinating mobile offshore drilling units for mooring systems installations. Guidry served in the U.S. Army from 1988 to 1992 and is a Desert Storm veteran. He graduated from Nichols State University with a Bachelor of Science degree in business in 1996. Guidry is a certified lead auditor.

Ocean Sonics recently welcomed **Zhao Xie** and **Lauren Dolan** to the icListen team in the roles of accounting and marketing. Xie joined the team as accounting administrative assistant and will be responsible for payroll, data entry, and preparing financial statements. She has a Bachelor of Arts Degree from the Fujian University in China and a Diploma in Business with an Honours in Accounting from the Nova Scotia Community College. Dolan joined the team as marketing coordi-



Etherson

nator and is responsible for communications, brand management, and logistics for the company. Dolan holds a Bachelor of Business Administration Degree with a First Class Honours Major in Marketing from the University of New Brunswick. Originally from Woodstock, New Brunswick, Dolan recently moved to Oxford, Nova Scotia and is proud to call the "Blueberry Capital of Canada" home. Ocean Sonics designs and manufactures the icListen Smart Hydrophone, the icTalk Smart Projector, and other related accessories for precise measurement of ocean sounds.

Applied Weather Technology, Inc. (AWT), a leading provider of maritime ship routing advisory services and onboard voyage optimization systems, announced the appointment of **Haydn Jones** as chief executive officer. From AWT's headquarters in the Silicon Valley, Jones will lead AWT's 10 offices to deliver industry-leading products and services to the company's 800 shipping clients. Most recently, Jones served as AWT's director of international operations, overseeing sales, marketing, and business development. He is also a member of the parent company board of directors. Prior to joining AWT in early 2013, Jones held the role of marketing director and business development manager for Fugro Satellite Positioning of Oslo. His management career also included strategic management positions with Nera Ltd., the United Kingdom Hydrographic Office, and ChartCo Ltd., a valued AWT business partner. Jones began his work in the marine industry following his graduation from the Britannia Royal Naval College in Dartmouth, UK, working as a deck officer on a range of warships. While at sea, he also taught navigation and bridge-watch-keeping duties to officer cadets.

The **MacArtney Group** has recently extended its exclusive agreement with long standing Chinese agent — SeaTech China. The new 2-year deal was signed as SeaTech China and MacArtney joined forces for the first-ever Chinese edition of the Oceanology International exhibition for marine science and technology. SeaTech and MacArtney successfully joined forces to connect with key players and potential customers.

**EdgeTech**, the leader in high-resolution sonar imaging systems and underwater technology, has added over 7,500 sq. ft to its main office in Massachusetts, USA. The expansion is the second in less than 2 years for the company. EdgeTech continues to see a growing demand for the company's sidescan sonars, sub-bottom profilers, bathymetry systems, AUV-based



Dolan

sonars and deep sea acoustic releases. With the additional space, EdgeTech now has over 30,000 sq. ft of manufacturing and office space located in West Wareham Massachusetts. The new space will be used to build commercial off-the-shelf and customized sonar products. The majority of the space will be allocated for engineering and manufacturing, with a portion dedicated to supporting office personnel as well.

**Sea-Bird Scientific** is pleased to announce the formation of a new senior science team led by Norge Larson. The science team will focus scientific resources from Sea-Bird Electronics, WET Labs, and Satlantic on the critical needs of the oceanographic and water quality communities to drive innovation and sensor technology development across Sea-Bird Scientific. This newly formed science team will be a critical part of Sea-Bird Scientific. Casey Moore, the new president of Sea-Bird Scientific, Norge, and the entire Sea-Bird Scientific team are pleased to leverage this new organizational structure to continue to deliver leading scientific solutions along with the best performance and quality in the industry.

**ImpactWeather**, a StormGeo company, was awarded certification under the International Standards Organization (ISO) 9001:2008 criteria this week. These specific principles are designed to measure and assess a company's quality processes, methodologies, and internal systems. The achievement of certification indicates that the company has passed a rigorous audit process and proven its ability to ensure consistency in its service deliverables. Internationally recognized as mark of excellence for organizations across many industries, ISO certification is particularly valued in the oil and gas industry and various regulated industries, such as banking and healthcare, as well as all publicly held companies.

**StormGeo**, a global weather services company, will open its first office in Alaska. With staff provided by ImpactWeather, its Houston subsidiary, StormGeo will begin operating out of Anchorage in order to better serve its Alaskan clientele and optimize its growth in the Arctic Circle. Already possessing extensive experience in Greenland and the North Sea, StormGeo believes this is a critical chance to expand its service to oil and gas clients in Alaska. StormGeo will also provide its Alaskan clients with offshore environmental monitoring tools, onshore and offshore forecasts that are site-specific, and access to meteorologists around the clock.



Guidry



Xie

# CALENDAR & EVENTS

November 5-7, 2013  
**Deepwater Operations**  
Galveston, TX  
[www.deepwateroperations.com](http://www.deepwateroperations.com)

November 6-8, 2013  
**Oil Comm**  
Houston, TX  
[www.oilcomm.com](http://www.oilcomm.com)

November 11-13, 2013  
**Subsea Survey IMMR**  
Galveston, TX  
[www.subseasurvey.com](http://www.subseasurvey.com)

November 12-14, 2013  
**Clean Gulf**  
Tampa, FL  
[www.cleangulf.org](http://www.cleangulf.org)

November 19-20, 2013  
**North Sea Decommissioning**  
Aberdeen, UK  
[www.decomworld.com/nsd](http://www.decomworld.com/nsd)

November 19-21, 2013  
**EWEA Offshore**  
Frankfurt, Germany  
[www.ewea.org/offshore2013](http://www.ewea.org/offshore2013)

November 26-27, 2013  
**International Tidal Energy Summit**  
London, England  
[www.tidaltoday.com/tidal-conference](http://www.tidaltoday.com/tidal-conference)

January 26-29, 2014  
**GOM Oil Spill & Ecosystem Science**  
Mobile, AL  
[www.gulfmexicoconference.org](http://www.gulfmexicoconference.org)

February 5-6, 2014  
**Subsea UK**  
Aberdeen, UK  
[www.subseauk.com](http://www.subseauk.com)

February 11-13, 2014  
**Underwater Intervention**  
New Orleans, LA  
[www.underwaterintervention.com](http://www.underwaterintervention.com)

February 23-28, 2014  
**Ocean Sciences Meeting**  
Honolulu, HI  
[www.aslo.org/meetings/sessions](http://www.aslo.org/meetings/sessions)

March 5-7, 2014  
**Subsea Tiback**  
San Antonio, TX  
[www.subseatickebackforum.com](http://www.subseatickebackforum.com)

March 9-13, 2014  
**NACE Corrosion**  
San Antonio, TX  
[www.nace.org](http://www.nace.org)

March 11-13, 2014  
**Oceanology International**  
London, UK  
[www.oceanologyinternational.com](http://www.oceanologyinternational.com)

March 25-28, 2014  
**OTC Asia**  
Kuala Lumpur, Malaysia  
[www.otcasia.org](http://www.otcasia.org)

March 29-May 1, 2014  
**IDGA Maritime Homeland Security**  
Baltimore, MD  
[www.maritimehssummit.com](http://www.maritimehssummit.com)

April 7-10, 2014  
**Oceans '14 Taipei**  
Taipei, Taiwan  
[www.oceans14mtsieetaipei.org](http://www.oceans14mtsieetaipei.org)

April 8-10, 2014  
**European Offshore & Energy**  
Birmingham, UK  
[www.europeanoffshoreenergy-expo.com](http://www.europeanoffshoreenergy-expo.com)

November 2013

**72**

Ocean News & Technology



Europe's largest  
annual Subsea Exhibition  
and Conference

Aberdeen AECC | 05-07 February 2014



Formerly Subsea 2014

SPONSORED BY



SIMMONS & COMPANY  
INTERNATIONAL LIMITED



ORGANISED BY



MEDIA SPONSOR



PRINCIPAL  
MEDIA SPONSOR



## 2013 EDITORIAL CALENDAR

### January/February 2013

**Editorial:** Decommissioning & Abandonment, Subsea Fiber Optic Networks  
**Distribution:** Decommissioning & Abandonment Summit, NACE, Offshore Mediterranean, U.S. Hydro  
**Product Focus:** Navigation, Mapping & Signal Processing

### March

**Editorial:** Oceanology & Meteorology, Maritime Security  
**Distribution:** Ocean Business, SubOptic 2013  
**Product Focus:** Ocean Instrumentation, Diver Detection Systems

### April

**Editorial:** Offshore Technology, Ocean Mapping & Survey  
**Distribution:** GMREC, IDGA Maritime Homeland Security, OTC  
**Product Focus:** Connectors, Cables & Umbilicals

### May

**Editorial:** UW Imaging & Processing, Marine Salvage  
**Distribution:** EnergyOcean, Oceans '13 Bergen, Sea Work Intl, UDT  
**Product Focus:** Cameras, Lights & Imaging Sonars

### June

**Editorial:** Workclass ROVs, Deepwater Pipeline & Repair & Maintenance  
**Distribution:** TBA  
**Product Focus:** Subsea Tools & Manipulators

### July

**Editorial:** AUVs & Gliders, Marine Construction  
**Distribution:** AUVSI  
**Product Focus:** Tracking & Positioning Systems, Seismic Monitoring

### August

**Editorial:** Defense & Naval Systems, Corporate Showcase  
**Distribution:** TBA  
**Product Focus:** Multibeam & Side Scan Sonars

### September

**Editorial:** Ocean Observing Systems, Ocean Renewables  
**Distribution:** Oceans MTS IEEE, SPE ATCE, MREC, MTS Dynamic Positioning,  
**Product Focus:** Buoys & Monitoring Instrumentation

### October

**Editorial:** Offshore Vessels, Offshore Communications  
**Distribution:** International Workboat, LAGCOE, Oil Comm, OTC Brazil, North Sea Decommissioning, AWEA/Offshore Windpower  
**Product Focus:** Acoustic Modems, Releases & Transponders, Marine Communications

### November

**Editorial:** Subsea Inspection, Monitoring, Maintenance, Repair; Subsea Telecom  
**Distribution:** SUBSEA Survey IMMR, Clean Gulf  
**Product Focus:** Handling Equipment, Winches & Control Systems, Battery Technology

### December

**Editorial:** Light Workclass ROVs, Commercial Diving  
**Distribution:** Subsea UK, Underwater Intervention  
**Product Focus:** Diving Equipment & Buoyancy Materials

Serving the Ocean and Offshore industry, Ocean News & Technology has a long, rich history as the primary information resource executives around the world rely on.

For nearly 30 years ON&T has provided news, forecasts, and authoritative feature articles designed to keep industry leaders informed and focused on the future of the industry.

### Industry's Choice creates Advertiser's Advantage

ON&T's unique comprehensive format and cutting-edge distribution methods demonstrate the publication's standing as the #1 choice for industry news, making it the best ROI choice for advertisers!



**Print** – Still the preferred format in the industry, ON&T print copies are distributed worldwide.

**Digital** – No matter where they are in the world, subscribers also have the benefit of the digital edition, complete with linked websites in ads, articles and releases.

**APP** – ON&T free APP is utilized thousands of times each month, creating an instant path from your ad to your website 24/7.

**Ocean Industry Directory** – Each issue features a directory providing your product, services and contact information to buyers around the world. Listings are available in print and digital editions and can be updated throughout the year.

**Archives** – Available through digital and APP, readers can research historical data, articles, and references with the aid of Keyword Search.

**VIDEO-IN-PRINT** – Embed video in your ad! Viewed by digital and APP readers, your VIP can be informational, inspirational, and/or entertaining.

November 2013

73

Ocean News & Technology



**Advertising**

North America

Lisa Chilik

574-261-4215

[Lchilik@tscpublishing.com](mailto:Lchilik@tscpublishing.com)

**Texas/Louisiana**

Amy Dukes

713-557-8057

[adukes@tscpublishing.com](mailto:adukes@tscpublishing.com)

**International**

Zinat Hassan

+44 (0) 845 6522 483

[zhassan@tscpublishing.com](mailto:zhassan@tscpublishing.com)

Mimi Shipman

+44 (0) 777 601 7564

[mshipman@tscpublishing.com](mailto:mshipman@tscpublishing.com)

**Editorial**

Ladd Borne

772-219-3002

[lborne@tscpublishing.com](mailto:lborne@tscpublishing.com)



# Ocean News & Technology

# OCEAN INDUSTRY DIRECTORY



## 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.

Don't miss the opportunity to provide your next prospect with the information he needs to contact you. Place your listing in the Ocean News & Technology Ocean Industry Directory today!



Add your  
Quick Response (QR) Code

Scan this QR Code on your smartphone/tablet to learn more about Ocean News & Technology  
(Free QR readers are available at your app store)

## Directory Sales:

**North America:**

Lisa Chilik: +1 574-261-4215  
Lchilik@tscpublishing.com

**Texas/Louisiana:**

Amy Dukes: +1 713-557-8057  
adukes@tscpublishing.com

**International:**

Zinat Hassan: +44 (0) 845 6522 483  
zhassan@tscpublishing.com

Mimi Shipman: +44 (0) 777 601 7564  
mshipman@tscpublishing.com

## FEATURING QR CODE

QR codes represent the *future* of marketing communication by merging print and online communication. The QR Code is a square barcode that can be read by smart phones and tablets equipped with the appropriate free software (search "QR Reader" at your app store).

ONT can add your unique QR code to your new or existing listing. Contact a representative for details.

**WWW.OCEAN-NEWS.COM**

## ACOUSTIC SYSTEMS

**Applied Acoustic Engineering Ltd**  
Marine House, Gapton 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  
13355 Berlin, Germany  
Tel: +49 (0) 30 4679 862-0  
Fax: +49 (0) 30 4679 862-01  
E-mail: sales@evologics.de  
Website: www.evologics.de



World's most advanced spread-spectrum underwater communication systems (S2C) with multi-channel data management, networking capability, built-in tracking and positioning functions with USBL. Data loggers, acoustic wake-up module and releasers optionally included. Deployments in offshore platforms (FPSO, ABS), environmental monitoring, defense systems, ROV and AUV operations and more.

## Falmouth Scientific, Inc.

1400 Route 28A, PO Box 315  
Cataumet, MA 02534-0315, USA  
Tel: 1-508-564-7640  
E-mail: fsi@falmouth.com  
Website: www.falmouth.com



## Sensors – Systems – Service

Falmouth Scientific, Inc. designs and manufactures precision oceanographic instrumentation and systems. Product areas include:

- Ultra-Portable Seismic Systems • Current, Wave, and Tide meters • Structural Stress Monitoring Systems • Sidescan Sonar Imaging Systems • Acoustic Transducers, Systems, and Support • Acoustic Positioning and Relocation Beacons

## iXBlue

Tel: +33 (0)1 30 08 88 88  
Fax: +33 (0)1 30 08 88 01  
Website: www.ixblue.com



- **GAPS** pre-calibrated USBL system
- **POSDONIA** USBL acoustic positioning system
- **OCEANO** acoustic release range
- **ComMet** acoustic and inertial metrology system
- **ECHOES** sub-bottom profilers

iXBlue provides a range of fine, high-technology equipment, systems and turn-key solutions in the areas of navigation and surveillance, underwater positioning and communication, seabed imaging and surveying.

Acoustic Products – Advanced Components  
Inertial Products – Integrated Solutions – Marine Works  
Motion Systems – Sea Operations – Sonar Systems

## Ocean Sonics Ltd.

11 Lornevale Road  
Great Village, NS, B0M 1L0  
Tel: +1.902.655.3000  
Email: info@oceansonics.com  
Website: www.oceansonics.com



Ocean Sonics designs and manufactures the **icListen Smart Hydrophone**. Process data while it's being collected! Use as a digital hydrophone, acoustic data logger or both. These low power hydrophones can run from an internal or external battery. Smart enough to gather waveform, spectral or event data in standard formats. The hydrophones are calibrated with a wide dynamic range (24 bit, 120dB) and very low noise floor.

- **iclisten HF** 10Hz to 2kHz
- **icListen LF** 0.01 to 1600 Hz
- **icTalk Calibrated Smart Projector**: 0.2 to 2.2 kHz
- **LUCY PC** software for instrument control and data presentation
- **Buoys, battery packs and cable solutions**

## RTsys

25 rue Michel Marion  
56850 Caudan, France  
Tel: +33 297-898-580  
Email: info@rtsys.eu  
Website: www.rtsys.eu



- **Acoustic Monitoring: EASDA14**, Embedded Multichannel Passive Acoustic Recorders
- **WiFi remote Buoy: BASDA14**, Multi-sensor & Rechargeable Acoustic Buoy accessible in Real-time
- **Sediment Characterization: INSEA**, Acoustic Velocimeter for Sediment Characterization

We provide advanced embedded acoustic products in the environmental research, surveying and monitoring areas. With Synchronized Multichannel Acquisition and accepting a broad range of Acoustic Transducers and Hydrophones from 3Hz to more than 1MHz, our solutions allow the user a new range of applications.

## BUOYS

### Electro Standards Laboratories

36 Western Industrial Drive  
Cranston, RI 02911 USA  
Tel: 401-943-1164  
Fax: 401-946-5790  
E-mail: eslab@electrostardards.com  
Website: www.electrostardards.com  
Contact: Dr. Raymond B. Sepe, Jr.



Electro Standards Laboratories offers design and build services for ocean wave energy powered remote sensor platforms. Targeted applications: recharging station for UUV, solar power replacement/augmentation, battery elimination, sonar listening station, weather/wave monitoring buoys, tsunami warning stations, and port monitoring buoys. Capabilities: drifting or moored operation, stealthy acoustic and visual operation.

## MetOcean

21 Thomhill Drive  
Dartmouth, Nova Scotia  
B3B 1R9 CANADA  
Tel: +1.902.468.2505  
Fax: +1.902.468.4442  
E-mail: emily@metocean.com  
Website: www.metocean.com  
Contact: Emily MacPherson



MetOcean designs and manufactures drifting buoys, environmental platforms, and the world renowned NOVATECH locator beacon product line. MetOcean's drifting buoy family consists of environmental and weather monitoring, oil spill response, and search and rescue drifters: NOVA profiling float, Iridium SVP (iSVP), iSPHERE, Argosphere, SLDBM, and iSLDBM.

## CABLES

### Falmat Cable

1873 Diamond Street  
San Marcos, CA 92078  
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 recently launched a new line of off-the-shelf subsea instrumentation cables. 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](http://www.falmat.com) or contact our sales team for a prompt quotation

## CABLE & PIPELINE TRACKING

### Teledyne TSS Ltd.

1 Blackmoor Lane  
Croxley Business Park, Watford  
Hertfordshire WD18 8GA  
Tel: +44(0)1923 216020  
Fax: +44(0)1923 216061  
E-mail: tsssales@teledyne-tss.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

Underwater detection systems for determining the location, relative position and burial status of offshore pipelines, umbilicals and subsea telecommunications & power cables.

# OCEAN INDUSTRY DIRECTORY

ON&T's Product & Service Directory

## CABLE PROTECTION

### PMI Industries, Inc.

5300 St. Clair Avenue  
Cleveland, OH 44103 USA  
Tel: (216) 881 4914  
Fax: (216) 881 4920  
E-mail: sales@pmiind.com  
Website: www.pmiind.com



Specializing in the design, manufacture & testing of highly reliable **Cable Systems & Hardware** for harsh marine environments since 1969; **PMI Industries, Inc.** is committed to providing Engineered & Custom Designed Cable Systems for all types of applications in the marine industry including Cable Installation, Terminations & Protection Products, Defense & Surveillance, Monitoring & Fisheries, ROVs & Ocean Equipment, Salvage, Search & Recovery Operations and Seismic & Survey Exploration. Work directly with our **Engineering & Design** team from initial product concept to production. Our state-of-the-art **Cable Testing** facility simulates at-sea conditions and offers complete testing services from product design verification through acceptance testing. **PMI Underwater Cable Solutions:** performance, reliability, peace of mind.

## CONNECTORS

### 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.

### BIRNS, Inc.

1720 Fiske Place  
Oxnard CA 93033-1863 USA  
Int'l: +1-805-487-5393  
Fax: +1-805-487-0427  
USA: +1-888-BIRNS-88 (888-247-6788)  
E-mail: service@birns.com  
Website: www.birns.com  
Contact: Eric Birns



November 2013

76

**BIRNS, Inc.** is an ISO 9001:2008 certified global leader in the design and manufacturing of high performance connector and lighting solutions for the subsea industry. With more than half a century of expertise, BIRNS provides unmatched lead times and industry-leading exclusive features. Its world class molding facility is NAVSEA S9320-AM-PRO-020 certified, and the company specializes in sophisticated connector products and custom cable assemblies with electrical, optical, electro-optical, electro-coax and EOM (electro-opto-mechanical) connector lines. BIRNS leads the industry with high volume hydrostatic and helium pressure testing—its vast range of electrical penetrators is ABS Product Design Assessment (PDA) certified, with inclusive pricing and lead times for ABS/DNV witnessing. BIRNS is equally renowned for its lines of innovative LED and tungsten-halogen marine, chamber and commercial diving lights, and revolutionary MPI-NDT equipment.

### 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, etc. BIRNS Aquamate is the only underwater connector producer that guarantees compatibility with other manufacturers. Birns also specializes in fast turn-around for custom design of special connector solutions. Stocking dealers in the UK (Scorpion Oceanics), South Africa (Marine Solutions) Holland (Seascape) as well as dealers in Canada, Italy, Russia, China, and Brazil.

### 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 are world 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 Oceanographic, Defense, Oil and Gas and Environmental markets. With locations in California, Texas and Rhode Island in the USA, Mexico, Brazil, the United Kingdom and Norway and a worldwide network of agencies and representatives, SEA CON® is able to supply very quick solutions to any requirements across the globe.

## International

**MacArtney A/S (Headquarters)**  
Esbjerg, Denmark  
Tel: +45 7613 2000  
info@macartney.com  
www.macartney.com



## North America

**MacArtney Inc.**  
Houston, TX, USA  
Tel: +1 713 266 7575  
mac-usa@macartney.com  
www.macartney.com

For over 30 years, SubConn® wet mateable connectors have been the first choice of the underwater industry. The range features standard circular, micro, low profile, metal shell, power and ethernet connectors, penetrators and custom connectors for special applications. Worldwide SubConn® sales and support is provided exclusively by the MacArtney Group.

## Teledyne ODI - A Teledyne Technologies Company

1026 North Williamson Blvd.  
Daytona Beach, Florida 32114  
Tel: (386) 236 0780  
Fax: (386) 236 0906  
Toll Free: (888) 506 2326  
E-mail: ODI\_marketing@teledyne.com  
Website: www.odi.com



**TELEDYNE ODI**

A Teledyne Technologies Company

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

1026 North Williamson Blvd.  
Daytona Beach, Florida 32114  
Tel: (386) 236 0780  
Fax: (386) 236 0906  
Toll Free: (888) 506 2326  
E-mail: oilandgas@teledyne.com  
Website: www.teledyneoilandgas.com



**TELEDYNE OIL & GAS**

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.

## DIVING & MEDICAL TRAINING COURSES

### Interdive Services Ltd & InterMedic Services UK

3 Stoke Damerel Business Centre  
5 Church Street, Stoke Plymouth  
Devon, PL3 4DT, Great Britain  
Tel: +44 1752 55 80 80,  
Fax: +44 1752 56 90 90  
E-mail: vanessa@interdive.co.uk or diving@interdive.co.uk  
Website: www.interdive.co.uk  
Contact: Ms. Vanessa Yardley



High quality marine related training courses approved by HSE, IMCA, IDSA, NPD, MCA and RYA. Training from basic to advanced levels (including hospital based) by friendly & experienced instructors. Training providers to UK Ministry of defense. Training on your site, at our facilities, inhouse or overseas. Also, experienced diver assessments and Offshore Medic course.

## FIBER OPTIC ROTARY JOINTS

### Moog Components Group

77 Fraze Avenue  
Dartmouth, Nova Scotia  
Canada B3B 1Z4  
Toll free: (800) 361-2263 (USA)  
Toll free: (888) 302-2263 (Canada)  
Tel: (902) 468-2263  
Fax: (902) 468-2249  
E-mail: mcg@moog.com  
Website: www.moog.com/marine  
Contact: John Purdy



Moog Components Group now offers Focal™ and Prism™ marine products for demanding projects. Fiber Optic Rotary Joints (multi-channel, pressure compensated). Electrical slip rings (explosion proof, purged, oil filled, connectors, junction boxes). A wide range of multiplexers. Fluid rotary unions. Integrated units (electrical, fluid and fiber in one convenient package). Advanced CAD systems for rapid development of products. A leader in technology, performance and reliability.

## FOOD/JANITORIAL SUPPLIES & SERVICE

### G&J Land & Marine Food Distributors, Inc.

506 Front Street  
Morgan City, LA 70380  
Tel: (800) 256-9187  
Fax: (985) 385-3614  
Toll free: 800 256 9187  
E-mail: sales@gjfood.com  
Website: www.gjfood.com  
Contact: Erik Lind

A full service food distributor dedicated to providing an extensive grocery and janitorial product line to the commercial shipping and offshore oil & gas industries. G&J is centrally located near the Gulf of Mexico in Morgan City, Louisiana within close proximity to several major shipping ports. Since 1964, our number one goal has been customer satisfaction and we go out of our way to achieve it!

## GYRO COMPASSES

**iXBlue**  
Tel: +33 (0)1 30 08 88 88  
Fax: +33 (0)1 30 08 88 01  
Website: www.ixblue.com



### OCTANS, IMO-certified survey grade gyrocompass

- true North-seeking FOG unit
- complete motion sensor
- calibration and maintenance-free

iXBlue provides a range of fine, high-technology equipment, systems and turn-key solutions in the areas of navigation and surveillance, underwater positioning and communication, seabed imaging and surveying.

Acoustic Products – Advanced Components  
Inertial Products – Integrated Solutions – Marine Works  
Motion Systems – Sea Operations – Sonar Systems

### Teledyne TSS Ltd.

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: 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 subsea 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.

## INSURANCE

### John W. Fisk Company

4833 Conti Street, Suite 200  
New Orleans, LA 70119  
Toll Free: 1-888-486-5411  
E-mail: insure@jwfisk.com  
Website: www.jwfisk.com

Fisk Marine Insurance provides all types of insurance to any limit required for commercial diving, marine contractors, offshore oilfield and platforms, plug and abandonment (P&A) contractors, land based energy, ocean marine cargo and oceanographic research worldwide. Our coverages include Workers Compensation (USL&H & Jones Act), General Liability, Professional Liability, Hull P&I, Equipment, Bonds and International Packages for clients working outside of the USA. Contact us for more information: 1-888-486-5411 or insure@jwfisk.com. Visit our website: www.jwfisk.com

## LIQUID STORAGE

### Aero Tec Laboratories, Inc. (ATL)

45 Spear Road Industrial Park,  
Ramsey, New Jersey U.S.A. 07446  
Tel: (201) 825 1400  
Fax: (201) 825 1962  
E-mail: atl@atlinc.com  
Website: www.atlinc.com  
Contact: David Dack



ATL specializes in the design/manufacture of custom bladder-type fluid containment systems, including tanks, inflatables, pillows and bellows for surface and subsea. ATL's flexible fluid containers boast unparalleled chemical tolerance, abrasion resistance, and remarkable durability - used with methanol, diesel fuel, gases, ethyleneglycol, hydraulic fluids and chemical cleaning cocktails. Expedited deliveries are also available.

## MAGNETOMETERS

### Geometrics, Inc.

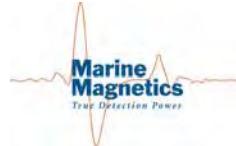
2190 Fortune Drive  
San Jose, CA 95131  
Tel: (408) 954 0522  
Fax: (408) 954 0902  
E-mail: sales@geometrics.com  
Website: www.geometrics.com  
Contact: Ross Johnson



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



Designs and manufactures magnetometers using advanced Overhauser technology for high sensitivity and unmatched accuracy characteristics.

Products include:

- SeaSPY is a versatile and tough marine magnetometer that is suitable in any environment, from small zodiac-type boats to full-ocean survey vessels. It is adaptable with a large variety of options to suit many applications.
- Explorer is a miniature, lightweight magnetometer designed primarily for in-shore surveys in harbours, lakes, or rivers. It is ideal for small-boat applications where size and weight are most important.
- 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.

## MANUFACTURERS' REPRESENTATIVE

### Ocean Marine Industries

2810 Hudson Street  
Chesapeake, VA 23324  
Tel: 757-382-7616  
Fax: 757-382-5012  
E-mail: info@oceanmarineinc.com  
Website: www.oceanmarineinc.com  
Contact: Jeanne Dorsey



Ocean Marine Industries (OMI) specializes in strategic product distribution and sales representation with special emphasis on working with U.S. Federal and State Government Agencies, Scientific Research Institutes, Academia and commercial organizations. OMI's primary product line is multi-beam imaging sonars made by Sound Metrics of Bellevue, WA www.soundmetrics.com

## MARINE ENVIRONMENTAL CONSULTING SERVICES

### ASRC Energy Services

Regulatory and Technical Services  
3900 C Street, Suite 700  
Anchorage, Alaska 99503  
Tel: 907-339-6200  
Fax: 907-339-5475  
Email: Paul.Ramert@asrcenergy.com  
Website: www.asrcenergy.com  
Contact: Paul Ramert, Vice President/General Manager, Regulatory and Technical Services



ASRC Energy Services provides marine environmental consulting services and compliance support for offshore projects. RTS has experience in public and private sectors and takes a multidisciplinary and strategic approach to regulatory permitting, environmental assessment, and integrated stakeholder engagement to support a complete range of projects.

### CSA Ocean Sciences Inc.

8502 SW Kansas Avenue  
Stuart, FL 34997  
Tel: 772-219-3000  
Fax: 772-219-3010  
E-mail: tmartin@conshelf.com  
Website: www.csaocean.com  
Contact: Tony Martin



CSA Ocean Sciences 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, and freshwater environments.

# OCEAN INDUSTRY DIRECTORY

ON&T's Product & Service Directory

## MOTION SENSING EQUIPMENT

### iXBlue

Tel: +33 (0)1 30 08 88 88  
Fax: +33 (0)1 30 08 88 01  
Website: [www.ixblue.com](http://www.ixblue.com)



- **PHINS**, Full Inertial Navigation System
- **PHINS 6000**, subsea INS
- **HYDRINS**, hydrographic INS
- **MARINS**, naval INS
- **ROVINS**, survey full-featured INS

iXBlue provides a range of fine, high-technology equipment, systems and turn-key solutions in the areas of navigation and surveillance, underwater positioning and communication, seabed imaging and surveying.

Acoustic Products – Advanced Components  
Inertial Products – Integrated Solutions – Marine Works  
Motion Systems – Sea Operations – Sonar Systems

### Kongsberg Seatex AS

Pirsenteret  
N-7462 Trondheim  
Norway  
Tel: +47 73 54 55 00  
Fax: +47 73 51 50 20  
E-mail: [km.seatex@kongsberg.com](mailto:km.seatex@kongsberg.com)  
Website: [www.km.kongsberg.com/seatex](http://www.km.kongsberg.com/seatex)  
Contact: Finn Otto Sanne at [finn.otto.sanne@kongsberg.com](mailto:finn.otto.sanne@kongsberg.com)



KONGSBERG

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

### 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](mailto:tsssales@teledyne.com)  
Website: [www.teledyne-tss.com](http://www.teledyne-tss.com)  
Contact: Carolyn Jones



TELEDYNE TSS  
Everywhereyoulook™

78

USA Office:  
10801 Hammerly Blvd., Suite 128  
Houston, TX 77043  
Contact: Keith Pope  
Tel: (713) 461 3030  
Fax: (713) 461 3099

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.

## OCEANOGRAPHIC INSTRUMENTS

### ASL Environmental Sciences, Inc.

#1-6703 Rajpur Place, Victoria  
BC Canada V8M 1Z5  
Phone: +1-250-656-0177  
Fax: +1-250-656-2162  
Email: [asl@aslenv.com](mailto:asl@aslenv.com)  
Web: [www.aslenv.com](http://www.aslenv.com)



ASL provides physical oceanographic consulting services and instruments. Services: flow measurement, ice studies, wave measurement and analysis, numerical modeling, and remote sensing. Products: Ice Profiler - measures ice-keel depths; Acoustic Zooplankton Fish Profiler - monitors the presence and location of zooplankton, fish or sediments; and the WERA NorthernRadar - measures surface currents and waves from shore up to 200km. ASL has a large lease pool of oceanographic instruments.

### nke Instrumentation

rue Gutenberg  
56700 Hennebont, FRANCE  
Tel: +33 2 97 36 41 31  
Fax: +33 2 97 36 10 12  
E-mail: [info.instrumentation@nke.fr](mailto:info.instrumentation@nke.fr)  
Website: [www.nke-instrumentation.com](http://www.nke-instrumentation.com)



- Fresh and marine waters multiparameter probes: CTD, dissolved oxygen, turbidity, fluorescence, pH • Monitoring data loggers for atmospheric and marine corrosion, and cathodic protection • Dedicated and customized measurement and monitoring equipment for: sediment transport, underwater systems behaviour, fishing efforts and environmental parameters, intelligent networks...  
Contact: Valérie Le Pen - [vlepen@nke.fr](mailto:vlepen@nke.fr) or Goulven Prud'homme - [gprudhomme@nke.fr](mailto:gprudhomme@nke.fr)
- Provor and Arvor profiling subsurface floats (ARGO project), CTD, dissolved oxygen and optical sensors; Argos and Iridium transmission. • 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.  
Contact: Patrice Brault - [pbrault@nke.fr](mailto:pbrault@nke.fr)

### Nortek AS

Vangkroken 2  
1351 Rud, Norway  
Tel: +47 6717 4500  
E-mail: [inquiry@nortek.no](mailto:inquiry@nortek.no)



### NortekUSA

27 Drydock Avenue  
Boston, MA 02210  
Tel: 617-206-5750  
Email: [inquiry@nortekusa.com](mailto:inquiry@nortekusa.com)  
Website: [www.nortek-as.com](http://www.nortek-as.com)

Nortek's products span from single point turbulence sensors to long range current profilers. Our customers are scientists, consulting engineers and professionals working in the offshore oil and gas industry. Nortek provides solutions measuring surface waves to currents 6000 m deep. Nortek is global, positioned to help you wherever your solution is needed.

## RBR

95 Hines Road, Ottawa  
Ontario Canada K2K 2M5  
Tel: 613.599.8900  
Fax: 613.599.8929  
E-mail: [info@rbr-global.com](mailto:info@rbr-global.com)  
Website: [www.rbr-global.com](http://www.rbr-global.com)



RBR designs and manufactures rugged submersible data loggers, recorders, sondes, controllers, and sensors for water quality measurement. Our standard data logging instruments range from one to 24 channels, configured as a CTD, or multi-parameter (sensor) recorders. Specialty loggers are available with specific sensors for harsh environments or unique applications like measuring tides and waves.

### Sea-Bird Electronics, Inc.

13431 NE 20th St.  
Bellevue, WA 98005  
Tel: 425-643-9866  
Fax: 425-643-9954  
E-mail: [seabird@seabird.com](mailto:seabird@seabird.com)  
Website: [www.seabird.com](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.

### Star-Oddi

Skeidarars 12, 210  
Gardabaer, Iceland  
Tel: +354 533 6060  
Fax: +354 533 6069  
E-mail: [baldur@star-oddi.com](mailto:baldur@star-oddi.com)  
Website: [www.star-oddi.com](http://www.star-oddi.com)  
Contact: Baldur Sigurgeirsson



A manufacturer of miniature data loggers with sensors as temperature, depth/pressure, 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.

### Turner Designs

845 W Maude Avenue  
Sunnyvale, CA 94085  
Phone: 408-749-0994 x146  
Toll Free: 877-316-8049 x149  
Fax: 408-749-0998  
Contact: Tom Brunett, Sales Engineer  
E-mail: [sales@turnerdesigns.com](mailto:sales@turnerdesigns.com)  
Website: [www.turnerdesigns.com](http://www.turnerdesigns.com)



Providing fluorescence-based solutions for research, water quality, and pollution control for over 40 years. Known for reliable and stable submersible, field, handheld, laboratory, and online fluorometers and turbidimeters. Customers rate us an average of 9, on a scale of 1-10, when asked how likely they would be to recommend us.

## PROJECT CONSULTING/ADVISORY SERVICES

### Ocean Specialists Inc.

8502 SW Kansas Ave  
Stuart, FL 34997  
Tel: (772) 219-3033  
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.

## ROV COMPONENTS

### ROVSCO, Inc.

5263 Barker Cypress Road, Suite 600  
Houston, Texas 77084  
Tel: (281) 858-6333  
Fax: (281) 858-6363  
E-mail: sales@rovco.com  
Website: www.rovco.com  
Contact: Jessica McKenney



Rovco provides support and solutions to the offshore subsea and marine industries; work-class ROV and Commercial Diving operations. We manufacture a number of tools/equipment and subsea video items. We have an excellent reputation worldwide based on our product knowledge, dependability, commitment to customer service and speed of response.

## SONAR SYSTEMS

### Imagenex Technology Corp.

209-1875 Broadway St., Port Coquitlam  
BC, Canada, V3C 4Z1  
Tel: (604) 944-8248  
Fax: (604) 944-8249  
E-mail: imagenex@shaw.ca  
Website: 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).

### iXBlue

Tel: +33 (0)1 30 08 88 88  
Fax: +33 (0)1 30 08 88 01  
Website: [www.ixblue.com](http://www.ixblue.com)



### SHADOWS SAMS

- High-performance mapping sonar
- Synthetic Aperture Sonar processing
- Provides real time ortho-rectified and geo-referenced images
- No gap at nadir

iXBlue provides a range of fine, high-technology equipment, systems and turn-key solutions in the areas of navigation and surveillance, underwater positioning and communication, seabed imaging and surveying.

Acoustic Products – Advanced Components  
Inertial Products – Integrated Solutions – Marine Works  
Motion Systems – Sea Operations – Sonar Systems

### Marine Sonic Technology, Ltd.

P.O. Box 730  
White Marsh, VA 23183-0730  
Toll Free: (800) 447-4804  
E-mail: [jdemille@marinesonic.com](mailto:jdemille@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 AUV's which occupy minimal space in the vessel and operate with minimal power consumption.

### Sound Metrics

11010 Northup Way  
Bellevue, WA 98004  
Tel: 425-822-3001  
E-mail: [sales@soundmetrics.com](mailto:sales@soundmetrics.com)  
Website: [www.soundmetrics.com](http://www.soundmetrics.com)  
Contact: Jeanne Dorsey



Sound Metrics manufacturers imaging sonars, capturing the clearest, most detailed video images in their class. Sound Metrics has built a reputation for support and for innovating solutions around their customers' applications. ARIS, the next generation of DIDSON, offers lower power consumption, smaller size, unprecedented clarity and resolution among other benefits.

## Teledyne BlueView, Inc.

2515 N. Northlake Way, Suite 214  
Seattle, WA 98103, USA  
Tel: (206) 545-7260  
Fax: (206) 545-7261  
E-mail: [swa\\_info@teledyne.com](mailto:swa_info@teledyne.com)  
Website: [www.blueview.com](http://www.blueview.com)



Teledyne BlueView delivers state-of-the-art, compact acoustic imaging, measurement, and automation solutions for defense, energy, civil engineering, transportation, and port security applications worldwide. Teledyne BlueView's advanced acoustic systems support underwater operations from a wide variety of platforms, including ROVs, AUVs, surface vessels, fixed mounts, manned submersibles, portable tripods, and diver handheld systems.

## SOUND VELOCITY PROBES/CTDS

### SAIV A/S

Nygardsvikken 1, 5164  
Laksevag, Norway  
Tel: +47 56 11 30 66  
Fax: +47 56 11 30 69  
E-mail: [info@saivas.no](mailto:info@saivas.no)  
Website: [www.saivas.no](http://www.saivas.no)  
Contact: Gunnar Sagstad

- STD/CTD, Sound Velocity probes/recorder with optional multi-parameter facilities; Turbidity, Fluorescence, Oxygen etc.
  - Precision pressure /depth (0.01% accuracy) and temperature sensors/recorders.
- Applications: hydrographic profilers, installation on ROVs and towed systems, etc. Robust and compact designs are combined with accuracy and "plug and play" compatibility. Output format for sonar equipment, e.g. EM1002, EM3000, SSP, HiPAP and Reson 8125.

## SUB-BOTTOM PROFILES

### iXBlue

Tel: +33 (0)1 30 08 88 88  
Fax: +33 (0)1 30 08 88 01  
Website: [www.ixblue.com](http://www.ixblue.com)



### ECHOES

- wide band
- flat spectrum
- from 500 Hz to 15 kHz
- fish, hull-mounted, pole-mounted. AUV-mounted
- shallow to 6000 m deep

iXBlue provides a range of fine, high-technology equipment, systems and turn-key solutions in the areas of navigation and surveillance, underwater positioning and communication, seabed imaging and surveying.

Acoustic Products – Advanced Components  
Inertial Products – Integrated Solutions – Marine Works  
Motion Systems – Sea Operations – Sonar Systems

## SUBSEA FABRICATION

### New Industries

6032 Railroad Avenue  
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 provides quality fabrication services to the offshore oil & gas and marine industries focusing on large diameter pressure vessels, suction piles, DNV buildings and deepwater subsea production equipment such as jumpers, PLETs, PLEMs and manifolds.

## SUBSEA TOOLING

### Seanic Ocean Systems

8860 Fallbrook Drive  
Houston, TX 77064  
Tel: 713-934-3100  
E-mail: [info@seanicusa.com](mailto:info@seanicusa.com)  
Website: [www.seanicusa.com](http://www.seanicusa.com)  
Contact: Karen North



Seanic was formed to address the growing demand for simple, rugged and reliable subsea tooling for remote intervention. Along with engineered solutions, Seanic also offers experience in the design, manufacturing, storage, repair & maintenance of subsea products. Seanic provides a worldwide standard product line of ROV tooling such as torque tools, FLOT's, hot stabs, manifolds, buckets and ROV interface panels.

# OCEAN INDUSTRY DIRECTORY

## ON&T's Product & Service Directory

### SWITCHES

#### SEACON Advanced Products, LLC.

1321 Neliaus Road  
P.O. Box 767  
Bellville, Texas 77418, USA.  
Tel: (979) 865-8846  
Fax: (979) 865-8859  
E-mail: sales@seacon-ap.com  
Website: 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.

### UNDERWATER VEHICLES/AUVS

**Hydroid, Inc.**,  
a subsidiary of Kongsberg Maritime  
6 Benjamin Nye Circle, Pocasset  
MA 02559-4900, USA  
Tel: 508-563-6565  
Fax: 508-563-3445  
E-mail: glester@hydroid.com  
Website: www.hydroid.com  
Contact: Graham Lester



**Hydroid**, a subsidiary of Kongsberg Maritime, is the world leader in manufacturing advanced Autonomous Underwater Vehicles (AUVs). REMUS AUVs provide innovative and reliable systems for the marine research, defense, hydrographic and offshore/energy markets. Hydroid vehicles represent the most advanced, diversified and field-proven family of AUVs and support systems in the world.

### UNDERWATER VEHICLES/ROVs

**Deep Ocean Engineering Inc.**  
2528 Qume Drive, Suite 11  
San Jose, CA 95131 USA  
Tel: 408-436-1102  
Fax: 408-436-1108  
E-mail: sales@deepocean.com  
Website: www.deepocean.com  
Contact: Bill Charbonneau



**Deep Ocean Engineering, Inc.** provides remotely operated and unmanned surface vehicle (ROV / USV) solutions which are used by a broad range of industry applications - security, military, nuclear and hydroelectric power plants, inshore dams and lakes, oil and gas, scientific research, fisheries, salvage, search / recovery, and pipeline inspections.

**Delta SubSea LLC.**  
550 Club Drive, Suite 345  
Montgomery, Texas 77316  
Tel: (936) 582-7237  
Fax: (713) 583-1369  
E-mail: sdngman@deltasubsea-rov.com  
Website: www.DeltaSubSea-ROV.com  
Contact: Scott Dingman, President / CEO



**Delta SubSea** is a leading integrated independent provider of ROV services and solutions. With the industry's newest ROV fleet and a deeply experienced ROV operations team, as well as ROV tooling, engineering and CAD, Delta is the global offshore oil and gas industry's choice for Best-In-Class solutions and Maximum Uptime.

**Perry Slingsby**  
10642 West Little York, Suite 100  
Houston, TX 77041  
Tel: 713-329-8230  
Fax: 713-329-8299  
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.

**Schilling Robotics, LLC**  
260 Cousteau Place  
Davis, California 95618  
Tel: +1 530.753.6718  
Fax: +1 530.753.8092  
Contact: Peter MacInnes  
E-mail: peter.macinnes@fmctech.com  
Website: www.fmctechnologies.com



**Schilling Robotics, a business unit of FMC Technologies**, is a leading global producer of high-technology subsea systems, including remotely operated vehicles (ROVs), manipulators, and custom-engineered systems for subsea production. We bring nearly 30 years of technological expertise and innovation to the challenges facing customers in the subsea environments. [www.fmctechnologies.com](http://www.fmctechnologies.com)

### SeaBotix Inc.

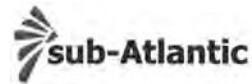
2877 Historic Decatur Road, Suite 100  
San Diego, CA 92106 USA  
Tel: +1 619 450-4000  
Fax: +1 619 450-4001  
E-mail: Info@SeaBotix.com  
Website: www.SeaBotix.com



**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.

### Sub-Atlantic

Woodburn Rd.  
Blackburn Business Park  
Blackburn, Aberdeen  
AB21 0PS, Scotland  
Tel: +44(0)1224 798660  
Fax: +44(0)1224 798661



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.slaes@f-e-t.com  
Website: [www.f-e-t.com/Subsea](http://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.

### VideoRay

580 Wall Street  
Phoenixville, PA 19460  
Tel: (610) 458 3000  
Fax: (610) 458 3010  
E-mail: info@videoray.com  
Website: [www.videoray.com](http://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.

### UNDERWATER VIDEO EQUIPMENT

#### Kongsberg Maritime Ltd.

Campus 1, Aberdeen Innovation Park  
Balgownie Road, Bridge of Don  
Aberdeen AB22 8GT UK  
Tel: +44 (0)1224 226500  
Fax: +44 (0)1224 226598  
Email: km.camsales.uk@kongsberg.com  
Website: [www.km.kongsberg.com/cameras](http://www.km.kongsberg.com/cameras)  
Contact: Mark Esslemont



**KONGSBERG**

**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.

### SIDUS Solutions, Inc.

San Diego, CA Office:  
Tel: (619) 275 5533  
Fax: (619) 275 5544  
Houston, TX Office:  
Tel: (281) 658-2555  
E-mail: info@sidus-solutions.com  
Website: [www.sidus-solutions.com](http://www.sidus-solutions.com)



**SIDUS Solutions LLC** is an integrated systems provider for security/video surveillance systems specializing in customization with products operational to subsea depths of 6,500m. As a full service provider offering end-to-end solutions from concept design, product selection, engineering, manufacturing, technical and customer support, we serve the Oil and Gas, Scientific, Military and Academic industries worldwide.

**WINCHES, HANDLING & CONTROL SYSTEMS**

**Hawboldt Industries**

220 Windsor Road  
Chester, Nova Scotia  
Canada B0J 1J0  
Tel: 902 275 3591  
Fax: 902 275 5014  
E-mail: paul.phillips@hawboldt.ca  
Website: www.hawboldt.ca  
Contact: Paul Phillips



Hawboldt Industries has built robust commercial and scientific deck machinery for over a century, focusing on custom winch solutions and satisfying project requirements from engineering to commissioning. ROV winches, A-frames, and electro-hydraulic power packs are available to satisfy the offshore and subsea markets. Our scientific winches, preferred by universities and governments worldwide, are renowned for their durability and performance particularly in harsh environments.

**Markey Machinery Company**

7266 8th Ave. South  
Seattle, WA 98108 USA  
Tel: +1 800 637 3430  
Fax: +1 206 623 9839  
E-mail: info@markeymachinery.com  
Website: www.markeymachinery.com



Preferred by the US fleet, Markey's advanced oceanographic winch systems provide ultimate dependability, reliability and precise performance when and where you want it. Operating within critical windows of opportunity you can count on our custom winches, capstans, windlasses and auxiliary machinery for the successful execution and completion of your research.

**Radoil, Inc.**

12251 FM 529  
Houston, TX 77041  
Tel: (713) 937 4494  
E-mail: pvanderlinden@radoil.com  
Website: www.radoil.com



Radoil's goal is to identify challenges, design innovative solutions and manufacture quality products that solve your deepwater problems. Our business is to save you time and money. Everyone encounters delays and with day rates where they are any delay can be very costly to you, your clients and your vendors.

**Rapp Hydema AS**

Buroveien 31/33  
Bodø, Norway  
Tel: +47 75550100  
Cell: +47 90755058  
E-mail: runar.tunem@rappydema.com  
Website: www.rappmarine.com



**RAPP HYDEMA**

*ROV-Winches for the Offshore & Sub Sea Drilling/Construction. Specially designed and developed for use with a range of Remotely Operated Underwater Vehicles with computerized Active Heave Compensation Control systems & Moon Pool ROV/Launch & Recovery system (LARS). Deepwater Heavy Lift Winches with Superior Performance.*

**WINCHES - UNDERWATER**

**ALL OCEANS Engineering Ltd.**

Tyreagger Works, Clinterty, Kinellar  
Aberdeen AB21 0TT, UK  
Tel: +44(0)1224 791001  
Fax: +44(0)1224 791002  
E-mail: admin@alloceans.co.uk  
Website: www.alloceans.co.uk  
Contact: Brian Abel

**MECHANICAL HANDLING UNDERWATER**

*Launch and Recovery Systems - 6,000m plus Underwater Winches - ROV and Diver operated Tether Management Systems - 6,000m plus Torque Tools - Electric and Hydraulic systems - ROV and Diver operated General Products - Compensators, latches, swivels, metrology sets, cable reels, pressure housings, junction boxes Workshop Services - Fabrication, assembly and testing Engineering - prototyping, product development, solutions engineering AC-ROV - The mini ROV that broke the mold.*

**KEEP YOUR ONT DIRECTORY  
LISTINGS ON TARGET**

- Can be updated at any time throughout the year
- Keeps your market aware of your current contact and product information

**Call Today! +1-772-219-3067**

# Ocean News & Technology

Ocean News & Technology  
8502 SW Kansas Avenue  
Stuart, Florida 34997

Fax this form to 772-221-7715, or subscribe online at [www.ocean-news.com/subscribe](http://www.ocean-news.com/subscribe)

- Renew       New  
 Change of Address       Cancel  
 Change Subscription Name

**YES! I wish to receive my FREE subscription**  
 Print     Digital     Both

**1 Complete steps 1-3 to validate subscription**

Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Title \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_  
 Zip \_\_\_\_\_ Country \_\_\_\_\_  
 Email \_\_\_\_\_  
 Phone \_\_\_\_\_  
 Fax \_\_\_\_\_

**2 Describe your job function (circle 1):**

- |                    |                          |
|--------------------|--------------------------|
| 1. OWNER           | 5. BUYER                 |
| 2. MANAGER/PROF    | 6. SALES                 |
| 3. ENG'R/SCIENTIST | 7. OTHER (Specify) _____ |
| 4. TECH'N/OPERATOR |                          |

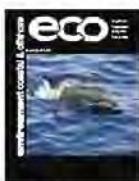
**3 Describe your organization (circle up to 4):**

- |                                    |                                  |
|------------------------------------|----------------------------------|
| A. SHIPS, CONSTRUCTION, SALVAGE    | O. DIVING EQUIPMENT/SERVICES     |
| B. U/W VEHICLES / COMPONENTS       | P. CONSULTING, DATA SERVICES     |
| C. NAVIGATION / POSITIONING        | Q. MARINE ELECTRICAL/ELECTRONICS |
| D. RESEARCH & DEVELOPMENT          | R. COMPUTER SERVICES/SOFTWARE    |
| E. OCEAN INSTRUMENTATION           | S. OCEAN RENEWABLES              |
| F. OFFSHORE OIL & GAS              | T. SUBSEA IRM                    |
| G. COMMUNICATIONS / UTILITIES      | U. OCEAN OBSERVING               |
| H. SCIENCE, ENVIRONMENTAL          | V. SHIPPING/TRANSPORTATION       |
| I. EDUCATION INSTITUTION / LIBRARY | W. SUBMARINE TELECOM             |
| J. GOVERNMENT MILITARY             | X. EQUIPMENT RENTAL              |
| K. GOVERNEMENT CIVILIAN            | Y. MANUFACTURERS' REPRESENTATIVE |
| L. MARINE HARDWARE/DECK EQUIP.     | Z. OTHER (specify) _____         |
| M. FISHING INDUSTRY, AQUACULTURE   |                                  |
| N. SURVEY, MAPPING, EXPLORATION    |                                  |

Signature \_\_\_\_\_

Date \_\_\_\_\_

Also subscribe me to:  
Environment coastal & offshore  
(ECO) magazine



- Print  
 Digital  
 Both

# ADVERTISER INDEX

Aero Tec Laboratories, Inc.	65	<a href="http://www.atlinc.com">www.atlinc.com</a>
Ashtead Technology/Seanic Ocean Systems	43	<a href="http://www.ashtead-technology.com">www.ashtead-technology.com</a>
CDL Inc.	23	<a href="http://www.cdltd.net">www.cdltd.net</a>
CSA Ocean Sciences Inc.	25	<a href="http://www.csaocean.com">www.csaocean.com</a>
Csnet International, Inc.	15	<a href="http://www.csnetintl.com">www.csnetintl.com</a>
DeepSea Power & Light	54	<a href="http://www.deepsea.com">www.deepsea.com</a>
Delta SubSea	5	<a href="http://www.deltasubsea-rov.com">www.deltasubsea-rov.com</a>
Det Norske Veritas AS	7	<a href="http://www.dnv.com/software">www.dnv.com/software</a>
EdgeTech	55	<a href="http://www.edgetech.com">www.edgetech.com</a>
EIVA A/S	50	<a href="http://www.eiva.com">www.eiva.com</a>
EvoLogics GmbH	83	<a href="http://www.evologics.de">www.evologics.de</a>
FORUM Energy Technologies, Inc.	9	<a href="http://www.f-e-t.com">www.f-e-t.com</a>
GJ Land & Marine Food Dist., Inc.	39	<a href="http://www.gjfood.com">www.gjfood.com</a>
Global Diving & Salvage Inc.	63	<a href="http://www.gdiving.com">www.gdiving.com</a>
Gulf Engine	51	<a href="http://www.gulfengine.com">www.gulfengine.com</a>
ITT Corp/ITT Enidine	41	<a href="http://www.ittoilgas.com">www.ittoilgas.com</a>
JW Fishers Manufacturing, Inc.	47	<a href="http://www.jwfishers.com">www.jwfishers.com</a>
LinkQuest, Inc.	21	<a href="http://www.link-quest.com">www.link-quest.com</a>
MacArtney A/S	3	<a href="http://www.macartney.com">www.macartney.com</a>
MAR Incorporated - Ohmsett Facility	65	<a href="http://www.ohmsett.com">www.ohmsett.com</a>
Moog Inc., Components Group	33	<a href="http://www.moog.com">www.moog.com</a>
New Industries	59	<a href="http://www.newindustries.com">www.newindustries.com</a>
Ocean News & Technology	70, 73, 74	<a href="http://www.ocean-news.com">www.ocean-news.com</a>
Ocean Specialists, Inc.	45	<a href="http://www.oceanspecialists.com">www.oceanspecialists.com</a>
Oceanic Imaging Consultants, Inc.	30	<a href="http://www.oicinc.com">www.oicinc.com</a>
OceanServer Technology	67	<a href="http://www.ocean-server.com">www.ocean-server.com</a>
Okeanus Science & Technology	27	<a href="http://www.okeanus.com">www.okeanus.com</a>
Quest Offshore Resources, Inc.	68	<a href="http://www.questoffshore.com">www.questoffshore.com</a>
Radar Screen Report	61	<a href="http://www.subcableworld.com">www.subcableworld.com</a>
Radoil, Inc.	34	<a href="http://www.radoil.com">www.radoil.com</a>
Saab Seaeye Ltd	31	<a href="http://www.seaeye.com">www.seaeye.com</a>
Sea-Bird Electronics, Inc.	84	<a href="http://www.seabird.com">www.seabird.com</a>
SeaBotix	4	<a href="http://www.seabotix.com">www.seabotix.com</a>
Seacon	20	<a href="http://www.seaconworldwide.com">www.seaconworldwide.com</a>
Seanic Ocean Systems/Ashtead Technology	43	<a href="http://www.seanicusa.com">www.seanicusa.com</a>
SeaRobotics	29	<a href="http://www.searobotics.com">www.searobotics.com</a>
Shark Marine Technologies, Inc.	26	<a href="http://www.sharkmarine.com">www.sharkmarine.com</a>
Submarine Cable Newsfeed	61	<a href="http://www.subcableworld.com">www.subcableworld.com</a>
SUBSEA EXPO	72	<a href="http://www.subseauk.com/4047/subsea-2014">www.subseauk.com/4047/subsea-2014</a>
Teledyne RESON	12	<a href="http://www.teledyne-reson.com">www.teledyne-reson.com</a>
Tritech International Limited	49	<a href="http://www.tritech.co.uk">www.tritech.co.uk</a>
U.S. Underwater Services	53	<a href="http://www.usunderwaterservices.com">www.usunderwaterservices.com</a>
Underwater Intervention	69	<a href="http://www.underwaterintervention.com">www.underwaterintervention.com</a>
Unique System FZE	19	<a href="http://www.uniquegroup.com">www.uniquegroup.com</a>
VideoRay	2	<a href="http://www.videoray.com">www.videoray.com</a>
Wright's Well Control Services	66	<a href="http://www.wwcs911.com">www.wwcs911.com</a>



# UNDERWATER COMMUNICATION AND POSITIONING SOLUTIONS

# Evo Logics®

## S2C TECHNOLOGY: COMMUNICATION AND TRACKING COMBINED

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

### USBL POSITIONING SYSTEMS

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

- SiNAPS – USBL positioning made simple and flexible
- reliable data transmissions
- range: up to 8000 m
- accuracy: up to 0.04 degrees

### UNDERWATER ACOUSTIC MODEMS

reliable data transmissions even in adverse conditions, special edition available for network protocol developers

- range: up to 8000 m
- depth: up to 6000 m
- data rate: up to 31.2 kbps

### LBL POSITIONING SYSTEMS

highly accurate, precise and stable performance

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



# Sea-Bird SBE 37 MicroCAT Moored CTDs: more than 10,000 deployed worldwide since 1997

*Every MicroCAT measures and records Temperature and Salinity  
in a compact and economical package, with Sea-Bird's  
unmatched reliability, sustained accuracy, and warranty*



- Bio-fouling protection with expendable anti-foulant devices
- High-fouling environment? Order with integrated pump; unique flow path maximizes bio-fouling protection
- Need pressure? Order with pressure sensor
- Need Dissolved Oxygen? Order with integrated SBE 63 Optical DO sensor
- Telemetry? RS-232, RS-485, SDI-12, Inductive Modem
- Power? Internal batteries, remotely powered
- Depth? < 350 m, < 7000 m



Remotely powered 37-SI family  
(shown with 7000 m titanium housing)



Inductive Modem,  
battery-powered 37-IM family  
(shown with integral pump,  
350 m plastic housing)



Battery-powered 37-SM family  
(shown with integral pump,  
DO sensor, 350 m plastic housing)

**Which MicroCAT is right for YOUR application?**



**Sea-Bird Electronics, Inc.**

13431 NE 20th Street, Bellevue, Washington 98005 USA  
[www.seabird.com](http://www.seabird.com)

[seabird@seabird.com](mailto:seabird@seabird.com)  
+1 425-643-9866