

# Ocean News & Technology

News for the Ocean Industry

www.ocean-news.com

June 2014

## SCOUTING AROUND FOR ULTRA HIGH RESOLUTION AUV SIDE SCAN

Feature Story - Page 10

## DITCHING “DUMB” DATA Abandoning Archaic Deliveries for Smarter, Cost-Effective GIS Tools

Feature Story - Page 22



Technology of the  
**DEEPSEA CHALLENGE** Expedition  
(Part 1 of 2: The Landers)

Editorial Focus- Page 36



**100+** Industry Applications

**22** Available ROV Accessories

**5,000+** Accessory Combinations

**3,000+** Owners & Operators

**15** Years in Business

**1** Choice



CONFIDENCE UNDERWATER

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

# International Submarine Engineering Ltd.



**ISE Ltd.**

1734 Broadway Street Port Coquitlam, British Columbia V3C 2M8 Canada [www.ise.bc.ca](http://www.ise.bc.ca) [info@ise.bc.ca](mailto:info@ise.bc.ca)



World Leading MiniROV Manufacturer.

# MiniROVs For Professionals

Little Benthic Vehicles



*LBV150/200-4 defining portable ROV capability*



*Environmentally hardened and proven MiniROV system*



*LBV300-5 versatile dual vertical thruster ROV system*



*INC - Intuitive, fully Integrated Navigational/Control Console*



*vLBV300*

## Industry Benchmark

SeaBotix, Inc. leads the industry with the most comprehensive and capable MiniROV solutions.

Products range 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.



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

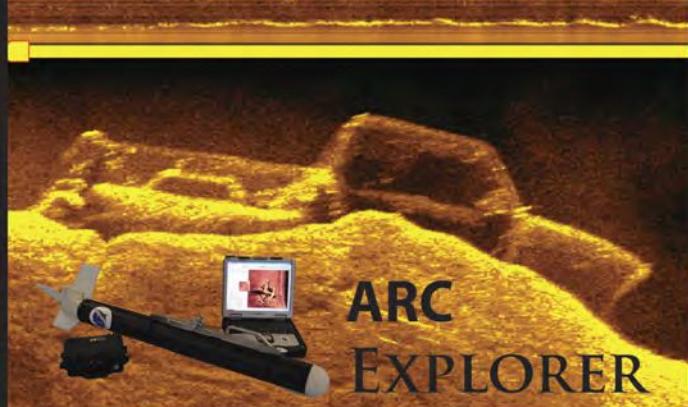
CLICK OR SCAN



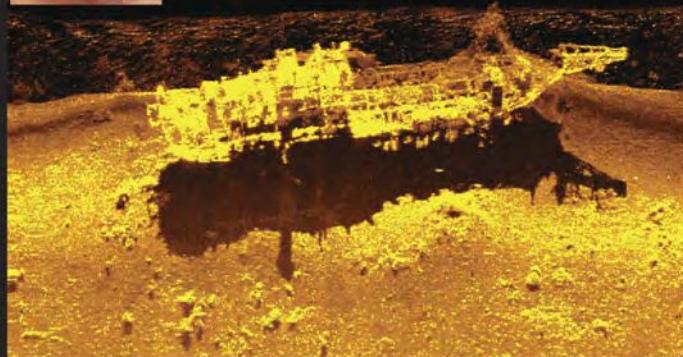
# MARINE SONIC TECHNOLOGY LTD



Vertical Image of a Pickup Truck



**ARC SCOUT  
EMBEDDED**



Marine Sonic Technology, Ltd.  
PO Box 1309  
Yorktown, VA 23692-1309  
US Toll Free 1-800-447-4804  
1-804-693-9602

Let Marine Sonic Technology, Ltd. show you what you have been missing. Using the highest resolution Side Scan Sonar on the market. You will see every detail. The Sea Scan ARC line of side scan sonars can fit every application from advanced towed systems to UUV/AUV/ROV Embedded.

**[www.marinesonic.com](http://www.marinesonic.com)**

# in this issue

June 2014

6

Ocean News & Technology

## Ocean Industry



- |                            |                                |
|----------------------------|--------------------------------|
| 15 Ocean Industry Briefs   | 41 Offshore Industry Headlines |
| 18 Maritime Transportation | 44 Upstream Oil & Gas          |
| 24 Ocean Science           | 58 Underwater Intervention     |
| 28 Ocean Energy            | 64 Maritime Communications     |
| 32 Defense                 | 68 Subsea Cables               |

## Departments

- |                             |                         |
|-----------------------------|-------------------------|
| 8 Editorial                 | 75 Offshore At-A-Glance |
| 78 Product News             | 85 Media Showcase       |
| 86 People & Company News    | 88 Calendar & Events    |
| 91 Ocean Industry Directory |                         |

## Offshore Industry



## Feature Story

- |  |  |
|--|--|
| <b>10 Scouting around for ultra high resolution AUV Side Scan</b> <b>VIP</b> | <b>22 Ditching "Dumb" Data Abandoning Archaic Deliveries for Smarter, Cost-Effective GIS Tools</b> |
|--|--|

## Editorial Focus

- |   |
|---|
| <b>36 Technology of the DEEPSEA CHALLENGE Expedition (Part 1 of 2: The Landers)</b> |
|---|

## Cover Photo



The Bluefin-9 AUV resurfaces after conducting a subsea survey in Boston Harbor.



## in the next issue

### Editorial Focus

- Workclass ROVs
- Deepwater Pipeline Repair/ Maintenance

### Product Focus

- Cameras, Lights & Imaging Sonars
- Oil Spill Clean-UP Services



**TSC** Technology Systems Corp.

Ocean News & Technology ISSN# 1082-6106 is published 12 times a year by Technology Systems Corporation, 7897 SW Jack James Dr., Suite A, Stuart, FL 34997, telephone 772-617-6812. Copyright ©2014 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.



# Delta SubSea Tooling Solutions

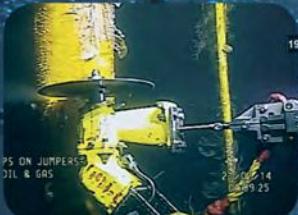
*Complete ROV Services . . . Top to Bottom*



Concept & Design



Manufacturing



Subsea Operation



Tool Pool



Delta SubSea, a world-class supplier of total life-cycle ROV services, now offers turnkey tooling solutions. Our tooling experts will design and manufacture custom tools for your job and operate the tool at your site for optimum performance. Then we will properly clean, store and maintain your tool in our full-service Tool Pool for the life of your project.

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



DELTA SUBSEA



By William Kohnen

## Ocean News & Technology

EDITOR IN CHIEF  
Ladd Borne

OFFSHORE ENERGY EDITOR  
Ray Tyson

SUBMARINE CABLE EDITOR  
John Manock

S.R. V.P. BUSINESS DEVELOPMENT  
MJ McDuffee

PRODUCTION COORDINATOR  
Suzanne Short

ART DIRECTOR  
Suzanne Short

COPY EDITOR  
Robyn Schuricht

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

### ADVERTISING SALES

S.R. V.P./ SALES & MARKETING  
MJ McDuffee  
Tel: +1 (772) 617 6836  
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

# SEARCHING THE SEAFLOOR: Manned Underwater Vehicles – Another Tool in the Toolkit

There is no question that submersibles have an inordinate ability to fascinate people about all things underwater. Over the past few weeks, there have been many inquiries from press, media, regulatory bodies and the general public in response to the search for MH370. As we watch the story unfold, there are no easy answers to the question posed by this event. The current status of the search simply reveals how vast the ocean environment is and how difficult it is finding a target deep on the seabed floor. While the ultimate engineering battle happens between the detection and identification of targets, we watch a variety of ocean sensors and vehicle deployed. Manned Underwater Vehicles (MUVs) have not been deployed yet they are an excellent tool for identification of targets, but best rely on remote sensing to narrow the search field.

While the world of submersibles includes many sectors, from home-built vehicles to commercial operators, the center of mass for the industry is focused on a hardworking, safety centered and regulatory conscious engineering community offering professional solutions to many impossible missions yet to be encountered in the subsea domain over the next 40 years. Although the current mission of MH370 discovery has no deep submersibles deployed on the mission, several industry leaders are on stand-by around the world to help with the cause and offer credible options for search and recovery operations.

During the MTS MUV committee's 11th annual conference held during Underwater Intervention (UI2014), MUV operators from around the world convened to showcase a variety of options to deepwater mission requirements. Representatives at the MUV conference included commercial, military and government funded submersibles. The United States DSV Alvin completed a major overhaul in 2013 and will complete Navy certification to 4,500 m this year. In addition, Alvin celebrated its 50th anniversary, originally launched in 1964, and industry members from around the world attended UI2014 to pay tribute. China successfully launched and tested the 7,000-m rated Jiaolong submersible in 2012 and completed its first research expedition in the Northwest Pacific in 2013. Operated by the China National Deep Sea Center, Jiaolong's primary mission is exploration of seabed deposits for polymetal nodule mining.

The Academy of Sciences in China is building a new 4,000-m rated submersible for science and geological research and a third center from the University of Shanghai is working on a 5-year plan to develop an 11,000-m full ocean depth submersible. Japan maintains a 6,500-m capable submersible, Shinkai 6500, which just

spent 2013 on the first circumnavigation of the world (January through December 2013) via the southern hemisphere oceans. For nearly 25 years the Shinkai 6500 held the title as the world's deepest submersible. Operated by JAMSTEC, there are future plans for building an additional full ocean depth submersible. In France, IFREMER continues to operate the 6,000-m Nautile and Russia maintains two deep submersibles, MIR1 and MIR 2, both rated to 6,000 m. The record breaking Deepsea Challenger from James Cameron completed its dives in 2012 and has since been donated to Woods Hole Oceanographic Institute. The future use of the Deepsea Challenger remains uncertain as it was built for a single person vehicle and is not under classification survey. India's National Institute of Ocean Technology (NIOT) continues its 8-year search for a deep 6,000-m submersible, intended to support its existing deep ocean mining research, currently using a Russian built 6,000-m rated ROV.

Along with government funded submersibles, several new designs have been commissioned within the commercial sector over the past 2 years to reach depths of 1,000 m and several more are in development for deeper depths.

As the manned submersibles solutions continue to build vehicles to address the challenges of deepwater exploration, there are many important issues to be addressed. One of the most significant is the recognition by high level government officials that there are companies in the U.S. and around the world building and operating professionally built manned underwater vehicles. The industry has extensive regulatory guidelines through IACS classification societies, ASME Pressure Vessels for Human Occupancy (PVHO) safety standards and both higher level certification requirements at the U.S. Coast Guard and U.S. Navy. The industry is also bringing commercial and military sectors closer together. In 2013, the first commercial submersible was classed to DNVGL for military applications and received parallel U.S. Navy approval authorizing Navy personnel aboard. These developments led to NAVSEA suggesting that it may undertake a review of its P9290 safety rules.

The Manned Underwater Vehicles industry is active, solidly anchored in internationally recognized safety standards with a rich heritage of experience, and offers a wide range of credible underwater search and intervention solutions in the global subsea tool kit.

**William Kohnen** is the President/CEO of Hydrospace Group Inc. and is the Manned Underwater Vehicles Committee Chair for the Marine Technology Society.

*everything remotely possible*<sup>TM</sup>



**FORUM<sup>TM</sup>**

SUBSEA TECHNOLOGIES  
*everything remotely possible*<sup>TM</sup>

To learn more about our products and services, visit us at [f-e-t.com/subsea](http://f-e-t.com/subsea).



Click or Scan for Video

June 2014

10

Ocean News & Technology

# SCOUTING AROUND FOR ULTRA HIGH RESOLUTION AUV SIDE SCAN

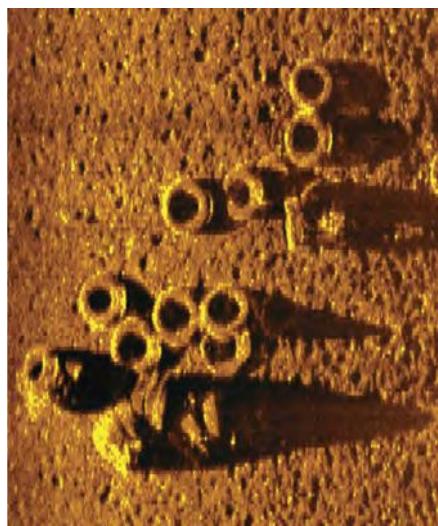
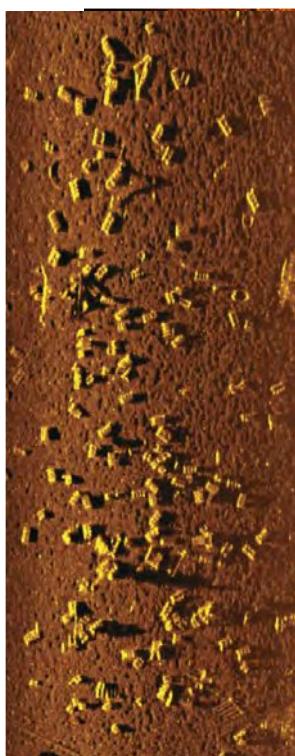
*By: Regan Lipinski  
Training Manager, Marine Sonic Technology, Ltd.*

The need for systems that can provide visibility in the world of underwater research is exploding. Many fields of study are expanding, with new missions and applications where underwater visibility is required multiplying every day. In the past, most of the general public had no idea what it took to do underwater rescue or research or what a complicated task working under the water is. It is now fairly routine for the general public to see images of the types of technology used in underwater search and research in the media. Terms like Autonomous Underwater Vehicle (AUV), Unmanned Underwater Vehicle (UUV), Remotely Operated Vehicle (ROV) and Side Scan Sonar are becoming more familiar after the horrific events of Flight 370 in Malaysia and other over-water tragedies. Over the last several months, as the search unfolds before our eyes on prime time television, it is hard not to pay attention as scientists proposed many “new” technologies and strategies to locate the Boeing 777.

When I say “new” technologies, I only mean new to the general public. Technologies like Side Scan Sonar have been around for quite some time. They have improved greatly through the years, and today’s sonars are better than ever with things like CHIRP (Compressed High Intensity RADAR Pulse), which gives better resolution and greater range, almost twice that of standard digital sonars. The images are amazing, with near photographic resolution using Ultra High Frequencies like that of Marine Sonic Technologies’ 1800 kHz transducers, which are the highest side scan frequencies on the market today. Researchers can now really see what’s under the water.



*Screen shot examples of ARC side scans.*



As the recent past has shown us, these underwater missions and technologies are vital; they are here to stay, and they are expensive. Researchers need to get the best technology they can for their research dollars. Scientists need to cram as many sensors and as much technology as they can onto these “seekers of the deep” so that they can get everything they need in one deployment of a UUV. Space on these UUVs is limited, as is power consumption, making it vital that each system deployed on this valuable real estate provide the best data possible.

To address this concern, Marine Sonic Technology, Ltd. has developed the “ARC Scout.” The ARC (Adaptive Resolution CHIRP) line of products was introduced in January of 2013 with the ARC Explorer, Marine Sonic Technology’s high-resolution towed sonar. The ARC Explorer has quickly become the towed sonar everyone else wants to beat and copy. With its billet aluminum body, modular configuration, interchangeable CHIRP transducers, rugged shock-resistant housing, wet mate connectors, integrated variable angle bracket, and more bells and whistles than can be mentioned here, it is the towed Side Scan Sonar of the future.

Marine Sonic Technology, Ltd. knew it had to provide the same technology to our customers in the AUV, UUV, and ROV markets. Our Engineering team set out to do the nearly impossible—create a CHIRP sonar that has the smallest footprint on the market while decreasing the vital and very valuable power consumption. They developed a small device affectionately called “The Cube.” It measures only 9.9 cm wide x 9.4 cm long x 5.6 cm high and is also available in another configuration that is 9.9 cm wide x 18.7 cm long x 3.8 cm high—the smallest all-inclusive CHIRP Sonar on the market today.



*ARC Scout size comparison to pen.*

Naming the “Cube” was easy. What else besides a “Scout” ventures into unknown territory and collects data on its surroundings? Just like a “Scout” it carries everything it needs in one small neat package. Virtually plug and play, everything needed is built right into the cube—just plug it into the onboard computer using 10/100 Ethernet, Isolated RS232 Serial, and TTL Sync-in/out. Plug in the hull-mounted dual-frequency transducers and you’re ready to go. The Scout’s extremely small size frees up valuable payload space inside the vehicle for other additional sensors. Not only is the

# FEATURE STORY

Scout small, it consumes very little power. How low is still a secret, but I can assure you, you will barely notice it's there. The power consumption can be dynamically tailored to the specific needs and requirements of the mission and will never exceed 30 W.

The ARC Scout comes with your choice of Adaptive CHIRP, Dual Simultaneous, and Dual Frequency transducers, either 600/1200 or 900/1800kHz. The CHIRP bandwidth is 50 kHz to 200 kHz with a CHIRP length of <1 ms. The maximum image ranges per side are 600 kHz: 130 m; 900 kHz: 80 m; 1,200 kHz: 45 m; and 1,800 kHz: 25 m.



*Chief Engineer Alex Berelovich Working on ARC Scout.*

Marine Sonic Technology, Ltd. has recently moved into a new, state-of-the-art facility in Yorktown, Virginia. We are a long established company and our products are designed, manufactured, and assembled in house at our new headquarters in Yorktown. The new building allows for expansion in the research and development departments and makes way for new technologies in our manufacturing processes, allowing us to expand our production and test capabilities. Our streamlined design and manufacturing process allows us to keep prices low and makes the best side scan sonar on the market today available to all customers regardless of budget.

Marine Sonic Technology, Ltd. is committed to providing the best solution possible to each customer based on their mission needs. We strive to support our customers both by phone and in the field. Customers come first. We will commit to as much time as it takes to support customer missions. When you call for technical assistance, you get answers from a support team that has worked in the field and understands the difficulties of collecting data in harsh

conditions. You will get answers from one of our trainers who has years of experience in the field running the equipment or from one of the engineers who designed it. You will be able to contact them anytime, 24 hours a day 365 days a year, to make sure your mission runs smoothly. You will know someone took time in the design and construction of your system, tested it multiple times before sending it to you, and cares deeply that it functions as specified. Our products go through several checks prior to leaving our facility; and, at each station, the engineer involved has the customer's full information and verifies that the system he is working on is customized specifically for the customer's needs. We are so confident of the quality of our products that we provide you with a full 3-year warranty

Marine Sonic Technology, Ltd. is a privately held corporation incorporated in Virginia. Marine Sonic Technology's CEO, Martin H. Wilcox, graduated with a Bachelor of Science in Electrical Engineering (B.S.E.E.) from The Moore School of Electrical Engineering at the University of Pennsylvania, Philadelphia in 1966. In his early career, he worked in digital computer design for radioisotope tomographic scanning; hand-held, battery-operated doppler ultrasound diagnostic devices; and developed design advances for static B-mode scanners.

In 1972, he and a partner started Advanced Diagnostic Research Corporation (ADR®) in Tempe, Arizona. His engineering designs at ADR® led to the introduction of one of the earliest commercially available linear-array real-time scanners that first debuted in 1973. The scanner, which set the standard for subsequent designs, was the first "good-resolution" linear-array scanner suitable for abdominal and obstetrical scanning in the commercial market.

Marty Wilcox was out of the "medical" ultrasound field by 1982 when ADR® was sold to the Squibb Corporation®. He was constrained by the sale contract from working for any medical ultrasound company for a period of years, so he moved on to trying to improve technology in underwater sonar imaging systems and eventually established a new company, Marine Sonic Technology, Ltd. based in Virginia in 1993. Much of Marine Sonic Technology's initial underwater scanner technology evolved from the lessons learned in the development of medical ultrasound. For his inventiveness and contribution to the development of medical ultrasound, he was awarded the Ian Donald Gold Medal for Technical Merit in 1993 by the International Society of Ultrasound in Obstetrics and Gynecology.

Mr. Wilcox has used his experience in the medical world to design highly efficient, low-power transducers that produce the extremely high-quality underwater images we see in today's side scan sonar images. Marine Sonic Technology, Ltd. continues to design highly technical underwater systems using the latest advancements in sonar. The team of engineers led by Mr. Wilcox and Chief Engineer Alex Berelovich at Marine Sonic Technology, Ltd. are some of the best in the field and are consistent in developing cutting-edge new technologies in the advancement of underwater sonar imaging.

For more information on Marine Sonic Technology, Ltd. or to set up a demonstration on any one of our systems, please call us at (804) 693-9602 or visit us our website at [www.MarineSonic.com](http://www.MarineSonic.com).

# Power, Communications, and Sensing for Subsea Environments

*Innovation and Subsea Reliability*



CLICK OR SCAN



## CORMON

Real-time, high resolution, in-line corrosion and sand erosion detection sensing and monitoring technology plus CFD design services for optimal sensor deployment.



## DGO

Penetration, interconnect and feedthrough engineered solutions for extreme pressure and temperature applications.



## IMPULSE

Electrical and optical interconnect systems and custom molded products for the harshest environments.



## ODI

Engineered electrical and hybrid subsea wet mate power and data interconnect and network distribution solutions.



## STORM CABLE

Application specific multi-core cable constructions for harsh environments.



## VARISYSTEMS

Ruggedized over-molded cable/harness assemblies.



**TELEDYNE OIL & GAS**

[www.teledyneoilandgas.com](http://www.teledyneoilandgas.com)  
[oilandgas@teledyne.com](mailto:oilandgas@teledyne.com)

### USA

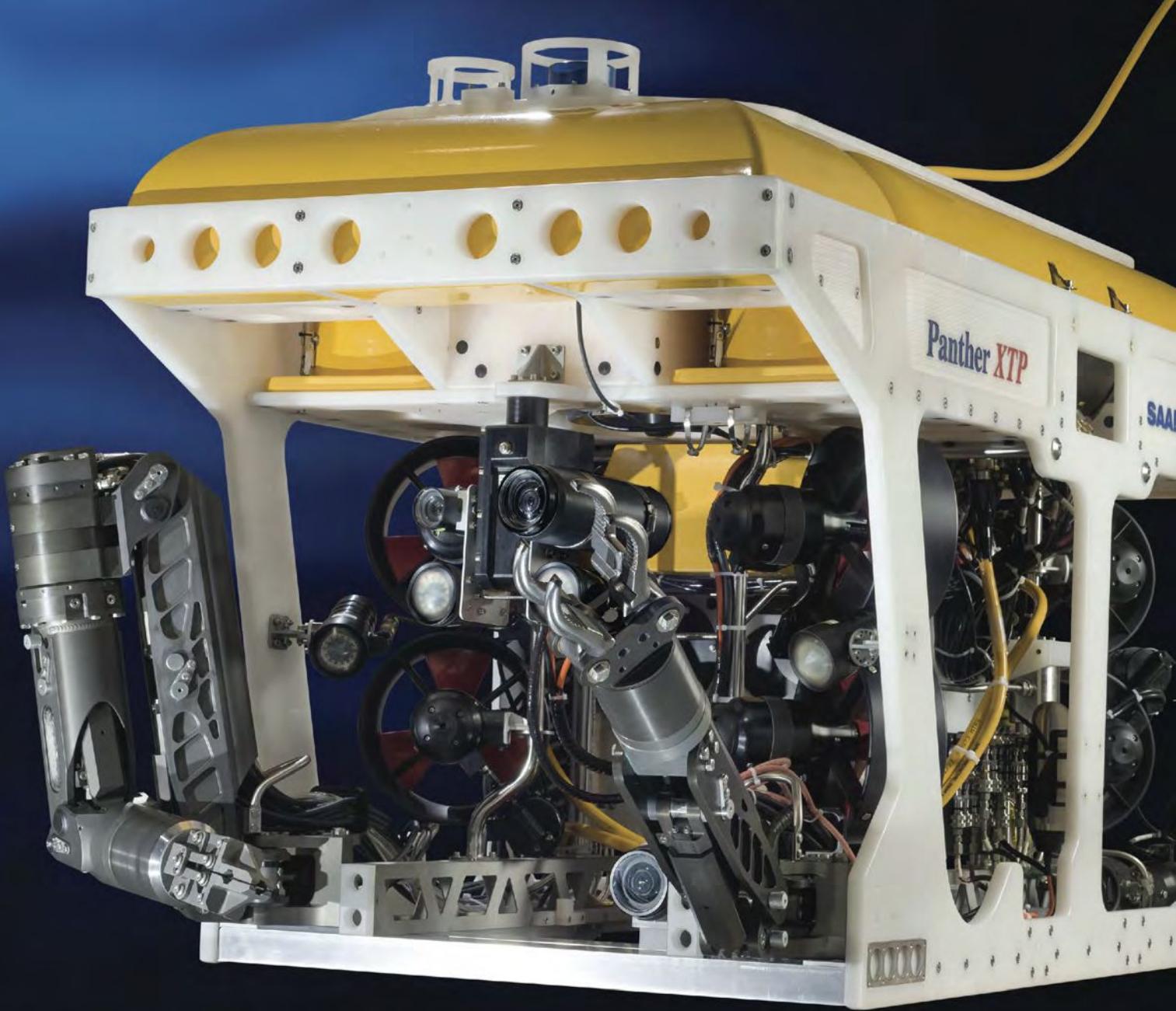
Daytona Beach, FL  
Dallas, TX  
Houston, TX  
San Diego, CA  
Portsmouth, NH

### INTERNATIONAL

Alton, UK  
Ellon, UK  
Worthing, UK  
Rio de Janeiro, Brazil  
Tijuana, Mexico

Calgary, Canada  
Kuala Lumpur, Malaysia  
Johor Bahru, Malaysia

The World's Leading ROV Manufacturer



SEAEYE PANTHER-XT PLUS

See us at:

**TRUSTED**



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



**SAAB**

# OCEAN INDUSTRY

## Dr. Richard W. Spinrad named NOAA's Chief Scientist

The Obama Administration named Dr. Richard W. Spinrad as NOAA's Chief Scientist. An internationally recognized scientist and executive with more than 30 years of experience, Dr. Spinrad will be the senior scientist for the agency, driving policy and program direction for science and technology priorities. Until this appointment, Dr. Spinrad served as vice president for research at Oregon State University (OSU) in Corvallis, Oregon, and from 2005 until 2010, was the head of NOAA's Office of Oceanic and Atmospheric Research and the head of the National Ocean Service.

Dr. Spinrad has extensive experience in environmental research, management, and teaching. He was a leader in the development of the nation's first-ever ocean research priorities and established the U.S. Navy's environmental research strategy. He has directed federal research programs and served on the faculty of three major universities. He has been published in pre-eminent peer-reviewed journals and awarded highest honors from three international professional societies.

Dr. Spinrad began his career as a research scientist at the Bigelow Laboratory for Ocean Sciences in Maine. From there, he went on to manage a small R&D firm, Sea Tech, Inc. in Corvallis, Oregon (1986-1987) and then joined the Office of Naval Research as a program manager (1987-1988).

From 1988 to 1993, Dr. Spinrad served as the director of the ocean biology, optics, and chemistry division (1988-1993) and the director of the ocean, atmosphere and space modeling and prediction division (1993-1994), both within the Office of Naval Research. During this time he also served as an adjunct professor in oceanography at George Mason University in Fairfax, Virginia (1994-1997).

Dr. Spinrad also has experience in the non-profit sector, having served as executive director for research and education at the Consortium for Oceanographic Research and Education, Inc. (CORE) in Washington, D.C. (1994-1999). While at CORE, Dr. Spinrad supervised research studies of midshipmen as an adjunct associate professor at the United States Naval Academy in Annapolis, Maryland. (1996-1999).

As technical director for the Oceanographer of the United States Navy (1999-2003), Dr. Spinrad served as the senior civilian advisor to the U.S. Navy on operational oceanographic and meteorological research and operations. He also established the priorities for the U.S. Navy investment in application of oceanographic products to fleet operations.

During his first tenure at NOAA, Dr. Spinrad served as the head of NOAA's National Ocean Service (2003-2005) and Office of Oceanic and Atmospheric Research (2005-2010). During this time he successfully negotiated the United States' position in establishing a global tsunami warning system, wrote key components of the Administration's Ocean Action Plan, and established agency-wide policies for scientific integrity and independence, among other accomplishments.

While serving as vice president for research at OSU, Dr. Spinrad oversaw a nearly \$300 million sponsored research program in the full spectrum of life, natural, physical, and social sciences for 12 colleges and 18 center and institutes. He developed the infrastructure for engaging industry, which resulted in a 42% increase in commercially sponsored research over 2 years.

Dr. Spinrad received his B.A. in earth and planetary sciences from The Johns Hopkins University in Baltimore, Maryland. He received his M.S. and Ph.D. both in oceanography from Oregon State University. He received a Chartered Marine Scientist certificate from the Institute of Marine Engineering Science and Technology in London, England.



## in this section

Ocean Industry Briefs	15
Maritime Transportation	18
Ocean Science	24
Ocean Energy	28
Defense	32

### DNV GL acquires Marine Cybernetics

Marine Cybernetics was established in 2002 as a spin-off from the Norwegian University of Science and Technology (NTNU). Based in Trondheim, Norway, the company introduced the concept of Hardware-In-the-Loop (HIL) Testing to the maritime and offshore industries. HIL testing significantly reduces the risk of accidents, off-hire costs and non-productive time due to software-related issues. A requirement of software-system certification was introduced into the offshore classification rules by DNV GL some time ago. Currently, the market for the third-party testing and certification of control systems is small but has huge potential. Marine Cybernetics chief executive officer Stein Eggan says, "This is an important milestone for Marine Cybernetics and true recognition of our capabilities as the leading provider of third-party testing and verification of control system software for the maritime and offshore industries. Since DNV GL is the leading global ship and offshore classification society and the leading technical assurance provider to the oil and gas industry, this transaction will also strengthen our global delivery capabilities and continued technological development, benefitting both companies' customers and industry partners as well as creating interesting opportunities for our employees." He continues, "We have enjoyed a good working relationship with DNV GL for many years and look forward to bringing our companies together to continue to build a sustainable business in the software integrity field, strongly vested in shared philosophies and core values."

"Main shareholder Statoil Technology Invest (STI) first supported Marine Cybernetics through its LOOP product development programme in 2003 and then invested in 2005, recognizing the importance of being able to independently test critical control system software on vessels and rigs. We are pleased to see that MC has found a good home in DNV GL," says Richard Erskine, managing director of STI. Besides Statoil Technology Invest and the Kristian Gerhard Jebsen Group, the shares of Marine Cybernetics were held by Marine Cybernetics employees and management as well as the former founders, who are now completely out of the company. To reflect its cross-industry relevance and strategic importance to DNV GL, Marine Cybernetics will become an independent business unit within the DNV GL Group.

June 2014

15

Ocean News & Technology

## 19th century shipwreck off Golden Gate Bridge found again

NOAA announced it has found the underwater wreck of the passenger steamer City of Chester, which sank in 1888 in a collision in dense fog near where the Golden Gate Bridge stands today. The announcement was made during a press event at Gulf of Farallones National Marine Sanctuary's San Francisco headquarters at Crissy Field.

The story of City of Chester will be shared with the public in a future waterfront exhibit NOAA will place at the sanctuary office at Crissy Field. The office is the former U.S. life saving service station built in 1890 in response to the City of Chester incident.

The 202-ft long steamship City of Chester had just left San Francisco and was headed up the California coast to Eureka with 90 passengers on 22 August 1888, when around 10 a.m. it was struck by the steamer Oceanic. Impaled on Oceanic, which was arriving from Asia, City of Chester remained afloat for 6 minutes before sinking. Sixteen people died in the accident.

The rediscovery of the wreck restores an important historical link to San Francisco's early Chinese-American community. Reports at the time initially criticized Oceanic's Chinese crew in the racially charged atmosphere of the times. Criticisms turned to praise, however, when the bravery of the crew in rescuing many of City of Chester's passengers was revealed. The wreck was then largely forgotten.

In May 2013, NOAA's Office of Coast Survey Navigational Response Team 6 (NRT6), in a 28-ft boat equipped with sonar, rediscovered what they thought was the City of Chester while surveying another nearby shipwreck, the freighter Fernstream, which sank after a collision in 1952. Delgado asked the NRT6 team to extend their survey to try and find the sunken steamer.

After working with historic data provided by NOAA historians, the Coast



SS City of Chester (Credit: San Francisco Maritime National Historic Park)

Survey team conducted a multi-beam sonar survey and a sonar target the right size and shape was found. The team spent nearly 9 months sorting through the data. A follow-up side-scan sonar survey confirmed that the target was City of Chester, sitting upright, shrouded in mud, 216 ft deep at the edge of a small undersea shoal. High-resolution sonar imagery clearly defined the hull, rising some 18 ft from the seabed, and the fatal gash on the vessel's port side.

This NOAA team was not the first to find the shipwreck. It was 125 years earlier that the U.S. Coast and Geodetic Survey, NOAA's predecessor agency that was charged with responsibility for charting the nation's coasts and harbors, believed it had located the City of Chester in early September 1888 by dragging a wire from the tugboat Redmond to snag the hulk.

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

## Nereus lost on dive exploring the Kermadec Trench

On 10 May 2014, at 2 p.m. local time (10 p.m. EDT), the hybrid remotely operated vehicle Nereus was confirmed lost at 9,990 m (6.2 mi) depth in the Kermadec Trench northeast of New Zealand. The unmanned vehicle was working as part of a mission to explore the ocean's hadal region from 6,000 to nearly 11,000 m deep. Scientists say a portion of it likely imploded under pressure as great as 16,000 psi.

Nereus was built in 2008 by the Deep Submergence Lab at the Woods Hole Oceanographic Institution (WHOI) with primary funding from the U.S. National Science Foundation (NSF) to descend to the deepest parts of the ocean and to operate either autonomously or to be controlled remotely from the surface. Its mission was to undertake high-risk, high-reward research in the deepest, high-pressure parts of Earth's ocean. At the time it was lost, it was 30 days into a 40-day expedition on board the research vessel Thomas G. Thompson to carry out the first-ever systematic study of a deep-ocean trench as part of the NSF-sponsored Hadal Ecosystems Study (HADES) project under chief scientist Timothy Shank, a WHOI biologist who also helped conceive the vehicle.

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

## NOAA commissions new fisheries survey ship in San Diego

NOAA commissioned a state-of-the-art fisheries survey vessel, NOAA ship Reuben Lasker, during a ceremony at the Navy Pier in downtown San Diego. The ship will conduct fish, marine mammal and turtle surveys off the U.S. West Coast and in the eastern tropical Pacific Ocean.

Funded through the American Recovery and Reinvestment Act, Reuben Lasker is the fifth in a series of ultra-quiet, high-tech fisheries survey vessels designed to meet the NOAA Fisheries Service's specific data collection requirements. The ship was built in Wisconsin by Marinette Marine Corporation, a Fincantieri company.

The 208-ft ship is equipped with a full suite of modern instrumentation for fisheries and oceanographic research, including advanced navigation systems, acoustic sensors, scientific sampling gear and extensive laboratories. These features will dramatically enhance NOAA's ability to conduct surveys for fish, marine mammals and turtles off the west coast of North America and in the eastern tropical Pacific Ocean.

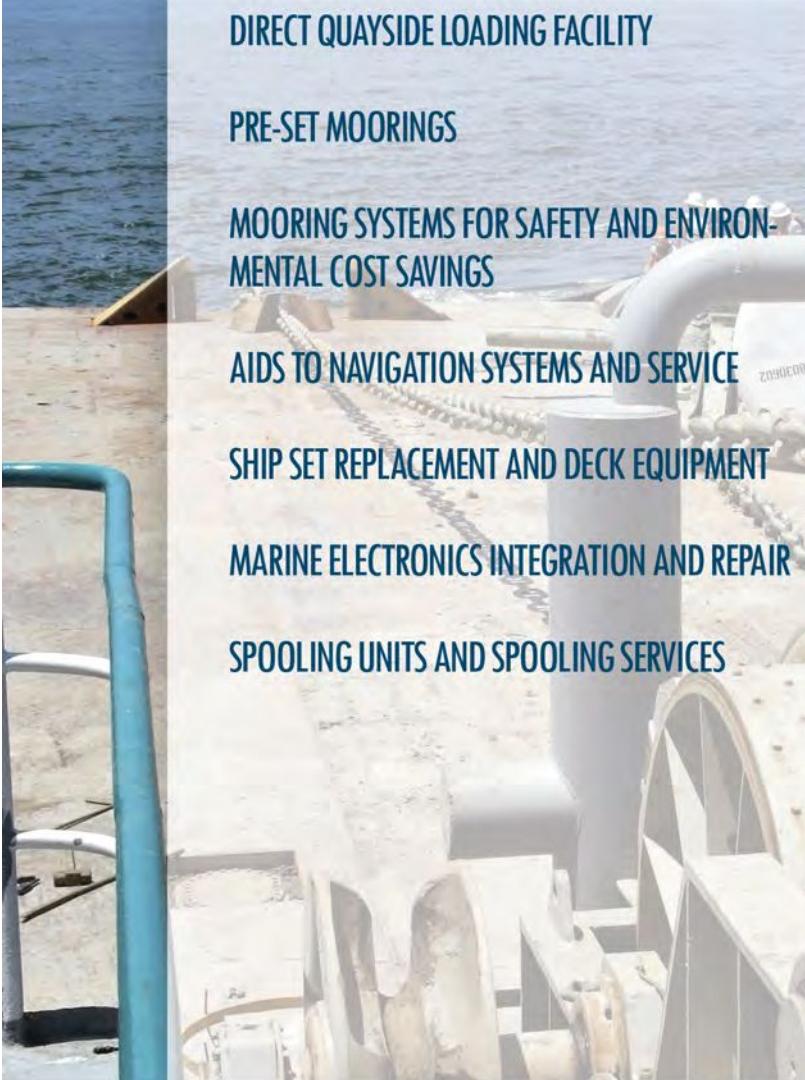
Like its sister ships, Reuben Lasker is engineered to produce much less noise than other survey vessels, allowing scientists to study fish populations and collect oceanographic data with fewer effects on fish and marine mammal behavior.

The new vessel is named after the late Dr. Reuben Lasker, a pioneering fisheries biologist who served as the director of the NOAA Southwest Fisheries Science Center's coastal fisheries division and as adjunct professor at Scripps Institution of Oceanography, University of California San Diego.

Reuben Lasker is part of NOAA's fleet of specialized ships and aircraft and is operated, managed and maintained by the NOAA Office of Marine and Aviation Operations, which includes commissioned officers of the NOAA Corps, one of the seven uniformed services of the United States, and civilian wage mariners.

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





CUSTOM DESIGNED AND FABRICATED BUOYS  
MARINE FENDERS AND REPAIR SERVICES  
MARINE EQUIPMENT SUPPLY AND RENTAL  
SPECIALTY MONITORING AND TRACKING BUOYS  
DIRECT QUAYSIDE LOADING FACILITY  
PRE-SET MOORINGS  
MOORING SYSTEMS FOR SAFETY AND ENVIRONMENTAL COST SAVINGS  
AIDS TO NAVIGATION SYSTEMS AND SERVICE  
SHIP SET REPLACEMENT AND DECK EQUIPMENT  
MARINE ELECTRONICS INTEGRATION AND REPAIR  
SPOOLING UNITS AND SPOOLING SERVICES

# *Providing a Wave of Solutions*

*Globally providing products and services safely since 1999*



**Wet Tech Energy, Inc.**  
*providing a wave of solutions*

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

Wet Tech Energy, Inc.  
4598 Woodlawn Road  
Maurice, LA. 70555  
1+ (337) 893-9992  
[sales@WetTechEnergy.com](mailto:sales@WetTechEnergy.com)

# MARITIME TRANSPORTATION

Commercial Shipbuilding • Ocean Transport • Maritime Law • Marine Technology

## Coast Guard inspects first Great Lakes container ship

Coast Guard marine inspectors conducted safety and security examinations on the first-ever container ship to arrive in Cleveland. The Fortunagracht, a 450-ft Dutch-flagged container ship, delivered the first-ever load of containerized cargo to the Great Lakes. Before the establishment of the Cleveland-Europe Express, shippers relied heavily on rail service to transport goods from the larger east coast container ports, such as New York and Baltimore, to the Great Lakes region. Talks to bring CEE to Cleveland began in the fall with cooperation between the Coast Guard, Customs and Border Protection, the FBI and other government agencies. "Marine Safety Unit Cleveland worked closely with the Cleveland Port Authority's facility security officer, CBP, and other federal, state, and local law enforcement officials to ensure safe and secure operations for the CEE," said Lt. Cmdr. J. Wade Russell, commanding officer of MSU Cleveland. "MSU personnel focused primarily on maritime domain awareness surrounding the operations and compliance with safety and security regulations within the port."

## Global freight data highlight continuous dependency on Asia-led growth

The overall picture for global freight remains uncertain. Total external trade by sea (in tonnes) remains below pre-crisis levels (June 2008) in the EU-27 and the U.S. (-2% and -7%). In general, demand remains weak in developed economies. Imports by sea to U.S. have declined throughout 2013 and were 27% below their pre-crisis levels at the end of the year. Imports by sea to EU remain at 10% below pre-crisis levels. Asia, especially China, remains the locomotive for growth. Exports to Asia by sea increased both in the EU-27 and the USA and were 53% and 30% above their pre-crisis levels respectively. EU-27 and the U.S. exports by sea to China, measured in tonnes of goods moved, were 83% and 142% above the July 2008 levels, respectively. The dependency on China is also illustrated by data on New Zealand exports to China. Exports by sea have more than tripled since pre-crisis peak. Data for Brazil shows diverging trends between air and sea freight. Total external trade by sea, measured in tonnes, increased to 23% above pre-crisis levels. Imports continued to increase, driven partly by major infrastructure construction projects for the World Cup and Olympics. However, external trade by air has been declining since 2011, reaching 7% below the July 2008 levels in December 2013.

## Boskalis initiates study into ultra large Dockwise vessel

Royal Boskalis Westminster N.V. (Boskalis) announced at the Offshore Technology Conference in Houston (U.S.) that it has started a study into a new ultra large V-class Heavy Marine Transport Vessel (HTV). The Dockwise Vanguard which came into service early 2013 is already the world's largest V-class HTV with a carrying capacity of 117,000 MT and a deck space of 270 m by 70 m. Peter Berdowski, CEO Boskalis: "The Dockwise Vanguard has been well received in the market. Our decision to start this study is a reflection of this and we see many more exciting opportunities in the FPSO and FLNG markets." The study addresses both the market opportunities and the technical requirements for the new vessel. Boskalis will engage with clients to understand how this vessel can accommodate the expected growth in the FPSO and FLNG markets in addition to the ocean-going transport of outsized heavy marine structures. Compared to the Dockwise Vanguard, the new vessel will be larger in terms of length, breadth and carrying capacity but will also have a bowless design and asymmetric accommodation. The addition of another V-class vessel to the current fleet of semi-submersible HTV's allows Boskalis to further expand its leading market position in the offshore energy industry.

June 2014

18

Ocean News & Technology

## CMM takes delivery of its first Damen PSV 3300



Compagnie Maritime Moné gasque S.A.M. (CMM) has taken delivery of a Damen Platform Supply Vessel 3300. The 80-m, 3,300 t deadweight vessel CMM Gravity will be deployed in the Brazilian waters from June 2014 on a 4+4 year contract with Petrobras.

For CMM, the vessel will mark a further step in its ambitious plans to expand in the offshore space and expand its offering by developing its capabilities as an OSV operator. It is the yard's seventh delivery of Damen's new mid-size PSV 3300 design. This vessel will be compliant to Petrobras specifications, including Petrobras Annex V.

Next to the 728 sq. m deck with a 1,500-tonne deck load capacity, the vessel will feature extensive tank capacities to handle different types of fluids and bulk. The vessel has a DP2 system that relies on four generator sets, two Azimuth thrusters and two bow thrusters. The 14-kt, 16.2-m wide (moulded) vessel will be LR-classified for worldwide deployment. The most remarkable feature includes the bulb-less axe bow as developed by Damen, and the bright red that CMM has selected for its corporate color.

"From this first order we hope that CMM will let us support their ambition to expand worldwide," Rutger Dolk, Damen sales manager Americas said. "This new order further strengthens our position in the Brazilian offshore market. When CMM's vessel will be deployed in June 2014, it will lift the number of Damen-designed offshore support vessels operating for Petrobras in the Brazilian waters to over 20 vessels."

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

## PMI Industries, Inc. cable hardware adds productivity and efficiency to the latest generation of 3D seismic acquisition vessels

The launch of the Ramform Titan class marine seismic data acquisition ships by Petroleum Geo-Services (PGS) mark a new era of subsea oil and gas exploration. The second of these vessels, the Ramform Atlas was launched in January 2014. The Ramform Titan and Ramform Atlas, are designed and built by PGS to be the most powerful and productive of their kind using the latest marine and electronic seismic technologies.

Every detail of these vessels was evaluated based on optimum productivity and safety including the cable management

systems used to deploy and attach up to a 24-streamer array system. The towed streamers consist of several thousand recording sensors over an area greater than 12 sq. km, or 3.5 times the size of New York's Central Park.

The engineers at PGS have chosen the latest proven technologies available throughout the Ramform Titan-class ships, including the new PMI Dyna-Hanger II and Dyna-BSR cable management systems. These systems provide significantly higher load capacities to accommodate the demands of extreme towing loads caused by wider streamer arrays. As a bonus, the major components of both systems can be installed, or removed, in just minutes without special tools or extensive personnel training to increase on deck productivity and reduce downtime.

The Dyna-Hanger II cable management system uses exclusive patent pending designed symmetrical suspension arms with tool-less features and helical rods. It is designed with a hinged collar that snaps around the housing and is secured with just a quick-release pin. A specially designed housing prevents



the attachment point from shifting on the lead-in cable while the collar design enables the cable to rotate freely under tension. It is capable of accommodating loads up to 100% of the cable's rated breaking strength.

The Dyna-BSR bending strain relief system provides cable bending and abrasion protection, while enabling rotation of various cable attachments. It replaces traditional slip-on bending strain relief systems that use a one-piece body design. Instead, the Dyna-BSR patent pending two-piece system can be installed or removed at any time during deployment or retrieval procedures. It is designed with a reinforced polyurethane, two-part shell to provide added strength and flexibility. A unique fastener system

quickly secures the shells together. In total, the system offers graduated stiffness to protect cables from off-axis loads through a wide range of angle combinations by maintaining a safe minimum bend radius.

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

### Peterson revolutionizes quayside operations with global launch of eCargo

Peterson, the global logistics provider, has launched a new technology platform designed to revolutionize the oil and gas industry supply chain.

eCargo, which falls with Peterson's eLogistics solutions, is a business management framework that provides a foundation for processes to be used consistently across the globe. Combining information and process modeling management, reporting and financial management and operational execution it will include eCargo, eCCU, eTransport, eWarehousing and eMarine.

Following a successful roll out in the North Sea, the primary application, eCargo will, for the first time, provide

June 2014

19

Ocean News & Technology

MOOG

## Outstanding Products

Reliable imaging and ancillary equipment.  
We understand your underwater needs.

*Gemini 620pd profiler is ready to enhance your survey >*  
*Gemini sonar image as post-processed in Hypack*



#Gemini #profiler #survey

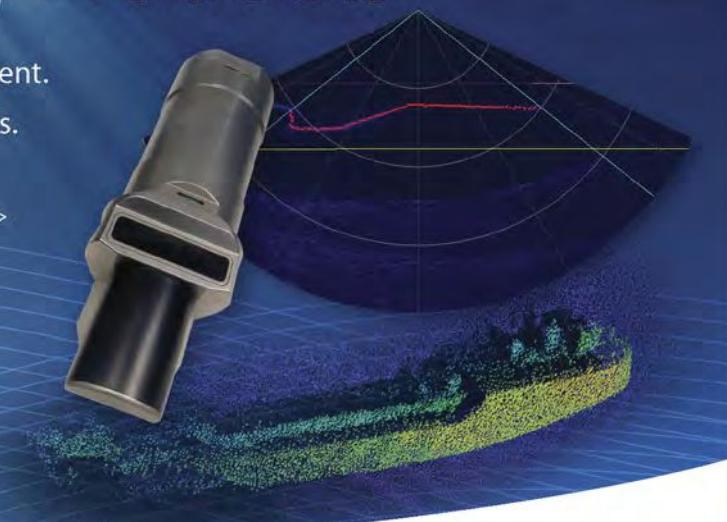
Visit: [www.tritech.co.uk](http://www.tritech.co.uk)  
to discover more.

Visit us on Booth 122

at Oceans '14

14 - 19 September

UK • NORTH AMERICA • BRAZIL



Visit us on:



Tritech

clients with real-time data on the status of their shipments and encompasses all aspects that currently take place at the quayside, combining them into one simple to use web application accessed through an internet browser.

The unique system provides a number of benefits including real-time data and reduction in paper forms, as well as reducing risk through more effective communications and improving operational efficiencies.

It allows the operator to see cargo activities on the quayside without any manual processing delays, subsequently improving the communication and integration between various business processes.

The intuitive system incorporates health and safety controls, enabling Peterson to provide consistent, compliant and safe base operations services around the world.

Peterson demonstrated at OTC how staff can directly input voyage load lists and cargo manifests, allowing multiple revisions to be updated and sent in real time to the centralized database, where instant notifications are generated. This removes the need for multiple emails, reducing network traffic and guaranteeing all operators are working from the latest version of the data.

Designed to work with tablet and other mobile devices, eCargo eliminates the need for paper systems, multiple emails and spreadsheets. It also guarantees that clients have the most up-to-date information and ensures that exact weights are recorded so that clients always receive the best value for money.

eCargo is now in use at Den Helder, Aberdeen Harbour and Great Yarmouth, with other UK & NL bases due online in the coming months.

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

## Two more CTruk workboats for offshore turbine services

Since launching 3 years ago Pontrilas-based Offshore Turbine Services has gone from strength to strength with a refined offering of reliable and efficient crew, fuel, cargo and equipment transfer services to offshore wind turbines, sub stations and other offshore developments requiring maritime logistics.

Speed, flexibility, minimum vessel downtime and cost effectiveness are the company's main focus points, and the decision to operate CTruk's multi-role composite catamaran workboats has proven key in delivering these. Offshore



Turbine Services now owns six of CTruk's popular 20T MPC offshore wind support vessels, with a seventh currently in the final stages of production.

With an OTS-measured total fuel consumption of 100 l/hr at 2,000 rpm and 20 kts on the latest 20T to join the fleet, Lieutenant P, it is easy to see how the company has made such an imprint on the industry with these vessels in just a few years.

CTruk's use of a vacuum infusion process to build composite craft to the highest standards, saving around 40% on weight and optimising hull hydrodynamics, means that these robust work-boats burn less fuel. This fact, coupled with inherent versatility gained from the company's now patented moveable wheelhouse and modular deck pod system (the passenger pod can be craned off to open up the deck area for equipment transfer) has resulted in CTruk's offering gaining more traction in a changing offshore wind support market.

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

## Underwater stern tube seal repair in Uruguay under challenging circumstances

In April a Hydrex diver/technician team carried out underwater stern tube seal repairs on a 157-m dredger in Montevideo, Uruguay. The ship was suffering from an oil leak, making an on-site repair necessary. Using a Hydrex flexible mobdock the team was able to carry out the entire operation on-site and underwater, saving the owner an expensive and time-consuming trip to drydock.

Hydrex has carried out on-site, underwater repairs and replacements on all types of seals for a number of years. A dry environment is created underwater in which the divers can work. Several major classification societies have also awarded Hydrex certificates that accept the Hydrex revolutionary flexible mobdock technique to perform permanent underwater seal repairs that previously would have had to be done in drydock.

For more information, visit [www.hydrex.be](http://www.hydrex.be).

## Senators call on Coast Guard to make cruise ship inspection information available to public

In a letter to U.S. Coast Guard Admiral Robert Papp, Jr., U.S. Senators Richard Blumenthal (D-Conn.), John D. (Jay) Rockefeller IV (D-W.V.), Chairman of the Senate Committee on Commerce, Science, and Transportation, and Edward J. Markey (D-Mass.) called on the Coast Guard to detail how it plans to use inspection information to hold cruise ships with safety problems accountable. The senators also requested that such information be made available to the public over the Internet. The letter comes on the heels of the Coast Guard's recent decision to conduct unannounced inspections of cruise ships that have exhibited a history of safety problems.

"We commend the Coast Guard's commitment to strengthening the integrity of the inspection system—a crucial safeguard for the more than 22 million people projected to take a cruise this year, and write requesting information on how the Coast Guard intends to use the results of such inspections to hold cruise ships accountable for passenger and crew safety," the senators wrote. "In addition, we respectfully request that the records and results of the unannounced inspections be made public and easily available over the Internet for prospective cruise passengers to peruse before booking a trip."

## Vessel launch leads to new training courses at Kongsberg Maritime Ltd.

Kongsberg Maritime Ltd. has introduced a series of new on-water training courses for offshore surveyors and survey engineers following the launch of its own chartered vessel, True North.

The vessel will enable Kongsberg Maritime Ltd. to introduce a practical element to the courses already offered at its training center in Westhill, Aberdeen on the company's products for the offshore survey industry.

The vessel, which has been customized to Kongsberg Maritime's specifications, will enable delegates to put into practice what they have learned in the classroom.

True North can accommodate up to a maximum of six delegates at a time, along with an instructor, skipper and mate. The vessel is a Blyth 33 catamaran - 10.11 m long and with an operational capability of up to 20 mi offshore.

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

## NAVIGATION SYSTEMS

TELEDYNE TSS WORLD LEADERS IN MARINE NAVIGATION



# A new generation of Marine Navigation Systems.

Introducing the new Saturn range of fibre optic gyro-based AHRS and INS systems to meet and exceed the demanding requirements of maritime operations both surface and subsea.

Features of the new product range include:

- Teledyne's own fibre optic gyro technology
- Titanium subsea housing – lighter, smaller and non-corrosive
- Thermal calibration process to ensure performance stability

Saturn AHRS and INS systems – requirements to meet the exacting standards of marine navigation – everywhere you go.

100 years of  
World-leading  
navigation  
equipment.

To find out just how far -  
call: +44 (0)1923 216020



**TELEDYNE TSS**  
Everywhereyoulook™

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

For further information on any TSS products please email us at: [tss\\_salesenquiries@teledyne.com](mailto:tss_salesenquiries@teledyne.com)

# DITCHING “DUMB” DATA

## Abandoning Archaic Deliveries for Smarter, Cost-Effective GIS Tools

By: Taylor Brown, DOF Subsea

The public abandoned paper maps in favor of Geographic Information Systems (GIS), so why hasn't the survey industry? The preferred source of driving directions has moved from paper maps to GPS units to smartphones in under two decades, yet seabed survey data are still delivered in outdated formats. Archaic legacy data formats hidden amid complex file structures are delivered alongside paper charts and drawings that collect dust on clients' shelves. While determining infrastructure locations on the seafloor could be done using objective analysis, it is still completed by matching pixels to a color ramp. As GIS platforms for smarter data deliveries are readily available, Exploration and Production (E&P) companies and survey contractors should move from archaic deliveries formats to simpler, more cost-effective, intelligent methods.

### What is “Dumb” Data?

The inherent intelligence of data can be defined by the extent to which it is accessible and able to be queried and manipulated. Consumers use the Internet to find the closest gas station and plan the best route to a given destination using intelligent GIS platforms that access inherently “smart” data. If this same definition is used to measure the current state of seabed survey deliverables, many of the industry's legacy data formats start to look pretty “dumb” pretty quickly. For example, a paper chart or CAD drawing whose color ramp provides the depth of the pipeline within 5 m, not centimeters, is pretty “dumb.” A side-scan targets report \*.pdf that shows a surveyed wellhead location, yet provides no way to find the nearest seabed feature or quickly query its description, slope, or associated backscatter amplitude is pretty “dumb.” Investigating a fault surface with four software programs to accomplish what an existing GIS platform could do

with only one is pretty “dumb.” The phrase “dumb data,” while blunt, is appropriate.

When considering the data from which AUV survey deliverables are generated, dumb data can also be considered dumbed-down data. Post-processing and interpreting inherently valuable AUV survey data require costly, time-consuming software, tools, and personnel. This effort's value, however, is lost when the interpretation is delivered to the client as a point on a paper chart or a drawing file. Furthermore, dumbed-down data are reductive, requiring additional effort to be taken to cross-reference reports, additional charts, and survey data files in order to find out more information about the feature and its surroundings. The process of formatting data for delivery is stripping it of its value and potential utility, reducing what could be an interactive and intelligent object to a drawn point on a map. This is why E&P companies and survey contractors need to rethink their systems for generating, exchanging, and using seabed survey data. Fortunately, a smarter solution is already here (and has been for some time).

### Delivering Smarter Data

As a system for managing and analyzing spatial data, GIS is simply better. It replaces generations of archaic drawings and data processing workflows with a single, modern platform. It offers functionality beyond what programs like AutoCAD can provide with a system that allows users to generate, store, manipulate, and compare numerous formats and layers of data. GIS supports complex, yet customizable data models to serve the needs of an enormous range of industries, including oil and gas, maritime, and the public sectors. Essentially, it is a comprehensive integrated analysis platform for spatial data that is objective, risk reducing, and cost effective.



For seabed surveys, GIS is the optimal platform for data management and analysis. It supports numerous custom and industry-standard survey data models that rapidly port survey deliverables into scalable, global enterprise geodatabase systems. GIS platforms allow end-users to interact with and analyze their data rapidly instead of spending time cross-referencing reports and paper charts. These platforms offer tools to standardize data delivery and integrate multiple phases of contract work, allowing E&P companies to better manage data delivery and make objective decisions using seabed survey data.

Of the vast number of tools and templates that GIS offers, one model is ideally suited for delivering AUV survey data. Seabed Survey Data Model (SSDM) is a modern, industry-standard template for delivering seabed survey data developed by the International Association of Oil and Gas Producers (OGP) Geomatics Group. SSDM is an ideal platform for delivering AUV survey data as it includes template feature classes for storing spatial data on environmental samples, seabed features, sediment classifications, and shallow and intermediate geology interpretations as well as standard survey measurements like bathymetry and survey tracklines.

As a survey data delivery platform, SSDM provides operators significant accessibility and operability improvements over traditional dumb legacy formats. SSDM allows E&P companies with internal GIS and geoscience departments the ability to rapidly access survey data and conduct integrated analysis required for detailed engineering. Rather than comparing points on legacy paper charts to reports, tables, and opening line files in multiple software packages, SSDM and GIS allow users to query single points that store all associated information, including images, feature descriptions, and dimensions.

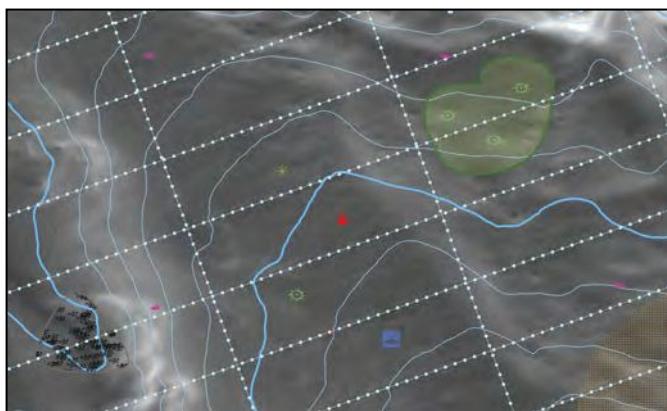
## Modernizing Legacy Data

While its functionality makes GIS the optimal platform for delivering intelligent data, the question of how to extract the most value out of existing legacy data remains. Dumb data formats, while burdensome to use, still have the ability to provide some information for more objective analyses with only minor legwork and manipulation. Through updating data to GIS formats such as SSDM, additional technical equity can be realized from these out-of-date data.

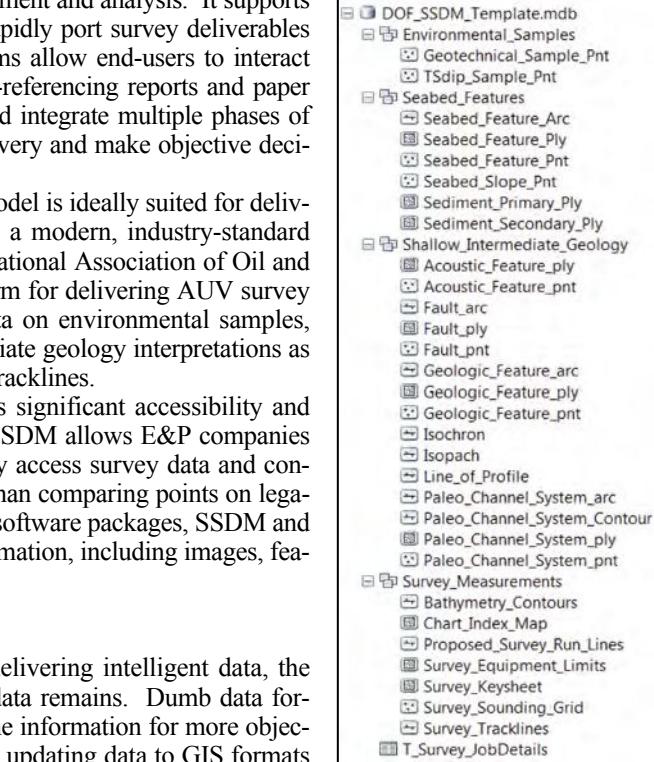
To evaluate the difficulty in updating legacy formatted AUV data, DOF Subsea recently undertook a pilot research and development project to import legacy non-GIS formatted data to a SSDM geodatabase. The project yielded very positive results, as the survey data deliverables from a 25-day AUV survey were able to be loaded to a SSDM geodatabase with a 5-day effort. Though results are only available from the first trial of this work, it suggested that with existing SSDM and GIS tools and programs, seabed survey expertise, and some trial and error, legacy data could be modernized to support smarter integrated analysis.

## The Road Atlas Stays, For Now

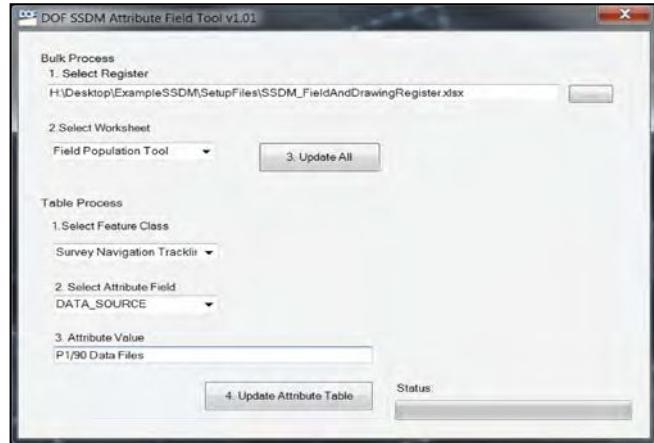
While motorists still keep backup paper maps stored somewhere in their cars, the primary spatial data tool they use for navigation and finding the closest landmark has shifted to GIS systems. Seabed survey deliverables, however, haven't evolved from dumb data formats into available modern tools like SSDM. Legacy data formats are cumbersome and unmanageable. They do not provide an optimal platform that allows end-users to make the most informed, objective decisions. By updating archived data formats and moving to modern GIS tools, the offshore oil and gas industry can make safer, more intelligent detailed engineering decisions. Just as the public has abandoned legacy formats in favor of smarter spatial tools, E&P companies and their survey contractors should ditch these archaic formats to bring their data into modern times.



*As SSDM's platform, ArcGIS offers a robust suite of tools for spatial data analysis, management, query, and display. Seen here, uniform SSDM symbology makes identifying seabed features in ArcGIS easy across all company's datasets.*



*The SSDM geodatabase offers a suite of template feature datasets ideal for easily managing and delivering AUV survey data.*



*Custom ArcGIS tools, like DOF's SSDM Attribute Field Tool, make populating a SSDM geodatabase efficient while maintaining feature and attribute data consistency across all features.*

### Liquid Robotics and NOAA sign R&D CRADA to advance oceanographic and atmospheric forecasting

Liquid Robotics and NOAA have announced the signing of a multi-year, Cooperative Research & Development Agreement (CRADA) designed to advance ocean observations to improve U.S. weather forecasting, fisheries management and environmental monitoring. The NOAA/Liquid Robotics CRADA combines the significant product capabilities of the Wave Glider, a revolutionary, wave-powered unmanned ocean robot, with NOAA's engineering, data analysis and modeling expertise for applications that will have long-term benefits to the general public. "Over several years, we've worked closely with Liquid Robotics on multiple applications with their innovative technology, the Wave Glider. We've used the Wave Glider to demonstrate advances in hurricane forecasting, measure CO<sub>2</sub> levels, monitor the Arctic marine environment, detect tsunamis and collect fisheries data," said Craig McLean, NOAA's deputy assistant administrator of the Office of Oceanic and Atmospheric Research. "I am pleased to establish this agreement to strengthen our important partnership and to improve environmental observations." The NOAA/Liquid Robotics CRADA will focus research on three primary areas:

- Expand and enhance integrated sensor capabilities that will augment information needs, fill data gaps and lower data acquisition costs
- Improve unmanned platform operational capabilities or geographic scope of coverage to collect data in areas or in conditions too difficult or risky for manned observations
- Utilize sensor data collected from unmanned platforms to augment or replace existing data collection technologies (i.e., moored buoys, satellites, research vessels)

More specifically, the CRADA will involve collaboration for:

- Improvement of hurricane intensity forecasting models
  - Arctic meteorological and oceanic exploration
  - Coastal mapping/hydrographic surveys
  - Carbon dioxide monitoring and ocean acidification data gathering
  - Fisheries surveys
  - Marine animal population assessments
  - High precision water quality measurements in the Great Lakes
  - Augmentation or replacement of coastal weather buoys
  - Improvement of domain awareness of marine sanctuaries
- Additionally, there will be research expeditions to augment weather satellite data collection records by providing high resolution, surface (*in-situ*) data over long duration time periods (up to a year) and vast ocean expanses never before affordable or feasible to collect.

### New recommendation adopted on Baltic Sea protected areas

HELCOM work on marine protected areas (MPAs) took a major leap forward as the new Recommendation on coastal and marine Baltic Sea protected areas was adopted (Rec 35-1). Protected areas are essential for maintaining healthy biodiversity and ensuring the versatility of ecosystems. The primary reason for creating the new Recommendation is the need to update selection criteria of marine protected areas. Such improved criteria are now possible due to recent major HELCOM work to define red-listed species at risk of extinction, as well as biotopes threatened by collapse in the Baltic Sea. Another essential feature is that the network of HELCOM MPAs aims to be ecologically coherent, in other words that the collection of sites protects the full range of biodiversity in the region. Moreover, the contents of management plans for the protected areas require urgent attention. The area of HELCOM marine protected areas has increased threefold since 2004 and now covers about 12% of the marine area, thereby exceeding the target of 10% set by the Convention on Biological Diversity, confirms the HELCOM Overview report published last year. The Baltic Sea was one of the first regional seas in the world to reach this target. However, little progress has been made to include more offshore areas under the protection regime, and the network of protected areas is not yet ecologically coherent in spite of the HELCOM target set 3 years ago. The newly adopted Recommendation incorporates all Baltic Sea sub-basins within the 10% protection coverage target.

## West Antarctic Ice Sheet collapse is underway

National Science Foundation (NSF)-funded researchers at the University of Washington have concluded that Antarctica's fast-moving Thwaites Glacier will likely disappear in a matter of centuries, potentially raising sea level by more than a half a meter (2 ft).

Data gathered by NSF-funded airborne radar, detailed topography maps and computer modeling were used to make the determination.

The glacier acts as an ice dam, stabilizing and regulating movement toward the sea of the massive West Antarctic Ice Sheet. The ice sheet contains enough ice to cause another 3 to 4 m (10 to 13 ft) of global sea level rise.

"There's been a lot of speculation about the stability of marine ice sheets, and many scientists suspected that this kind of behavior is under way," said Ian Joughin, a glaciologist at the university's Applied Physics Laboratory (APL) and the first author on the paper. "This study provides a more quantitative idea of the rates at which the [ice sheet] collapse could take place."

The paper's co-authors are Benjamin Smith, a physicist at APL, and Brooke Medley, a former University of Washington doctoral student, now at NASA's Goddard Space Flight Center.

While the word "collapse" implies a sudden change, the fastest scenario based on the data, the researchers said, is 200 years and the longest is more than 1,000 years.

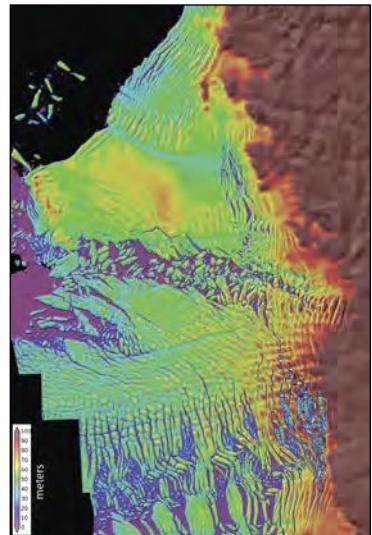
The findings are published in the 16 May edition of the journal *Science*.

The new discovery is among a series of significant findings that derive from research funded by NSF during the International Polar Year (IPY) 2007-2009, during which scientists from more than 60 nations focused their efforts on research in the Arctic and Antarctic. NSF was the lead U.S. agency for the IPY.

The research was funded by two NSF grants: one awarded to the Center for the Remote Sensing of Ice Sheets (CReSIS) at the University of Kansas, the other, a collaborative IPY grant, Constraining the Mass-Balance Deficit of the Amundsen Coast's Glaciers, to Joughin and his colleagues. NASA also supported the research through grant NNX09AE47G.

The new study used airborne radar developed by CReSIS to peer down through the thick ice and map the topography of the underlying bedrock. The shape of the underlying bedrock controls the ice sheet's long-term stability. The mapping was done as part of NASA's Operation IceBridge, a series of overflights of the ice by a P-3 research aircraft, and included other instruments to measure the height of the ice sheet's rapidly thinning surface. In some places Thwaites Glacier has been losing tens of feet, or several meters, of elevation per year.

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



Credit: David Shean / University of Washington

## New research shows increasing ocean temperatures affecting coral reefs

It seems that coral reefs are experiencing something their human counterparts have been for years—a shrinking “empty nest” syndrome.

Researchers have found that increasing ocean temperatures due to climate change will soon see reefs retaining and nurturing more of their own coral larvae, leaving large reef systems less interconnected.

The study brought together an international group of researchers from NSU’s Oceanographic Center, the Australian Research Council Centre of Excellence for Coral Reef Studies and the School of Marine and Tropical Biology at James Cook University in Australia and Sesoko Station, Tropical Biosphere Research Center at the University of the Ryukyus, Japan.

“We found that at higher temperatures more coral larvae will tend to stay on their birth reef,” says Joana Figueiredo, Ph.D., who is with NSU’s Oceanographic Center but was with the ARC Centre of Excellence for Coral Reef Studies (Coral CoE) at James Cook University when the study began. “This is good news in an otherwise cloudy picture for isolated reefs, because in the future they will be able to retain more of their own larvae and recover faster from severe storms or bleaching events.”

Figueiredo is the lead author of the study, entitled Increased Local Retention of Reef Coral Larvae as a Result of Ocean Warming, published by Nature Climate Change.

Sean Connolly, Ph.D., also from the Centre of Excellence for Coral Reef Studies, explained that while more coral larvae will stay close to their parents, fewer will disperse longer distances, leaving reefs less connected.

“The loss of connectivity can make reef systems such as the Great Barrier Reef (in Australia) or the Florida Coral Reef Barrier more vulnerable,” he said. “So interconnected reef systems that depend on the recruitment of coral larvae may take more time to recover after a disturbance, such as a hurricane, because fewer larvae will disperse from other reefs to the disturbed reef.”

Connolly added that weaker connections between reefs means warm-adapted corals, such as those in the Caribbean, may take longer to expand their ranges to the north.

Andrew Baird, Ph.D., from the Centre of Excellence for Coral Reef Studies said the implications of the

research present management with both challenges and opportunities.

“Our results demonstrate that global warming will change patterns of larval connectivity among reefs,” he said. “On a positive note, the stronger link between adults and recruits means an even greater benefit if we reduce local threats such as dredging and fishing methods that can damage corals,” Dr. Baird says.

Nevertheless, he said: “This does not reduce the need for global action on climate change.”

The paper, Increased Local Retention of Reef Coral Larvae as a Result of Ocean Warming by Joana Figueiredo, Ph.D., Andrew H. Baird, Ph.D., Saki Harii Ph.D., and Sean R. Connolly, Ph.D., published by Nature Climate Change and can be found at <http://www.nature.com/nclimate/journal/vaop/nclimate/full/nclimate2210.html>.

## CSA conducts benthic habitat surveys for the U.S. Navy

CSA Ocean Sciences Inc. (CSA) was contracted by HDR Engineering Inc. (HDR) to conduct a benthic habitat characterization assessment for the Naval Facilities Engineering Command Atlantic to evaluate through field surveys the benthic habitat and federally protected marine biota that may occur in the nearshore waters around Naval Air Station (NAS) Key West. Such data could also be used during interagency consultations related to federal actions at the NAS Key West and its operating areas.

Five separate areas, for a total of 135 acres, were surveyed using preset transects on the seabed for corals, seagrass, motile macroinvertebrates, and fishes. Field surveys were conducted by trained and experienced marine biologists using SCUBA and/or snorkel. Survey protocols generally followed were based on guidance issued by conservation agencies with jurisdiction in the area, including the National Marine Fisheries Service and the Florida Keys National Marine Sanctuary.

Field data were collected, analyzed, and used to characterize the nearshore marine benthic community in the waters around NAS Key West. Study data were also used to assess presence, density, and potential habitat use by federally listed threatened and endangered species in the nearshore waters of the installation, evaluate coral recruitment and indicators of coral stress and disease, and gauge seagrass cover and species composition with respect to potential utilization by key species such as the West Indian manatee and the dwarf seahorse.



## Yale's Unitrex™ XS Max Wear

Our newest parallel core rope is 3 times stronger, size for size than our Uniline. It stretches only to 1 1/2 percent at break, and eliminates about 80% of the elasticity you have with Polyester ropes at their working loads.

Unitrex's core is Spectra® fiber while its outer layers are the same as Uniline, durability is assured. It's spliceable at 100% of catalog strength, and really tough as nails.



## Unitrex XS-8™

This cable consists of eight Unitrex XS ropes plied together to form an 8-strand plaited cable. Unitrex XS-8 is easily spliced with a straight forward tucking procedure. Strengths available to 1.2 million pounds.

## Yale Cordage, Inc.

77 Industrial Park Road  
Saco, Maine 04072  
Tel: (207) 282-3396  
Fax: (207) 282-4620

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



CSA is contracted to perform a similar benthic habitat characterization following the same methodology for the Patricia Target Jet Aircraft Range, located approximately 25 mi west of Key West, Florida in early summer 2014.

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

## GEOMAR researchers specify models for the birth of the youngest world ocean

The Red Sea is an ideal study object for marine geologists. There they can observe the formation of an ocean in its early phase. However, the Red Sea seemed to go through a different birthing process than the other oceans. Now, scientists at the GEOMAR Helmholtz Centre for Ocean Research Kiel and the King Abdulaziz University in Jeddah were able to show that salt glaciers have distorted the previous models. The study was just published in the international journal "Earth and Planetary Science Letters."

The Dutch research vessel PELAGIA was used in the Red Sea during the Jeddah Transect Project, generating a survey of the rift zone with unprecedented accuracy. (Photo: F. van der Zwan, GEOMAR)

Pacific, Atlantic and Indian Ocean, with the land masses of the Americas, Europe, Asia, Africa and Australia in between – that's how we know our earth. From a geologist's point of view, however, this is only a snapshot. Over the course of the earth's history, many different continents have formed and split again. In between oceans were created, new seafloor was formed and disappeared again; plate tectonics is the generic term for these processes.

The Red Sea, where currently the Arabian Peninsula separates from Africa, is one of the few places on earth where the splitting of a continent and the emergence of the ocean can be observed. During a 3-year joint project, the Jeddah Transect Project (JTP), researchers at the GEOMAR Helmholtz Centre for Ocean Research Kiel and the King Abdulaziz University in Jeddah, Saudi Arabia, have taken a close look at this crack in the earth's crust by means of seabed mapping, sampling and magnetic modeling. "The findings have shed new light on the early stages of oceanic basins, and they specifically change the school of thought on the Red Sea," says Dr. Nico Augustin from GEOMAR, lead author of the study. It has now been published in the scientific journal "Earth and Planetary Science Letters."

It is, and was, undisputed that a continent is stretched and thinned out by

volcanic activity before it ruptures and a new ocean basin is formed. The rifting occurs where the greatest stretching takes place. However, the detailed processes during the break-up are debated in research. On the one hand, one needs to better understand the dynamics of our home planet. "On the other hand, most marine oil and gas resources are located near such former fracture zones. This research can therefore also have economic and political implications," says Professor Colin Devey (GEOMAR), co-author of the study.

Until now, conventional knowledge said that a continent is breaking apart more or less simultaneously along an entire line and the ocean basin is formed all at once. The Red Sea, however, did not fit into this picture. Here, a model was favored with several smaller fracture zones, lined up one after the other, that would unite gradually, which in turn would lead to a relatively slow emergence of the ocean during a long transition phase. "Our studies show that the Red Sea is not an exception but that it takes its place in line with the other ocean basins," says Augustin. The previous picture we had of the ocean floor in the Red Sea was simply corrupted by salt glaciers. "The volcanic rocks we recovered are similar to those from other normal mid-ocean ridges," says co-author Froukje van der Zwan, working on her Ph.D. as part of the JTP.

For more information, visit [www.geomar.de](http://www.geomar.de).

## UGA Research examines fate of methane following the Deepwater Horizon spill

The Deepwater Horizon oil well blowout in 2010 discharged roughly five million barrels of oil and up to 500,000 million tons of natural gas into Gulf of Mexico offshore waters over a period of 84 days. In the face of a seemingly insurmountable cleanup effort, many were relieved by reports following the disaster that naturally-occurring microbes had consumed much of the gas and oil.

Now, a team of researchers led by University of Georgia marine scientists have published a paper in *Nature Geoscience* that questions this conclusion and provides evidence that microbes may not be capable of removing contaminants as quickly and easily as once thought.

"Most of the gas injected into the Gulf was methane, and so we were naturally concerned that this potent greenhouse gas could escape into the atmosphere," said Samantha Joye, senior author of the paper and director of the study and professor of marine science in UGA's Franklin College of Arts and Sciences. "Many assumed that methane-oxidizing microbes would simply consume the methane efficiently, but our data suggests that this isn't what happened."

Joye and colleagues from other universities and government organizations measured methane concentrations and the activity of methane-consuming bacteria for 10 months, starting before the blowout with collection of an invaluable set of pre-discharge samples in March 2010.

The abundance of methane in the water allowed the bacteria that feed on the gas to flourish in the first 2 months immediately following the blowout, but their activity levels dropped abruptly despite the fact that methane was still being released from the wellhead.

These new data suggest that the sudden drop in bacterial activity was not due to an absence of methane, but a host of environmental, physiological, and physical constraints that made it difficult or impossible for bacteria to consume methane effectively.

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

## No ocean-borne radiation from Fukushima detected on West Coast

Scientists working together on Kelp Watch 2014 announced that the West Coast shoreline shows no signs of ocean-borne radiation from Japan's Fukushima nuclear power plant disaster, following their analysis of the first collection of kelp samples along the western U.S. coastline.

Kelp Watch 2014 is a project that uses coastal kelp beds as detectors of radioactive seawater arriving from Fukushima via the North Pacific Current. It is a collaborative effort led by Steven Manley, marine biology professor at California State University, Long Beach (CSULB), and Kai Vetter, head of applied nuclear physics at the Lawrence Berkeley National Laboratory (Berkeley Lab) and a nuclear engineering professor at the University of California, Berkeley.

The new results are from samples primarily collected from February 24 through March 14.

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

**Global  
Presence**

**Environmental  
Regulations**

**Safety  
Compliance**

**Emergency  
Response**

**Superior  
Quality**

**Personnel  
Coordination**

**Unbiased  
Reporting**

**Solid  
Reputation**

**Providing outstanding marine environmental  
consulting solutions for over 40 years.**



Stuart, Florida • Tampa, Florida • Houma, Louisiana  
Salinas, California • Port of Spain, Trinidad  
Houston, Texas • Doha, Qatar • Rio de Janeiro, Brazil  
Nicosia, Cyprus • Singapore

Phone: (772) 219-3000 Fax: (772) 219-3010

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

## U.S. Energy Department announces innovative offshore wind energy projects

The U.S. Energy Department announced the selection of three pioneering offshore wind demonstrations to receive up to \$47 million each over the next four years to deploy innovative, grid-connected systems in federal and state waters by 2017. These projects—located off the coast of New Jersey, Oregon and Virginia—will help speed the deployment of more efficient offshore wind power technologies. Building on the Energy Department's broader efforts to launch a competitive and sustainable offshore wind industry in the United States, these demonstration projects will help further lower costs, drive greater performance and clear hurdles to installing more utility-scale turbines in U.S. waters. In December 2012, the Energy Department announced seven offshore wind demonstration projects, which have focused on design, engineering, and permitting work. The three projects selected today are aimed at deploying offshore wind installations in U.S. waters by 2017:

- Fishermen's Energy will install five 5-MW direct-drive wind turbines approximately 3 mi off the coast of Atlantic City, New Jersey. This project will utilize an innovative, U.S.-developed twisted jacket foundation that is simpler and less expensive to manufacture and install than traditional offshore wind foundations. Fishermen's project will act as a laboratory for researchers to learn about offshore wind and investigate interactions between turbines.
- Principle Power will install five 6-MW direct-drive wind turbines approximately 18 mi off the coast of Coos Bay, Oregon. The U.S.-developed WindFloat semi-submersible floating foundation will be installed in water more than 1,000 ft deep, demonstrating an innovative solution for deep water wind turbine projects and lowering costs by simplifying installation and eliminating the need for highly specialized ships. More than 60% of U.S. offshore wind resources are found in deep waters, including the entirety of the West Coast. Deploying offshore wind technologies for deeper water can help capture resources that are found in waters too deep for traditional bottom-mounted foundations.
- Dominion Virginia Power will install two 6-MW direct-drive wind turbines 26 mi off the coast of Virginia Beach, utilizing a U.S.-designed twisted jacket foundation. Dominion's project will demonstrate installation, operation and maintenance methods for wind turbines located far from shore. Additionally, the Dominion project will install and test a hurricane-resilient design to ensure that offshore wind facilities placed in hurricane-prone U.S. waters are reliable, safe, and cost-effective.

## Nova Scotia welcomes new turbines, directs \$4 million to FORCE

The Nova Scotia government is committing more than \$4 million to fund projects in the tidal industry, Energy Minister Andrew Younger announced recently. The funding will go towards increasing the electrical capacity at Fundy Ocean Research Center for Energy (FORCE) to accommodate up to 20 MW of connection. This will allow the next level of device deployments, including small arrays, to connect to the electricity grid from FORCE. Government also announced the tidal energy developers who have won a chance to deploy their technologies in the Bay of Fundy's Minas Passage. Nova Scotia's recent tender for FORCE berths attracted three qualified bidders. OpenHydro and Black Rock Tidal Power have been chosen to participate at the research and development center. "We are pleased to welcome OpenHydro and Black Rock Tidal Power and their innovative technologies to Nova Scotia, a global center of excellence for tidal energy development," said Mr. Younger. "I'm committed to advancing the tidal sector and FORCE plays an important role by providing the platform for industry leaders to develop and test their technology in one of the best tidal resources in the world. Our investments today are shaping the new tidal sector of tomorrow." A group led by OpenHydro, with parent company DCNS Group of France and Maritime companies Emera, Atlantic Towing, Irving Shipbuilding and Irving Equipment, has been selected as a FORCE berth holder.

## Atlantis Resources expands its relationship with Dongfang



Atlantis Resources Limited has reached agreement with Dongfang Electrical Machinery Co. Limited for the execution of onshore tidal turbine testing in Hangzhou in the People's Republic of China (PRC). It is intended that the testing program will be carried out prior to the deployment, later this year, of the Group's 1 MW AR1000 turbine at an offshore demonstration project in Zhejiang Province, developed by the China Energy Conservation and Environmental Protection Group (CECEP). The AR1000 will be the first commercial scale tidal stream turbine to be deployed in the PRC and is expected to be a key milestone in the growth of the domestic tidal power sector.

This follows the announcement last month that Atlantis has formally commenced a detailed design and systems integration agreement with Lockheed Martin to develop the Group's most advanced tidal turbine, the 1.5 MW AR1500.

Atlantis and Dongfang have a strategic agreement for the development of tidal power, including the provision of low cost supply chain solutions for mass production of the Group's AR1500 turbine and cooperation to stimulate the tidal power market in the PRC. Additionally, Atlantis and Dongfang are now expanding this relationship and have executed a memorandum of understanding for the appointment of Atlantis as a sales agent for Dongfang's related products in markets outside the PRC. This agency agreement will encompass Dongfang's traditional hydropower, pumped storage and tidal range technology solutions, and reflects Dongfang's recognition of Atlantis's capabilities in global project development and market origination.

Dongfang is a significant player in the emerging Chinese tidal power market and is facilitating the introduction of commercial scale tidal power projects in the PRC by, for example, making use of its new state-of-the-art turbine testing facility in Hangzhou. Dongfang is wholly owned by Dongfang Electric Corporation Limited, which is listed in Hong Kong and Shanghai. As one of the PRC's largest and most established manufacturers of electro-mechanical equipment, it produced more than 35,000 MW of generating capacity across its nuclear, steam, hydro and wind businesses in 2011 alone. Dongfang's capability in, for example, manufacturing permanent magnet generators, will be a significant advantage for Atlantis as its AR1500 tidal turbine enters production.

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

## Tidal power in Discovery Passage another step closer

SRM Projects has recently been awarded investigative licenses for south Discovery Passage and Seymour Narrows in Canada to explore the potential for tidal power development in the region.

Working with the city of Campbell River and Rivercorp, Campbell River's economic development commission, SRM Projects will conduct an assessment, which will include measuring tidal and current activity this spring/summer and community and First Nations engagement.

Tidal power is an emerging source of renewable energy and SRM Projects said that it intends to take steps over the next 5 years to better characterize the tidal energy resource and work with user groups to identify potential conflicts. This strategy will ensure that the company will have time to understand key issues of importance to the environment and stakeholders as well as allow the technology to be further optimized before an application for long-term land tenure and detailed design of tidal ener-



gy facilities is initiated.

SRM Project's 2014 investigative program is being finalized now and will be posted and presented at community forums after First Nations consultations are completed and the Ministry of Forests, Lands and Natural Resource Operations has been advised. 2014 activities proposed for the investigative areas include field surveys to observe tidal action at normal and extreme tides and commercial, recreational and cultural/heritage use assessments.

Building on the City of Campbell River's earlier investigative work evaluating the potential for generating power from a small tidal energy converter located off the fishing pier, SRM Projects also plans to update the existing area hydro-

dynamic model in 2014 with new bathymetry and further validate it with additional current measurements to determine which specific areas are most likely suitable for tidal energy extraction.

Other investigative work, including environmental assessments and more detailed current measurements at high potential areas, will be completed between 2015 and 2018.

For more information, visit [www.srmprojects.ca](http://www.srmprojects.ca).

## A better water wing to harvest tidal energy

When it comes to raw power and absolute reliability, it doesn't get much better than the tides. That's why tidal power is such an attractive option as a renewable form of energy. But designing a device to gather tidal energy in shallow water, where the ebb and flow move fastest and the energy potential is highest, has proven problematic.

A research group at Brown is working on a solution. Led by Shreyas Mandre, assistant professor of engineering, the group is developing a hydrofoil as a means to harvest tidal energy. And

**SEA CON®**  
UNDERWATER ELECTRICAL AND FIBER OPTIC CONNECTORS

# OVER 45 YEARS IN PROVIDING TRUSTED UNDERWATER CONNECTIVITY SOLUTIONS FOR DEFENSE SYSTEMS

OPTICAL UNDERWATER MATEABLE

ELECTRICAL UNDERWATER MATEABLE

ELECTRICAL WET-MATE

OPTICAL HYBRID DRY-MATE

UNDERWATER SWITCHES

ELECTRICAL DRY-MATE

Scan for SEA CON®'s FREE Product Catalog CD

**CLICK OR SCAN**

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

EXHIBITING AT CMP (CONGRESO MEXICANO DEL PETROLEO) 2014  
EXHIBITING AT SEAWORK 2014  
EXHIBITING AT UTC (UNDERWATER TECHNOLOGY CONFERENCE) 2014

JUNE 4TH - 7TH     JUNE 10TH - 12TH     JUNE 18TH - 19TH

ACAPULCO, MEXICO     SOUTHAMPTON, UK     BERGEN, NORWAY

BOOTH #907     BOOTH #R7     BOOTH #40

unlike other tidal energy technologies, the wing is a shallow water specialist.

With support from the Advanced Research Projects Agency-Energy (ARPA-E), the group has designed a small prototype has been testing it in the lab to prove the concept. Late last month, they presented their preliminary results at the ARPA-E Energy Innovation Summit in Washington, D.C. and at The Bicameral Task Force on Climate Change, organized by Sen. Sheldon Whitehouse (D-R.I.) and Rep. Henry Waxman (D-Calif.).

Harvesting energy from the shallows comes with a myriad of problems — especially for traditional, windmill-style turbines. The circular motion of a turbine means it must be as tall as it is wide, a geometry ill-suited for a channel that is wide but shallow. In addition, bays and inlets are often shipping channels and recreation areas, so tall turbines could get in the way of commercial and recreational boats. There are also concerns about fish and other wildlife swimming among spinning blades.

A hydrofoil device offers a different approach. It catches the energy of tidal

flows in much the same way that an airplane wing catches air. In the design Mandre and his team are developing, a wing is attached to a central pole on which it moves up and down. At the bottom of the stroke, the wing is oriented in a way that causes the water to push it upward. At the top of the stroke, the orientation pushes the wing back down. The up and down motion is used to power a generator.

Concerns about shipping traffic and wildlife are lessened by the wing design as well. The apparatus can lie flat on the sea floor when big ships come through. The oscillating motion is biomimetic — not unlike a flapping fin — and less violent than a turbine spinning like a lawnmower blade.

Ultimately, the group hopes the device can play a role in harvesting the estimated 440 TWh per year of tidal power there for the taking in the U.S. One TWh per year of electricity is enough to power 85,000 homes, so tidal power could make a substantial contribution to the U.S. power supply.

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

## Deepwater Wind to develop West Coast's first offshore wind farm

Deepwater Wind announced plans to develop the West Coast's first-ever offshore wind farm—a project poised to become the world's first commercial project to use cutting-edge floating foundation technology.

Principle Power's WindFloat technology is on the cutting edge of the offshore wind industry, and their Portugal prototype proves that the WindFloat technology is ready for a demonstration-scale commercial deployment.

Deepwater Wind entered into an agreement several months ago with Principle Power to complete the development of the 30-MW WindFloat Pacific project, using Principle Power's groundbreaking WindFloat technology.

This agreement demonstrates Deepwater Wind's success in building a portfolio of offshore wind projects across multiple technologies and geographic areas. Much as Deepwater Wind's Block Island Wind Farm is jumpstarting the East Coast offshore wind industry—where water depths are suitable for fixed foundations—the

# Looking for a DVL? Now you have a choice!

**Coming Soon**  
DVL for Small Observation  
Class ROVs!

**Rowe Technologies SeaPILOT offers a full range of DVL solutions from shallow water to full ocean depth**

- Easy integration – custom data formats available
- 10/100-Base-T Ethernet Interface included
- Support for simultaneous, independent serial communications with different output formats

- Support for dual frequency configurations
- Simultaneous Current Profiling Included
- 1200KHz, 600KHz, and 300KHz available
- Smallest form factor in the industry



**CUSTOM OEM SOLUTIONS AVAILABLE**  
1200KHz DVL on OceanServer Iver3-450 Nano (4.5" OD) AUV



Acoustic Doppler & Imaging Technologies



WindFloat Pacific project will similarly act as a catalyst for large-scale floating offshore wind farms in the deep waters of the Pacific Ocean that are unsuitable for fixed foundations.

The announcement comes as the U.S. Department of Energy (DOE) awarded the WindFloat Pacific project up to \$47 million in matching grants to support the project's engineering, permitting and public outreach efforts.

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

#### **MacArtney supplies custom swivel solution for next generation Scotrenewables tidal turbine**

MacArtney has been selected to supply a custom designed Moog Focal swivel solution for a next generation tidal turbine developed by Orkney based tidal energy pioneer, Scotrenewables Tidal Power (SRTP).

SRTP is primarily known for developing the innovative floating tidal energy converter known as the Scotrenewables Tidal Turbine (SRTT).

The SRTT is an innovative floating hydrokinetic tidal stream system

designed for ease of installation, operations and maintenance, coupled with efficiency, robustness and survivability in harsh offshore environments. Nine different scale models and a 250-kW prototype known as the SR250, have been tested extensively over the past 10 years—both offshore and in a laboratory environment.

Building on the success of SR250, SRTP has designed the SR2000, a larger commercial scale turbine more suited for tidal array deployment. This next generation turbine will reach a rated power of 2 MW, making it one of the most powerful tidal turbines in the world to date.

Like with the SR250, the main structure of the SR2000 comprises a floating cylindrical tube to which dual horizontal axis rotors are attached on retractable arms. The rotors extract the kinetic energy of the tidal flow, which is converted to electricity through a power take-off system for export to shore.

Realizing the importance of the mooring system as a critical underpinning technology for successful floating marine energy converters, SRTP has



developed an innovative and unique single point catenary mooring system featuring a patented mooring turret. At the heart of this turret and comprising a key element in the overall SR2000 system, sits a custom designed Moog Focal swivel supplied by MacArtney. The swivel allows the SR2000 to self-orientate in the tidal flow, while signal transfer and electricity flow to the onshore grid is handled using a single marine export cable.

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

# DEEP**INGENUITY** PROLIFIC**SOLUTIONS**

## ROCK-SOLID**PERFORMANCE**



SCHEDULE YOUR  
FACTORY ACCEPTANCE TEST  
TODAY

VISIT US AT  
[BLUEFINROBOTICS.COM](http://BLUEFINROBOTICS.COM)  
AND LEARN MORE



**BLUEFIN**  
ROBOTICS  
A BATTELLE COMPANY

**General Dynamics awarded contract for 10 Virginia-class subs**

The U.S. Navy underscored its commitment to an advanced and adaptable submarine force by awarding General Dynamics Electric Boat a contract valued at \$17.6 billion for the construction of 10 additional Virginia-class submarines. Electric Boat is a wholly owned subsidiary of General Dynamics. The multi-year Block IV contract enables Electric Boat and its industry teammate, Newport News Shipbuilding, to proceed with the construction of two ships per year over a 5-year period. Construction of the first Block IV submarine, SSN-792, began 1 May. The 10th ship to be procured under this contract is scheduled for delivery in 2023. Virginia-class submarines are designed from the keel up for the full range of 21st century mission requirements, including anti-submarine and surface ship warfare and special operations support. These submarines excel in littoral and open-ocean environments and collect intelligence critical to irregular warfare efforts with advanced intelligence, surveillance and reconnaissance capabilities. Unobtrusive, non-provocative and connected with land, air, sea and space-based assets, these versatile and powerful vessels are a core component of the Navy fleet and support national security interests. Electric Boat and Newport News Shipbuilding already have delivered 10 Virginia-class submarines to the Navy: USS Virginia (SSN-774), USS Texas (SSN-775), USS Hawaii (SSN-776), USS North Carolina (SSN-777), USS New Hampshire (SSN-778), USS New Mexico (SSN-779), USS Missouri (SSN-780), USS California (SSN-781), USS Mississippi (SSN-782) and USS Minnesota (SSN-783). Eight additional submarines are under construction. Virginia-class submarines displace 7,800 tons, with a hull length of 377 ft and a diameter of 34 ft. They are capable of speeds in excess of 25 kts and can dive to a depth greater than 800 ft, while carrying Mark 48 advanced capability torpedoes, Tomahawk land-attack missiles and unmanned underwater vehicles.

**Award for Towed Array given to 3 Phoenix Inc.**

3 Phoenix Inc., Chantilly, Virginia, is being awarded a \$7,263,632 modification to previously awarded contract (N00024-13-C-6264) to procure two TB-29A Inverted Passive Electrical Network (iPEN) Towed Array production representative units, associated spares and test equipment. iPEN leverages technology developed under Small Business Innovation Research Topic N04-138, "Real-time Data Fusion and Visualization Interface for Environmental Research Data." iPEN telemetry acts as a data fusion point for the integration of towed array handling system sensor data. This technology is expected to provide significant improvement in reliability and operational availability of TB-29A towed arrays. Work will be performed in Wake Forest, N.C. (50%); Houston, Texas (25%); Hanover, Md. (15%); and Chantilly, Va. (10 percent), and is expected to be completed by August 2015. Fiscal 2011 and 2012 shipbuilding and conversion, Navy contract funds in the amount of \$7,263,632 will be obligated at time of award and will not expire at the end of the current fiscal year. The Naval Sea Systems Command, Washington, D.C., is the contracting activity.

**Brazil Navy expands network to 10 AXYS 3 Metre buoys**

AXYS Technologies Inc (AXYS) has recently shipped two 3 Metre buoys for the Centro de Hidrografia da Marinha (CHM) of the Diretoria de Hidrografia e Navegacao (DHN) in Niteroi. The buoys will be added to the PNBOIA (GOOS-Brasil) buoy network, bringing the total number of 3 Metre buoys owned by the Navy to 10. The buoys will be deployed offshore in an effort to provide complete coverage of the Brazil coastline. They will be integrated using AXYS' reliable WatchMan500 controller and various sensors to measure directional waves, currents, wind speed and direction, air pressure, air temperature, relative humidity and solar radiation. Real-time data will be sent to Brazil Navy officials via ARGOS and/or Inmarsat satellite telemetry. The buoys are also equipped with an AIS transponder to provide the AtoN message 21 and MET/Hydro message 8 to mariners in the vicinity of the buoys. AXYS personnel, along with personnel from Woods Hole Group do Brasil—AXYS' representative in Brazil—will provide additional system training and buoy commissioning services to the CHM staff prior to buoy deployments in June 2014.

## Future USS America delivered



The U.S. Navy officially accepted delivery of the amphibious assault ship America (LHA 6) from Huntington Ingalls Industries during a ship custody transfer ceremony in Pascagoula, Mississippi, 10 April. More than 900 sailors and marines assigned to Pre-Commissioning Unit (PCU) America marched to the ship to take custody on the flight deck.

America is the first ship of its class, replacing the Tarawa-class of amphibious assault ships. As the next generation "big-deck" amphibious ship, America will be optimized for aviation and capable of supporting current and future aircraft, such as the tilt-rotor MV-22 Osprey and the Joint Strike Fighter.

The ship will provide flexible, multi-mission capabilities spanning from forward-deployed crisis response to maritime security operations.

America is 844 ft long, 106 ft wide and hosts a displacement of 44,971 long tons. Her propulsion system will drive it to speeds in excess of 22 kts, and she will accommodate a crew size of more than 1,100 Sailors and nearly 1,900 embarked Marines.

With the ship custody transfer complete, the crew is now working and living aboard the ship. After a rigorous evaluation and certification cycle, the ship will depart Mississippi and transit around South America to her future homeport of San Diego. America is scheduled to be commissioned late 2014 in San Francisco.

For more information, visit [www.navy.mil](http://www.navy.mil).

## 23 nations to participate in world's largest maritime exercise

Twenty-three nations, 47 ships, six submarines, more than 200 aircraft and 25,000 personnel will participate in the biennial Rim of the Pacific (RIMPAC) exercise scheduled 26 June 26 to 1 August, in and around the Hawaiian Islands.

The world's largest international maritime exercise, RIMPAC provides a unique training opportunity that helps participants foster and sustain the cooperative relationships that are critical to ensuring the safety of sea lanes and security on the world's oceans. RIMPAC 2014 is the 24th exercise in the series that began in 1971.

Hosted by U.S. Pacific Fleet, RIMPAC 2014 will be led by U.S. Vice Adm. Kenneth Floyd, commander of the U.S. Third Fleet (C3F), who will serve as the Combined Task Force (CTF) Commander. Royal Australian Navy Rear Adm. Simon Cullen will serve as deputy commander of the CTF,



and Japan Maritime Self Defense Force Rear Adm. Yasuki Nakahata as the vice commander. Other key leaders of the multinational force will include Rear Adm. Gilles Couturier of the Royal Canadian Navy, who will command the maritime component, Air Commodore Chris Westwood of the Royal Australian Air Force, who will command the air component, and Marine Corps Maj. Gen. Richard Simcock, who will command the land component. RIMPAC 2014 will also include a special operations component for the first time, to be led by U.S. Navy Capt. William Stevens.

Two nations, Brunei and the People's Republic of China, will participate in RIMPAC for the first time in 2014.

Also new at RIMPAC this year are two hospital ships, USNS Mercy and PLA (N) Peace Ark which will participate in the exercise.

This year's exercise includes forces from Australia, Brunei, Canada, Chile, Colombia, France, India, Indonesia, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, People's Republic of China, Peru, the Republic of Korea, the Republic of the Philippines, Singapore, Thailand, Tonga, the United Kingdom and the U.S.

### Navy christens future USS Zumwalt, new class of destroyer

The Navy christened the future USS Zumwalt (DDG 1000) on 12 April, during a ceremony at General Dynamics-Bath Iron Works shipyard in Bath, Maine.

The lead ship and class are named in honor of former Chief of Naval Operations (CNO) Admiral Elmo R. "Bud" Zumwalt Jr., who served as the 19th CNO from 1970-1974.

The Zumwalt-class destroyer represents the next-generation of multi-mission surface combatants and will enable access in the open ocean, littoral and ashore. The Navy has procured three Zumwalt-class destroyers.

DDG 1000 is the first U.S. Navy surface combatant to employ an innovative and highly survivable Integrated Power System that will provide power to

propulsion, ship's service, and combat system loads from the same gas turbine prime movers. DDG 1000's power allocation flexibility allows for potentially significant energy savings and is well-suited to enable future high energy weapons and sensors.

The ship features two advanced gun systems firing long-range land attack projectiles that reach up to 63 nmi, providing precision, high volume and persistent fire support to forces ashore, along with an approximate five-fold improvement in naval surface fire range.

Construction on Zumwalt commenced in February 2009, with the keel laying ceremony held in November 2011, and ship launch successfully completed in October 2013. Zumwalt is 610 ft long and with a displacement of more than 15,000 tons when fully loaded. The ship is expected to join the fleet in 2016.

### The UK assumes command of CTF 150 from Australia

The Royal Australian Navy has handed over command of Combined Maritime Forces (CMF) Combined Task Force 150 to the Royal Navy at a formal change of command ceremony held in Bahrain on 10 April 2014.

Commodore Jeremy Blunden Royal Navy assumed command of CTF 150 from Commodore Daryl W. Bates Royal Australian Navy. This completed the Royal Australian Navy's fifth command of CT 150 and commences the seventh time the Royal Navy has assumed command.

The handover ceremony was overseen by Vice Admiral John Miller, Commander, U.S. Naval Forces Central Command, Commander, U.S. FIFTH Fleet, Commander, Combined Maritime Forces who reviewed CTF 150's recent successes.

Commodore Bates highlighted the skill and professionalism of his team and the multinational units under his command: "It has been a privilege and a pleasure to work with so many nations committed to improving maritime security and countering terrorism. CMF is a very impressive organization that achieves great things," said Bates.

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

### Damen names Royal Oman Navy flagship

Dignitaries from the Ministry of Defence of Oman joined senior Damen management at a ceremony at Damen Schelde Naval Shipbuilding, Vlissingen on 8 May to mark the naming of the

# 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



IVER2 Autonomous Underwater Vehicle



Royal Navy of Oman's new flagship, the Sail Training Clipper Shabab Oman II.

The 87-m long steel-hulled vessel is a three-mast, full square rigger built to design principles set for the iconic tea clippers of the 19th century, benefiting from 21st century technology and comfort. Featuring a fully unfurled sail area of 2,700 sq. m, the vessel can accommodate 34 navy recruits plus a 58-strong crew.

Shabab Oman II will replace a vessel of the same name, fulfilling its training role while acting as a roving emissary promoting Oman's long maritime tradition to the peoples of the world.

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

### Royal Navy begins testing remote-controlled minehunter

A remote-controlled boat that can search, hunt and destroy mines will be tested by the Royal Navy before the end of the year.

The motorboat called Hazard—currently being put through its paces by a specialist team of sailors in Portsmouth Naval Base—can act as the “mother ship” to an assortment of hi-tech remote-controlled and robot submersibles.

Collectively, they can search, hunt and finally destroy mines faster than the Royal Navy's Sandown and Hunt-class ships and have the added benefit of keeping the handful of sailors required to operate them out of harm's way.

Modified versions of the same systems are also being looked at to carry out survey operations such as those performed by HMS Echo, currently looking for the missing Malaysian airliner, as part of the future Mine Counter Measures and Hydrographic Capability program.

The Maritime Autonomous System Trials Team (MASTT) is the small Portsmouth-based Royal Navy unit testing the new unmanned systems.

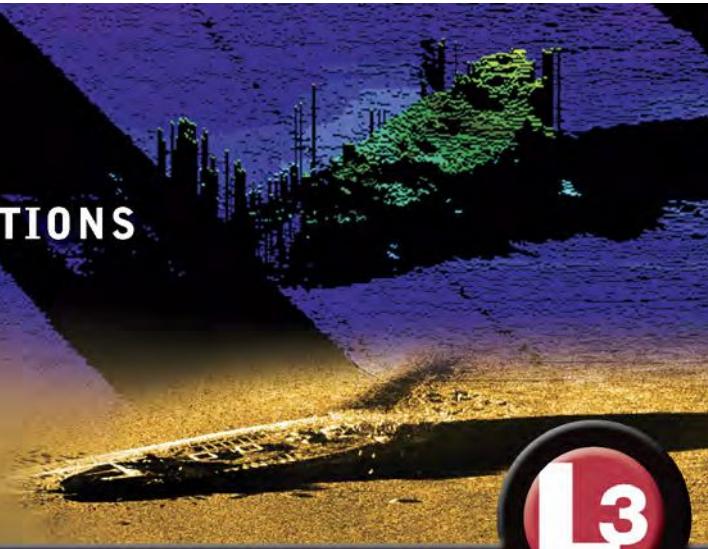
The boat carries either the bright yellow torpedo-sized Remus 600 or the much smaller Remus 100, which are sent off to scan the seabed at depths of up to 600 or 100 m, respectively.

After several hours in the water scanning the ocean floor, the submersibles return to their mother ships and the data are then collected downloaded and analyzed by the Royal Navy's mine warfare experts. They can then send in another small submersible, steered on to a contact and identified by a mine specialist using its onboard camera. On the front line it would carry an explosive charge to destroy any mines.

The immediate goal for the team is to fit this technology and unmanned sweep systems to a Hunt-class ship, but in the future the system could easily be run from any reasonable-sized warship, and sent anywhere in the world in just 48 hours. They will sit safely on the ship, or in a base ashore, and send unmanned surface vessels and their remote systems off hunting mines or gathering hydrographic data.

For more information, visit [www.royalnavy.mod.uk](http://www.royalnavy.mod.uk).

## HYDROCHART 3500 — THE CLEAR CHOICE FOR SHALLOW WATER OPERATIONS



### Professional Bathymetry Sonar for Littoral Operations with Exceptional Performance.

The HydroChart 3500 provides unrivaled range and resolution performance in a compact, lightweight system. It features IHO-quality swath bathymetry with coverage up to 12 times the water depth or altitude, as well as high-resolution side scan imagery. For over 40 years, L-3 Klein has led the industry in developing innovative solutions for littoral water applications and deep water surveys.

Learn how L-3 Klein is making the oceans transparent by calling (603) 893-6131 or visit [L-3com.com/Klein](http://L-3com.com/Klein).



**TELEDYNE**  
**MARINE**  
Everywhereyoulook™

From  
the surface to  
the seafloor, the  
Teledyne Marine  
companies deliver the  
products, technology, and  
talent you demand to  
get the job done.

# A Sea of Solutions

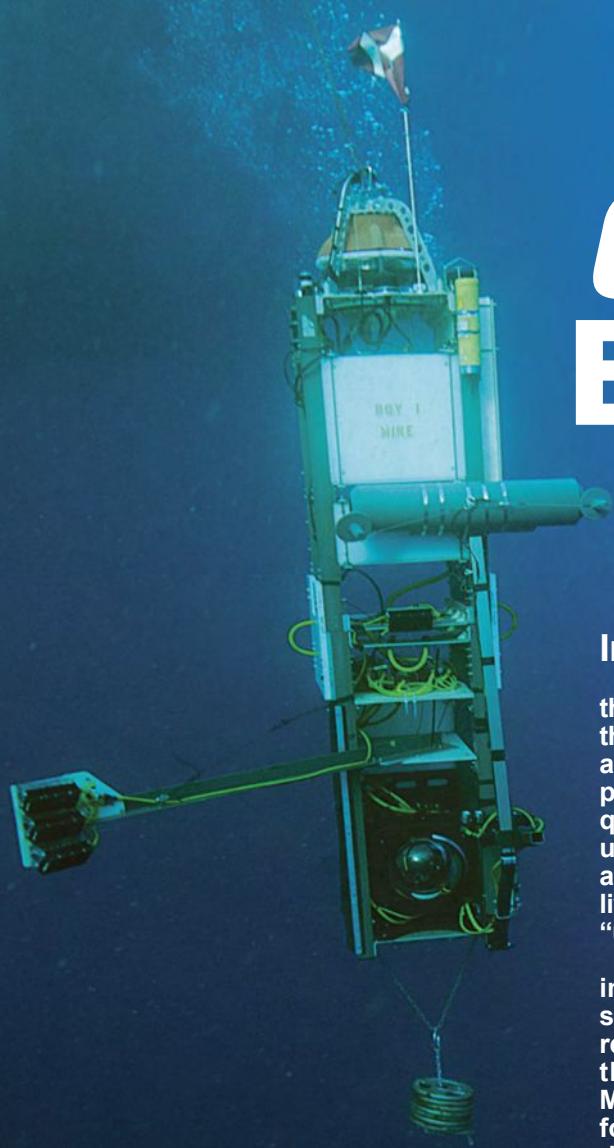
BENTHOS • BLUEVIEW • CDL  
GAVIA • GEOPHYSICAL • INTERCONNECT  
ODOM HYDROGRAPHIC • RESON • RD INSTRUMENTS  
TSS • WEBB RESEARCH

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

By: Kevin Hardy, Global Ocean Design LLC;  
Bruce Sutphen, Sutphen Marine LLC; and  
James Cameron, Earthship Productions LLC

# TECHNOLOGY OF THE *DEEPSEA CHALLENGE* EXPEDITION

(Part 1 of 2: The Landers)



The DEEPSEA CHALLENGE lander, DOV MIKE, is photographed heading for the bottom of the New Britain Trench near Papua New Guinea. Photo by Charlie Arneson, used with permission, Earthship Productions.

### Introduction

Virtually all oceanography has been done in the upper 6 km of the ocean, and very little in the 5 km below that in the deep region known as the “hadal zone.” Created by the titanic planetary forces of plate tectonics, earthquakes, volcanoes, tsunamis, and countless unknown species are born there. A lack of access, not interest, has kept the hadal zone living in our common language as something “unfathomable.”

On March 26, 2012, a day like only one other in the entire history of man’s reach into the sea, Explorer and Filmmaker James Cameron resolutely piloted a one-man submersible to the bottom of the Challenger Deep in the Mariana Trench. Once there, he roamed freely for hours in the dark hallways of Neptune’s dungeon as no one had ever done before. To make that happen, the design limits of both manned submersible and unmanned landers were pushed to include the newest ideas and developments, with legacy technology forming a broad foundation.

In his quest to reignite scientific interest and inspire world awareness of the forgotten lands of the ocean trenches, Cameron’s *DEEPSEA CHALLENGE* (DSC) Expedition developed a radically new submersible and twin unmanned “landers” as his primary vehicles of exploration. This two-part series will highlight the technologies, both new and applied, used in the making of the manned and robotic machines that could operate in the extreme pressures of Earth’s ocean trenches.

## Science

A number of significant biological and geological discoveries were made through the expert observations and targeted sampling performed by the **DSC** vehicles. Giant amphipods, larger and deeper than seen before, and the discovery of bacterial mats clinging to the downslope faces of jagged rocks at the very intersection of subducting plates, are but two examples. Many of the biological discoveries are recounted in the AGU Ocean Sciences 2014 paper **“Submersible Exploration of the World’s Deepest Megafaunal Communities through the DEEPSEA CHALLENGE,”** authored by Natalya Gallo, Center for Marine Biodiversity and Conservation, Scripps Institution of Oceanography/UCSD, and co-authored by key members of the expedition including James Cameron. Other peer-reviewed scientific publications are in process.

## Shared Technology

The expedition demonstrated the practicality of interchangeable technologies shared across multiple undersea vehicle types: the submersible, the twin landers, and an ROV. Pressure compensated batteries, LED lights, stereo HD cameras, and acoustic navigation and communications systems found similar application on the different platforms.

Cameron’s **DEEPSEA CHALLENGE** Expedition brought together multiple undersea vehicles to gain the advantages of each, while balancing corresponding disadvantages. The submersible provided the suite of human senses, tactile ability, depth, and payload capacity, but was limited by pilot endurance. The ROV provided imaging, tactile ability, and some payload capacity, but was tethered to a ship and had a limited operating depth. The landers have no mobility or the ability to recognize their immediate environment in detail and selectively sample it, but have persistence and freedom from the ship.

## Landers

The “landers” are unmanned free vehicles that transit in free fall from the sea surface to the seafloor, landing upright on the alien surface of that Other Earth. They remain in place, sampling, measuring, and imaging, until acoustically commanded to release their anchor weight and begin their reciprocal free fall upward, back to sunlight and atmosphere.

Advancements in superthick-wall borosilicate spherical housings from Nautilus Marine Service® provide a cost-effective option for ocean trench work, simultaneously providing both an instrument housing and buoyancy. The Vitrovex® spheres can be polished to make a camera viewport, drilled and spot-faced for connectors, are impervious to corrosion, are invisible to light and electromagnetic waves, and made of an abundant and inexpensive material. Their downsides include being prone to conchoidal fractures if struck a glancing blow, surface spalling, and the potential of immense implosive force by catastrophic failure. Some manufacturers of the past produced glass with inclusions of air and char, non-concentricity of inside and outside diameters resulting in variable wall thickness, surface striations, and improperly lapped sealing surfaces — intolerable imperfections in the ultra-deep sea.

The landers utilized a large volume of the same syntactic foam made for the submersible by Acheron® to reduce the potential of an implosion. This was roughly divided into 2/3 for fixed buoyancy and 1/3 for variable buoyancy.

Other component technologies required similar improvement, and piece-by-piece, engineers and their companies, inspired by the challenge, created the key components able to survive ambient pressures of 1,100 atmospheres.

Interchangeable payload modules were being built in parallel, requiring flexibility in the payload bay of the lander.

## Basic Description

The lander vehicle body was approximately 14-ft tall, with a narrow width and depth, approximately 2.5 ft x 3 ft, with buoyancy high and weight low, yielding excellent self-righting performance (Figure 1). This also provided a small frontal projected area during descent and ascent, resulting in vertical transit stability, with minimal horizontal offset. The box structure made in-field adaptations simple. Use of low specific gravity materials such as extruded fiberglass shapes, HDPE sheet, and 6061 aluminum plate minimized in-water weight, decreasing buoyancy



**Figure 1.** The DEEPSEA CHALLENGE Alpha Lander, DOV MIKE, is lifted by crane during deployment. Photo by Charlie Arneson, used with permission, Earthship Productions.

requirements. Consideration was given to metacentric stability on descent, at the seafloor, on ascent, and at the surface.

## Frame

The lander frame was built in two sections to allow disassembly for transport. HDPE doubler plates at the mid-section joint reinforced the FRP frame during deployment and recovery operations. The vehicle was laid horizontally on deck during transport, pre-launch preparation and post-recovery servicing. Because of the vehicle's overall size and weight, use of a crane or A-frame was mandatory.

A 6061-T6 welded and heat-treated aluminum lifting bale was placed at the top. The SolidWorks® design was evaluated using FEA and validated by physical testing. Dual toggle releases were located at the bottom of the frame, providing redundancy.

Two 17-in. x 23-mm thick Vitrovex glass spheres were used, one for the Command/Control sphere at the top of the frame, the other for the Camera sphere, located at the bottom of the frame. Barbell weights were added below the camera sphere to cancel its buoyancy and keep the weight low.

## Ballasting and release mechanism

A clump weight was made of 85 lbs of cast iron barbell weights. A chain was run through the middle holes, then fastened back on itself, making a closed loop through the weights. The loose end of the chain is shackled to a large welded ring. Through this ring a second length of chain is passed. Each end of the second chain is held by a separate toggle release mechanism located on either side of the base of the lander. Both toggle releases are held closed by an Edgetech® Inconel burnwire element. One Edgetech burnwire is connected to the command/control sphere, where it may be directed by acoustic command to corrode and release its chain end. The second Edgetech burnwire is connected to an independent, stand-alone countdown timer. Should the acoustic command release system fail for some reason, the back-up countdown timer will initiate the burn of the second burnwire after a pre-set time interval of up to 99 hours. On short duration drops, a Galvanic Time Release (GTR) was also added as a tertiary backup.

## Glass housing design and manufacture

The Vitrovex glass housings included drilled and spot-faced penetrator holes. Some refinement continued on the geometry of the edge chamfer to minimize spalling. Some exterior surface spalling was evident after the deepest dives as well. This may be due to residual stress created by localized cooling during the manufacturing process. The spheres were tested to 1,000 atm at Vitrovex plant in Germany. Later testing was done to 1,225 atm at Deep Sea Power & Light®.

Provision was made for two bulkhead connectors and a single purge port. The purge port is used to cycle air over a desiccant to dry it prior to deployment, preventing condensation on electronics or camera lenses at the cold temperatures found at depth.

## Command/control sphere

The command/control sphere housed an Edgetech BART Board acoustic transceiver circuitry, recovery beacons, and batteries. The Edgetech BART Board was selected for acoustic command and control because it has two release commands, with an optional daughter board providing four more. These proved invaluable at-sea. The BART system was successfully tested in August 2011 in the Mariana Trench Sirena Deep at 10,800 m using a topside Edgetech Model 8011M Acoustic Tranceiver deck unit.

The camera sphere housed a still/video camera, a programmable camera/light controller, and the recorders for the external stereo camera pair, described in detail below.

A 12.75-in. D x 1/8-in. aluminum plate is bolted to a PVC ring mount secured by 3M® 5200 marine adhesive to the interior of each hemisphere. The upper plate holds the recovery beacons and battery. The lower plate holds the Edgetech BART board and battery. Below the lower plate, the bulkhead connectors bring copper connections through from the outside.

The landers incorporated MetOcean/Novatech strobe lights (ST-400) and RDF (RF-700) beacons, minus pressure cases, inside the upper sphere. An RF-700AR, an RDF with remote antenna, was transferred to the submersible. An ST-400 strobe with a custom acrylic head made by Acheron, and a standard RF-700 RDF were mounted to the frame outside the sphere.

Duracell® alkaline cells supplied battery power for the command/control sphere and back-up timers. The camera internal to the sphere used rechargeable LiPO camera battery packs. The PBOF LED cinematographic lights and stereo cameras were powered by Acheron PBOF LiPO battery packs made for the **DEEPSSEA CHALLENGER** submersible.

## Camera sphere

The camera, the controller, and all other recorders and components were mounted in one hemisphere. The matching hemi-



Figure 2. A Canon 5D camera is seen through the optically polished Nautilus Marine Vitrovex glass housing. Photo by Charlie Arneson, used with permission, Earthship Productions.

sphere was polished to optical clarity and was closed once the detailed pre-cruise checkout was complete.

### Imaging system

The **DEEPSEA CHALLENGE** Expedition required imaging systems far superior to any ever utilized at these depths. HD stereo cameras made by the Cameron Pace Group®, spaced ocular distance apart, recorded stunning images of life and land in the ocean trenches.

The spacious interior volume of the Vitrovex glass spheres and ability to take high quality images directly through their polished glass walls was a powerful combination. After exhaustive comparison tests, a Canon 5D Mark II DSLR was selected by Larry Herbst, a seasoned underwater imaging expert, for its high-resolution sensor and low-light capabilities (Figure 2).

In the black depths of the sea, the camera would need to shoot with the lens nearly wide open — resulting in extremely limited depth-of-field. Accurate focusing was critical. A 1-ft deep 50-ft long focusing trough was built to gather focusing data through a horizontal water column, with the camera lens positioned close to the inner apex of a polished glass hemisphere.

For lighting, the lander was outfitted with four PBOF LED “light bricks” made for the **DEEPSEA CHALLENGER** submersible.

### Connectors and cabling

MacArtney SubConn® PBOF connectors were used with the LED lights, pressure compensated LiPO batteries, and the L3 comm controller. Standard SubConn connectors were used with adapter ports to bridge between standard thread lengths and the longer threads needs for glass spheres. A special high-pressure fitting was also made by the Lander Team to adapt a fiberoptic feedthrough, designed by Acheron, to the lander camera sphere. Connectors made by SeaCon were used in the back-up timer and junction bottle.

### L3 communication system

The L3 Nautronix® unit is a long-range acoustic modem that transmits and receives both voice and data communications and can calculate the range between the ship and submerged platform. The unit was adapted with some effort to both the submersible and landers.

Given the attenuation of the transmitted source level through the 13 to 15 km operational slant range, the L3 Nautronix was designed with a very sensitive receiver. In the field, this sensitivity made background noise the largest problem, mainly that generated by ship’s propulsion and machinery picked up by the topside transceiver module.

### Samplers and sensors

Samplers on the lander included Niskin Bottle water samplers, fish net traps, and sediment corers. The fish traps worked well for amphipods. An additional Niskin bottle was mounted on the drop arm to lay on the seafloor and capture animals. The sediment samplers could benefit from further refinement.

The lander also carried an RBR® Ltd. DR-1050, a self-contained, submersible depth recorder. The data provided insight to the landers’ fall rate, bottom time, release time, rise rate, and helped correlate the high definition stereo

images of the life forms and geologic features with the extreme depths where they were found.

### Testing

A saltwater basin at Scripps’ main campus was used to check air and water weights of unassembled components. Underwater connectors and fully assembled glass spheres were individually tested to 18,000 psi. Load tests were performed on critical load-bearing components. The first assembled lander was tested in San Diego Bay, then offshore San Diego at a 1-mi depth.

### Operation

The lander lay horizontally on deck to make access to all segments convenient and the platform more stable on deck in transit. With multiple dives, the deck crew became quite adept at handling the large lander.

The lander dove largely straight down and back as expected. The fall and rise rates were high enough that little time was spent in any current, minimizing lateral offset. The Edgetech comm system provided good slant ranges. It was important to recover the biological samples as soon as possible.



**Figure 3.** In a real-life-as-sci-fi image taken from an ROV, the **DEEPSEA CHALLENGER** submersible piloted by Explorer and Filmmaker James Cameron, rendezvous with the lander, DOV MIKE, at 885 m in the New Britain Trench near Papua New Guinea. Photo used with permission, Earthship Productions.

### Conclusion

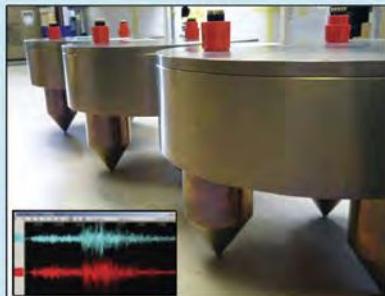
The **DEEPSEA CHALLENGE** landers demonstrated their capability as robust and reliable payload haulers, test platforms, autonomous robotic camera, sampler, and sensor platforms. Utilization of common components across several vehicle platforms dramatically shortened the development time.

The remaining unmanned lander, along with spares and related surface support gear, was gifted to the Scripps Institution of Oceanography/UCSD. Combined with funding from HSRH Prince Albert II of Monaco, the hardware became the catalyst for the Scripps “Lander Lab,” a common resource for campus researchers and graduate students to access the deepest ocean depths.

### Outreach

A hands-on project “Voyager Activity: Build Your Own Deep-Sea Lander,” was created for elementary school students by James Cameron and Kevin Hardy with Scripps Institution. You can download the design at <https://scripps.ucsd.edu/news/voyager-activity-build-your-own-deep-sea-lander>.

# Seafloor Communications Specialists



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)

## 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.



# OFFSHORE INDUSTRY

## U.S. M&A activity reaches highest 1Q volume in more than a decade

The U.S. oil and gas industry recorded its highest volume of first quarter mergers and acquisitions in more than a decade, PwC US Energy Practice said in a report on transactions with value greater than \$50 million. The movement was a result of rising upstream activities and increased interest from foreign entities.

Forty-three oil and gas deals with values greater than \$50 million occurred through March 31, accounting for \$19.8 billion, compared with 41 deals in last year's first quarter. The first-quarter 2014 total included five megadeals, representing \$10.1 billion, compared with eight megadeals worth \$19.7 billion in first-quarter 2013.

Upstream deals accounted for 63% of deal activity in the first quarter with 27 transactions, representing \$14.2 billion, 72% of total first quarter deal value.

However, compared with last year's fourth quarter, the total value of deals dropped by 23% from 56 deals, with total deal value in the first quarter falling 54% from \$43 billion in the fourth quarter. PwC attributes the sequentially downward movement to companies divesting in smaller noncore assets, a trend it expects to continue through this year.

## New offshore decommissioning requirements coming: Beaudreau

New U.S. regulations governing the decommissioning of old offshore oil infrastructure are on the horizon. The Bureau of Ocean Energy Management will issue an "advanced notice of proposed rulemaking" tackling the issue this summer, said Tommy Beaudreau, the former director of the agency.

Although Beaudreau did not give specifics during a presentation at the recent Offshore Technology Conference, the coming regulations are expected to deal with concerns that existing bonding requirements for oil and gas companies are insufficient in an era of ultra-deep exploration far from the coast.

The supplemental bonding requirements are meant to ensure companies meet their obligations for decommissioning offshore oil and gas facilities, including pipelines and platforms.

Beaudreau said the Interior Department would seek input from stakeholders—including industry representa-

tives—on the best way to deal with decommissioning and bonding concerns.

"This will be an open, transparent process (on) how we meet these challenges around aging infrastructure and decommissioning," said Beaudreau, who is now chief of staff to Interior Secretary Sally Jewell.

The issue is a live one as some of the oldest deepwater wells in the Gulf of Mexico reach the end of their lives and companies look to dismantle the operations—often using the same rigs and equipment that command high day rates working on new wells. New bonding requirements could set different levels for operators, depending on the type and number of projects.

## Aquatera projects rise in demand for offshore rental equipment

UK-based offshore engineering solutions provider Aquatera Energy has forecasted an increase in demand for offshore rental equipment in the oil and gas market. The products that are expected to be in demand specifically include its heavy duty H4 subsea connectors, with a good bending capacity making them suitable for offshore operations.

The products in demand also include NT2 surface connectors that are used to minimize rig time for riser applications, providing the connection between the rig BOP and the surface riser tension joint.

"The availability of high-specification, field-proven shallow and deep-water equipment from stock provides a cost-effective solution for oil and gas companies needing to progress drilling programs efficiently," Eric Doyle, Aquatera Energy Europe regional director, said, adding that time and budget are always of primary concern for offshore projects and the option to rent products off the shelf provides an instant solution with minimum capital exposure.

The products H4, NT2, Speedloc and Fastlock connectors from Aquatera Energy are said to be available from stock to rent on their own along with a suite of running and operating equipment, or as part of a complete high-pressure riser system.

## in this section

Offshore Industry Headlines	41
Upstream Oil & Gas	44
Underwater Intervention	58
Maritime Communications	64
Subsea Cables	68



Tommy Beaudreau

## BP captures major industry award for EOR technology at Clair Ridge field

Plans to use a new enhanced oil recovery technology, or EOR, from day one of operations at the Clair Ridge field west of Shetland, UK have won BP a major industry award.

Until now, emerging EOR techniques have typically been applied to older fields as the oil production rate falls and recovery of oil and gas becomes harder and uneconomic.

However, when the first oil begins to flow from the Clair Ridge field in late 2016 BP will be employing a technology called LoSal® EOR to flood, or push, more oil from the reservoirs. This is expected to result in more than 40 million additional barrels being cost effectively recovered over the lifetime of the field.

"There's a saying the best time to plant a tree was 20 years ago; the second best time is now," said Raymond Choo, deployment manager for BP's EOR Technology Flagship program.



Clair Ridge jackets safely installed

The LoSal® EOR technology was based on taking a fresh approach to the potential of using low salinity water in oil reservoirs. Injecting fresh water into a reservoir can cause problems as it can cause some clays to swell and block the pores that hold the oil. But BP observed that reducing the salinity of the water could also have a positive impact on pore-scale displacement, and ultimately recovery.

In recognition of this breakthrough, BP has been presented with the Distinguished Achievement Award at the Offshore Technology Conference (OTC) in Houston, Texas. The award was presented on 4 May 2014. This is the second time in 4 years that BP has won the award at this major annual gathering for oil and gas professionals.

# OFFSHORE INDUSTRY HEADLINES

Research & Development • Environmental Assessment • Discovery

## Shell halts future investments in Russia over Ukraine tensions

Royal Dutch Shell says it will not be entering new investments in Russia anytime soon as tensions rise over the country's confrontation with Ukraine.

Chief financial officer Simon Henry said Shell, Europe's largest oil company, will continue to oversee its existing operations and will cooperate with any sanctions placed upon Russia by Western powers. Amid the uncertainty, however, it will hold back on starting new projects.

"I don't think we'll be jumping into new investments (in Russia) anytime soon," Henry said during a recent conference call with reporters after the company reported first quarter earnings. Shell has previously also said its early-stage plans for developing shale gas in Ukraine are on hold.

Meanwhile, Henry defended a meeting between Shell CEO Ben van Beurden and President Vladimir Putin, saying it should not be interpreted as the company taking sides in the Ukrainian crisis. One of Shell's key operations is a gas production and liquefied natural gas, or LNG, plant on Sakhalin island. Van Beurden and Putin met at the 20th anniversary of Sakhalin's opening, and reaffirmed existing plans to expand the project's capacity.

In 2006, the Russian government forced Shell to cede its leading position in the Sakhalin project to state-controlled company Gazprom.

"We hope for a peaceful and mutually beneficial conclusion to the current events that enables us to continue growing the economic interdependence which we feel is conducive to long term peace and wealth generation for both sides of the fence," Henry said.

## Final phase of BP oil spill trial set for nearly 2 weeks in January

A federal judge has finalized the timeline for the last phase of the massive BP oil spill trial next year, which will focus on how many billions of dollars the oil giant must pay in fines for the 2010 disaster in the U.S. Gulf of Mexico.

The trial will begin January 20 and is set to last 2 weeks, according to a court order issued by U.S. Magistrate Judge Sally Shushan, who oversees some parts of the litigation.

Plaintiffs filed suit in federal court in New Orleans 4 years ago, after the Deepwater Horizon rig explosion in April 2010, which killed 11 men and led to the biggest oil spill in U.S. history.

The first two stages of the trial were held last year. In April, the trial focused on the liability of BP and its partners while drilling the Macondo well. The



*Deepwater Horizon sinking in GOM.*

second in October aimed to settle how much oil was released into U.S. Gulf. Over the coming months, lawyers and federal judges will be sorting through evidence, expert witnesses and any legal issues before the trial begins.

In a March hearing, U.S. District Judge Carl Barbier, who oversees the multi-district litigation, said he intends to place hard limits on any new evidence.

Barbier said he previously hoped to move forward with the trial this summer. But the judge said it was necessary to push the start date back given the complexity of the debate about what and if new evidence should be included.

## EIA proposes crude gravity survey to help settle debate over exports

The Energy Information Administration (EIA) wants to start collecting information about the density of oil produced in the U.S. to better inform the debate over lifting restrictions against crude exports.

The agency, which is the statistical arm of the Energy Department, would begin publishing the average API gravity and sulfur content of domestic crude oil on a state-by-state basis in December 2015, under a proposal published the Federal Register, according to Jim Kendell, who heads the EIA's Office of Oil, Gas and Coal Supply Statistics.

Companies such as Exxon Mobil Corp. have urged the U.S. to ease restrictions against most exports of unrefined crude from the United States. Others, such as Valero Energy Corp., say the country is benefiting from existing rules.

One issue at the center of the debate, the EIA said in its proposal, is the density of U.S.-produced oil. Proponents of lifting export restrictions argue that new U.S. production from shale plays in North Dakota and Texas is light crude, whereas many U.S. refineries are designed to handle lower-quality heavy oil.

"Collecting crude oil production by API gravity categories will inform the debate," the agency said in the Federal Register notice.

U.S. crude production has grown 49% since the start of 2011, boosted by improved use of horizontal drilling and hydraulic fracturing in shale formations in North Dakota and Texas. Production from those formations tends to be low-density and low in sulfur content.

## UK industry employment prospects bright, Royal Bank study concludes

Britain's oil and gas sector could create up to 39,000 jobs over the next 2 years, according to new research by the Royal Bank of Scotland.

"Companies are very willing to invest in what is a very buoyant market, resulting in high levels of activity which, in turn, generates well rewarded employment opportunities," said Dr. Alix Thom, Oil & Gas UK's employment and skills issues manager.

He said industry is actively addressing the skills shortage in the short and long term in a number of ways. For example, the industry continues to be successful in attracting school leavers and graduates by engaging with young people to encourage the uptake of STEM (science, technology, engineering, and math) subjects and stimulate interest in the sector.

"We are also seeing a number of retirees returning to the oil and gas workforce in a number of flexible arrangements in order to share their skills, experience, and knowledge with upcoming colleagues," Thom said. "Other initiatives include helping to facilitate the transition of skilled people into the industry from other sectors, including the UK armed forces where skills such as engineering, logistics, and project management are widely transferable to the oil and gas industry."

## Atlantic drilling decision will not hinge on output estimates: BOEM

An Obama administration decision on future drilling in Atlantic waters will not hinge on how much oil upcoming seismic tests estimate may be recoverable off the U.S. East Coast, the outgoing director of the Bureau of Ocean Energy Management told Platts.

"There's no sort of tipping point or threshold we're looking for in terms of resource potential," BOEM director Tommy Beaudreau said in an interview. "It's one factor you look at to say 'would this even be attractive to industry?' But there are lots of other factors as well."

The administration is considering including mid- and south Atlantic drilling in its next federal offshore leasing plan, which will run from 2017 through 2022, and has endorsed seismic testing to update old oil and gas estimates.

## BOEM schedules Western Gulf of Mexico Lease Sale 238 for August

The U.S. Bureau of Ocean Energy Management (BOEM) has announced the proposed Western Gulf of Mexico Lease Sale 238 scheduled this coming August.

On offer will be more than 21 million acres offshore Texas and will include all available unleased western U.S. Gulf areas. Sale 238 will include about 3,992 blocks located from 9 to 250 mi offshore, in water depths ranging from 16 to more than 10,975 ft.

BOEM plans to offer blocks located, or partially located, within the 3statute mi U.S.-Mexico Boundary Area subject to the terms of the U.S.-Mexico Transboundary Hydrocarbon Agreement. BOEM estimates the proposed lease sale could result in the production of 116 to 200 mmbbl of oil and 538 to 938 bcf of natural gas.

The terms and conditions for Sale 238 in the Proposed Notice are not final. Different terms and conditions may be employed in the Final Notice of Sale which will be published at least 30 days before the sale, BOEM said.

## DECC receives 173 applications for 370 UK North Sea blocks

The UK Department of Energy and Climate Change (DECC) has received 173 applications from oil industry bidders for approximately 370 North Sea blocks in its latest offshore oil and gas licensing round, which closed applications on April 25.

The licensing process allows oil and gas companies to explore new areas with the aim of discovering and developing new oil and gas fields in the UK.

"It's 50 years since North Sea licensing began and there remains an extraordinary level of interest, which is excellent news for industry and for the UK economy," said UK Energy Minister Michael Fallon.

"We have committed to implementing all of Sir Ian Wood's recommendations to help maximize recovery of North Sea oil and gas, and the Chancellor is reviewing the tax regime."

"Making the most of Britain's home grown energy is crucial to keep job and business opportunities, get the best deal for customers and reduce our reliance on foreign imports."

The UK's oil and gas sector, the largest single industrial UK investor, directly and indirectly provides around 450,000 jobs and contributes to almost half of the country's energy production.

To date, approximately 42 Bboe have been produced in the UK with a potential 20 Bboe remaining.

## More infrastructure needed to clean up Arctic oil spills: study

A new report from the National Research Council says that a full suite of proven oil response tools is needed to address potential oil spills in U.S. Arctic waters, but not all of them are readily available. While much is known about both oil behavior and response technologies in ice-covered environments, there are areas where additional research would enable more informed decisions about the most effective response strategies for different Arctic spill situations, the report adds.

The Arctic is said to pose several challenges to oil spill response, including extreme weather and environmental settings, limited operations and communications infrastructure, a vast geographic area, and vulnerable species, ecosystems, and cultures. The report finds that there is a need to validate current and emerging oil spill response technologies under these real-world conditions, and recommends that carefully controlled field experiments that release oil in the U.S. Arctic be conducted as part of a long-term, collaborative Arctic oil spill research and development program that spans local, state, and federal levels.



A decision process such as the Net Environmental Benefit Analysis, which weighs and compares the advantages and disadvantages of different response options, should be used to select the response tools that offer the greatest overall reduction of adverse environmental harm, the report says. Key response options include biodegradation, chemical dispersants and herders, in situ burning, and mechanical containment and recovery. However, while in situ burning is pre-approved for use in the Arctic under defined conditions, Alaska has not granted pre-approval for use of chemical dispersants.

Research areas that would improve science-based decisions about the use of response technologies include determining the biodegradation rates of hydrocarbons in offshore environments and which strategies can accelerate oil degradation; evaluating the toxicity and long-term effects of dispersants and dispersed oil on key Arctic marine species; and communicating the limitations of mechanical recovery in both open water and ice.

Due to the range of conditions typically encountered within the Arctic, no single technique will apply in all situations, and in some cases a viable response option might be no response. A combination of countermeasures, rather than a single response option, may provide optimal protection, and so the response toolbox requires flexibility to evaluate and apply multiple options if necessary, the report says.

Building U.S. capability for Arctic oil spill response will also require additional infrastructure. The report finds that current personnel, equipment, transportation, communication, navigation, and safety resources for overseeing a spill response in the Arctic are not adequate, and calls this absence of infrastructure a "significant liability" in the event of a large oil spill. It suggests that positioning response equipment, such as aerial in situ burn and dispersant capabilities, in the region in advance of a spill would provide immediate access to rapid response options. Furthermore, the U.S. Coast Guard's presence and performance capacity in the Arctic should be enhanced, the report says.

Given the proximity of U.S. Arctic waters to international territories, certain factors should be addressed in advance of an actual event, including communications between command centers, coordinated planning, trans-boundary movement of people and equipment, and identification of translators, the report says. While formal contingency planning and exercises with Canada have been established, the U.S. Coast Guard should expand its bilateral agreement with Russia to include Arctic spill scenarios and conduct regularly scheduled exercises to establish joint response plans, the report recommends.

The National Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering.

For more information, visit <http://national-academies.org>.

**Subsea 7 wins \$160M contract from BP in Gulf of Mexico**  
 Norway-based offshore energy industry service provider Subsea 7 has been awarded a contract by BP Exploration & Production in the Gulf of Mexico. The company won a 3-year \$160 million contract extension for light subsea construction, inspection, repair and maintenance services in the Gulf. The contract work will commence in the second quarter of 2014 and will run through to the third quarter of 2017. As part of the contract, Subsea 7 will provide two vessels, including a dedicated vessel on a full-time basis. The service provider will also carry out project management and engineering support, remotely operated vehicle-based inspection and intervention, as well as some construction work. Of the two vessels that are set to be chartered on a long-term basis, one is a newbuild offshore subsea construction vessel, while the other is a lighter construction vessel.

#### Maersk Supply wins \$300M contract from Petrobras

Maersk Group's Maersk Supply Service has received a \$300 million contract from Petrobras to provide four anchor handling tug supply vessels. The contract, which includes mobilization fees, has a duration of 4 years and includes options to extend the agreement for another 4 years. Under the

terms of the contract, Maersk will provide four T-types, Maersk Trimmer, Maersk Traveller, Maersk Terrier and Maersk Handler, which will be joining the other 12 vessels currently employed with Petrobras. The contracts are expected to commence in July

2014 and these vessels are set to support Petrobras' offshore Brazil operations. "We are very pleased to have reached an agreement with Petrobras for this specific task," said Carsten Plougmann Andersen, Maersk Supply Service's chief executive officer. "It shows that Maersk Supply Service has the right vessels at a competitive rate for operations like this."

#### Jee wins subsea pipeline design contract off Canada

Jee Ltd., a multi-discipline subsea engineering and training firm, has been awarded a contract in support of a 7-year development. The contract, with a major offshore pipelay and subsea construction company, is as a result of recent oil field operations in Canada. Jee will fulfil the detailed design scope of the company's engineering, procurement, construction, and installation (EPCI) contract for the subsea pipelines, as part of the offshore loading system. Jee will also provide engineering services, including detailed design and stress analysis on three 24-in. offshore loading lines to be installed in 90 m (295 ft) of water, as part of a piggable loop. The scope of work includes reviewing survey information to define and finalize multiple pipeline routes, and reviewing all pipeline FEED documentation. In addition, the contract involves Jee executing operational stress analysis and pipeline walking analysis, as well as performing any necessary engineering for extra protection of the pipelines to mitigate damage or external disturbance. Engineering and project management will begin immediately from Jee's UK offices in London and Tonbridge as well as work in the client company's offices.



Tug supply vessel Maersk Traveller

## Aquaterra delivers CSP solution off West Africa



Conductor supported platform (CSP) topsides being loaded into the Industrial Force vessel for transportation to Cotonou

Aquaterra Energy has won a contract to design, fabricate, and install a minimum facilities conductor supported platform (CSP) offshore West Africa for South Atlantic Petroleum Benin S. A. (SAPETRO).

Earlier Aquaterra Energy performed a detailed pre-engineering design study that led to development of a rig-installable solution. Installation of the Sea Swift CSP started at the end of March in 85 ft of water.

The platform, currently under construction in Africa, will be installed by a jack-up rig. It will feature a two-deck topsides, a boat landing, and a subsea jacket structure. The platform will connect three planned wells to an onshore processing facility 9.3 mi away.

Four 30-in. well conductors tied together by the subsea jacket structure will provide structural support to the topsides while also housing the well casings. Wellheads and Christmas trees will be accommodated on the production deck. All equipment will be controlled from the onshore facility via a fiber-optic communication-power cable. Riser guides, providing support and protection to the export riser and power cable, will be located on two of the well conductors.

"At each stage of the design process, careful consideration was given to optimize the solution from structural, analytical, constructibility, design and installation perspectives," said James Larnder, director at Aquaterra Energy. "This has resulted in a light weight structure, a footprint optimized to house the topsides equipment that can be easily fabricated and installed by the drilling rig."

"We are very proud to be responsible for delivering this critical project which encompasses the full scope of our in-house expertise," added Patrick Phelan, Aquaterra Energy's managing director.



Subsea Structure on the quayside ready for loading.

# 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



*The Maersk Intrepid jack-up rig*

## Maersk takes delivery of ultra-harsh environment jack-up drilling rig

Maersk Drilling has taken delivery of its first ultra-harsh environment jack-up, Maersk Intrepid, from Keppel FELS in Singapore. The rig will head for the Norwegian North Sea on a 4-year contract with Total E&P Norge.

The Maersk Intrepid will be drilling the demanding and complex wells on the Martin Linge field development in the Norwegian North Sea. The contract includes four 1-year options. The estimated contract value for the firm contract is \$550 million.

With a leg length of 678 ft the rigs are the world's largest jack-up rigs and are designed for year round operation in the North Sea, in water depths up to 492 ft. The rig features dual pipe handling so that while one string is in the well, a second string can be assembled-disassembled and stored in the set-back area for subsequent use.

Maersk Intrepid is the first in a series of four newbuild ultra-harsh environment jack-ups to enter Maersk Drilling's rig fleet in 2014-16. The four jack-ups represent a total investment of \$2.6 billion. The first three will be delivered from the Keppel FELS yard in 2014-15, and the fourth will be delivered from the Daewoo Shipbuilding and Marine Engineering in South Korea in 2016.

## China's Cosco to build vessels for undisclosed customers

China's Cosco Shipyard Group has received two contracts, worth \$100 million, for the construction of emergency response-rescue-field support vessels (ERRV), as well as PX121 platform supply vessels (PSV).

Under the first contract, Cosco (Guangdong) Shipyard will construct four emergency ERRVs for an Asian

company, which are expected to be delivered in the first half of 2016. As part of the second contract, Cosco (Guangdong) Shipyard will develop two PX121 PSVs for a European ship owner, which are scheduled to be delivered in the first and second quarters of 2016 respectively.

The contract also includes an option to render effective, within 6 months, two contracts for the construction of similar PX121 PSVs.

## Sevan Louisiana rig gets 11,500-mi tow from Singapore to Curaçao

Fairmount Marine reports that the tug Fairmount Sherpa has towed the Sevan Louisiana rig safely on a 11,500-mi voyage from Singapore to Curaçao, via the Cape of Good Hope.

The Sevan Louisiana is an ultra-deepwater rig, built in 2013 at the Cosco shipyard in Nantong, China, for UK-based Seadrill Ltd. It is the third of four ultra-deepwater cylindrical offshore drilling rigs Cosco has undertaken to build. The rig is capable of working in water depth of up to 3,810 m and has a drilling depth of 12,000 m.

After arrival in Curaçao, the Fairmount Sherpa performed multiple cargo runs for the Sevan Louisiana.

The rig was to leave Curaçao on her own power for her next job in the Gulf of Mexico.

## Enesco sold third jack-up drilling rig this year for \$64M

Enesco plc said it sold ENSCO 85, a jack-up rig built in 1981, for \$64 million. The net book value of the rig was approximately \$54 million. The pre-tax gain on this sale was approximately \$10 million, which will be included in second quarter 2014 operating results.

"Year to date, we have sold three jack-up rigs and recently we ordered two ENSCO 140 Series jack-ups," said executive vice president and chief financial officer Jay Swent. "Continuous high-grading keeps us at the forefront of industry technology and we continue to have the largest premium jack-up fleet in the world."

Since the beginning of 2010, Enesco has sold 14 rigs generating pre-tax gains of approximately \$90 million. During the same period, Enesco has taken delivery of 12 high-performance rigs, including five Samsung DP3 ultra-deepwater drillships,



*ENSCO 85 gets new owner*

five ENSCO 8500 Series® ultra-deepwater semi-submersibles and two ENSCO 120 Series ultra-premium harsh environment jack-ups. Enesco has eight additional rigs under construction -- five premium jack-ups and three ultra-deepwater drillships--that reinforce the company's commitment to standardization.

## Transocean to spin off eight offshore rigs--creates new company

Transocean, a provider of offshore contract drilling services, is set to spin off eight mid-water floating rigs active in the UK North Sea to create a new company, Caledonia Offshore Drilling.

The company expects to establish the new entity during the second half of 2014, it said in a regulatory document filed on May 5.

The offshore drilling assets currently contemplated for transfer to Caledonia include all semi-submersibles, the Sedco 704, Sedco 711, Sedco 712, Sedco 714, Transocean John Shaw, Transocean Prospect, GSF Arctic III and JW McLean.

Transocean said that the creation of Caledonia reflects the continued execution of Transocean's asset strategy to improve the overall capability of its offshore drilling fleet by divesting non-core assets, complemented by the addition of new, high-specification offshore drilling rigs.

Transocean hopes to retain its presence in the UK North Sea and is currently considering various options for the separation of Caledonia.

Transocean has 78 mobile offshore drilling units, including the world's largest fleet of high-specification rigs, comprising ultra-deepwater, deepwater and premium jack-up rigs.

In addition, the company has nine ultra-deepwater drillships and five high-specification jack-ups under construction.

## Drydocks World to build jack-ups for Malta Oil & Gas

Drydocks World has signed an agreement with Malta Oil & Gas to build two drilling jack-ups based on Gusto MSC's CJ54-X135-A design. The rigs will measure 249 by 249 ft with a leg length of 592 ft. They are intended for operation in water depths up to 450 ft and will be capable of drilling high-pressure-high-temperature wells. The design features a triangular shaped hull with three open truss legs, rack and pinion type elevating systems and leg-to-hull fixation systems, permanent accommodation for 150 personnel, a helideck suitable for a S61N or S92 helicopter, and a retractable X-Y type cantilever carrying the drilling derrick. Drydocks World plans to develop its rig business increasingly away from repair and refurbishment and rehabilitation to newbuilds. The company has established a dedicated engineering team to implement changes to basic rig designs, which it claims is critical to successful delivery.

## Ensenco commissions up to four new jack-ups rigs

Ensenco Intercontinental has contracted Lamprell to build two LeTourneau-design, self-elevating Super 116E jack-ups. These will be able to operate in water depths of up to 340 ft with a rated drilling depth of 30,000 ft, and will incorporate numerous Ensenco proprietary features and specifications.

Lamprell will fabricate both rigs at its Hamriyah yard. They are expected to be delivered during the second and third quarters of 2016. Additionally, Lamprell has options to build two more jack-ups of the same design for Ensenco, exercisable within 6 months of the effective contract date. Value of the orders (excluding the options) is around \$390 million.

## Southeastern Barents Sea FTG survey under way

ARKeX has restarted acquisition of a multi-client full tensor gravity gradiometry (FTG) survey over the southeastern Barents Sea offshore Norway. The program started last year but had to be postponed due to weather conditions. The survey will cover 16,519 sq mi over the Norwegian Petroleum Directorate's proposed licensing areas.

The main aim is to provide a high-resolution gravity gradiometry dataset to help delineate complex structural features that could be associated with hydrocarbon-bearing basins and trapping structures. It will highlight faults such as salt morphology and basement structure.

Chris Anderson, EVP multi-client at ARKeX, said: "The data from the FTG survey will offer a considerable upgrade in resolution of the shallow sections in the Barents Sea compared to conventional marine gravity and magnetic data and when used in conjunction with 2D and 3D seismic data, FTG data will provide a powerful tool for regional structural interpolation."

## Dolphin mobilizes new high-capacity seismic vessel

Dolphin Group ASA has taken delivery of the newbuild seismic vessel M/V Sanco Sword, on an initial 5-year time-charter agreement with the Norwegian vessel owner Sanco Shipping AS. Dolphin Geophysical reports that the Sanco Sword has mobilized to begin acquisition of two new, prefunded multi-client 3D projects in the Barents Sea.

The Sanco Sword is the sister vessel of the Sanco Swift, also delivered from the Kleven Myklebust yard on the west coast of Norway. Each vessel is 315 ft long and among the most powerful seismic vessels in the world, capable of towing



M/V Sanco Sword



Dolphin Group ASA takes delivery of M/V Sanco Sword

spreads of up to 16 streamers at 100 separation.

In the Barents Sea, the Gohta North and Maud Basin South 3D surveys, totaling almost 2,394 sq mi, will be acquired using SHarp Broadband acquisition and processing. The SHarp Broadband technique also allows high-end, fast track data volumes to be delivered within 4 weeks of acquisition. These data volumes will allow early participating companies to screen and technically evaluate the prospectivity of the acreage in the 23rd and APA 2014 Rounds.

The surveys were planned in consultation with local operators and designed with technical input from all early participating clients, who will also be involved throughout the data processing phase. The Sanco Sword will use as many as 12 streamers with 246-ft separation and 4-mi offsets due to the varying geological targets within the respective survey areas, ranging from Jurassic to Permian carbonate plays.

## Seadrill secures contracts for multiple jack-up units

Seadrill Ltd. has secured new contracts for the jack-up units West Tucana, West Telesto, West Ariel, and West Prospero. Additionally, the contract for the West Mischief has been extended 4 months. The total revenue potential for the four new contracts and one extension is \$319 million.

The West Tucana, a Friede & Goldman JU-2000E jack-up drilling rig, has a contract offshore Angola with Cabinda Gulf Oil Co. Ltd., Chevron's wholly owned operating unit in Angola. The contract is for a firm period of 24 months. The total revenue potential for the primary contract term is \$168 million inclusive of \$8.5 million of mobilization. The West Tucana is operating in Vietnam and will likely be available to begin its charter in late November.

The West Telesto, also a Friede & Goldman JU-2000E jack-up, has secured a contract offshore Australia with Origin Energy Ltd. The contract is for a firm period of two wells, expected to be 51 days each, plus two option wells. The total revenue potential for the primary contract term is \$31 million inclusive of mobilization. The West Telesto is operating in Vietnam and will likely be available to begin its charter in the 2014 fourth quarter.

The West Ariel, a Keppel FELS B Class jack-up rig, has secured a contract offshore Congo with ENI Congo SA. The contract is for a firm period of 12 months plus an option of 12 months. The total revenue potential for the primary contract term is \$89 million inclusive of \$8.5 million of mobilization. The West Ariel is operating in Vietnam.

The West Prospero, a Keppel FELS B Class jack-up rig, has secured a contract offshore Vietnam with JVPC. The contract is for a firm period of one well, expected to be 40 days. The total revenue potential for the primary contract term is \$6.5 million.

## McDermott installs P-61 TLWP for Papa Terra field offshore Brazil

McDermott International, Inc. said it successfully installed the P-61 Tension Leg Wellhead Platform (TLWP) for the PPT BV Joint Venture, consisting of Petrobras and Chevron. Once fully commissioned and operational, the project will enter the record books as the first use of dry-tree floating technology offshore Brazil and the first Tension Leg Platform installation offshore South America.

Awarded in 2010 to FloaTEC Singapore Pte, Ltd., a joint venture between subsidiaries of Keppel FELS Ltd. and McDermott, the successful installation of the Papa Terra P-61 is a testament to the excellent working relationship among three leading offshore specialists.

"The patented extended tension leg platform technology from FloaTEC, construction capabilities of Keppel FELS, and offshore transportation and installation experience of McDermott combined to form a first-of-a-kind solution for this challenging deepwater environment," said David Dickson, president and chief executive officer at McDermott.

"The alignment of all three teams with our customers' requirements



*P-61 is the first dry tree riser TLP to be installed offshore Brazil*

ensured successful and safe delivery of one of the most challenging tension leg platforms ever installed."

Topsides engineering was executed by McDermott in Houston and constructed in Singapore by Keppel FELS, and fabrication of the piles and tendons was provided by McDermott's fabrication facilities. The hull was designed by FloaTEC in Houston and fabricated in Brazil by Keppel FELS at its BrasFELS yard. The topsides and hull were then integrated at BrasFELS using the float over method.

The McDermott team was instrumental in providing float-over support and executing the offshore transportation and final installation of the TLWP offshore

Brazil. The project was carried out with significant technical contribution by Chevron to the TLWP design, construction and installation. Commissioning of the platform continues under the expertise of the FloaTEC project team.

Using the Derrick Barge 50 (DB50), a specialized deepwater construction vessel, to install the tendons, McDermott successfully completed its offshore campaign without a single lost time incident.

Recent enhancements to the DB50 include a new state-of-the-art switchgear and power management system with an upgraded level of auxiliaries resulting in improved reliability and station keeping, a critical feature during offshore installations, according to McDermott.



**Unique Maritime Group**  
Strength in Depth

## Integrated Turnkey Subsea & Offshore Solutions



### UniFlex. The Best Bag at the Best Price. Now in the USA. Are your Air Lift Bags:

- Supplied direct from the manufacturer? • FULLY compliant with IMCA D-016 guidance?
- Proven via drop-testing to meet required factors of safety?
- Proven via subsea testing to invert as required if they need to?
- Fitted with proprietary strop Dee-Tangler™ and strop i/d systems?
- Fully traceable down to component level?
- Delivered ready for immediate use, with product logbook and operation manual?
- Available to purchase?

### The first purpose built Hyperbaric Rescue Facility (HRF) for use in the Gulf of Mexico Region.

- Triple Lock ,18 Man, 1000fsw rated Hyperbaric Rescue Facility • Can Accept HRC or SPHL • Based in New Iberia, LA as a central access point to the Gulf of Mexico Region in the US • Can be mobilized to most deepwater ports along the Gulf Coast for emergency situations • Medical facilities • Provides a stable Hyperbaric Environment for decompression of Saturation personnel in emergencies • Provides access for medical personnel for treatment of injured Saturation Personnel.



Contact Unique System LLC (USA) for a professional solution.

usasales@uniquegroup.com | www.uniquegroup.com



• India • Nigeria • Oman • Qatar • Singapore • South Africa • UAE • UK • USA

## Total discovers oil in deepwater offshore west of Ivory Coast

The Total-operated Saphir-1XB exploration well on block CI-514 has proved the presence of liquid hydrocarbons in the deep offshore west of Ivory Coast, the company said. Lying in 7,546 ft of water, Saphir-1XB is the first well in block CI-514. It was drilled to a true depth of 15,272 ft, encountering 131 ft of net pay containing light 34 degree API oil, in a series of 1,148 ft of reservoirs.

"Drilled in an abrupt margin play, this first well is the first discovery in the San Pedro basin, a frontier exploration area in Ivory Coast," said Marc Blaizot, senior vice president of exploration at Total. "Having confirmed the presence of a petroleum system containing light oil, we will next evaluate this very promising find and focus on its extension to the north and east."

The data acquired during drilling are being analyzed and will be used to determine the area's potential and design the delineation program. Total is pursuing its intensive exploration program in the area, with plans to drill two wells in blocks CI-515 and CI-516 by year-end.

Total E&P Côte d'Ivoire operates block CI-514 with a 54% interest, alongside CNR International (36%) and PETROCI Holding (10%). Total also has interests in three other ultra-deep offshore exploration licenses in Ivory Coast (CI-100, CI-515, and CI-516). The group is continuing to analyze the oil discovery made in Total-operated block CI-100 in 2013, which confirmed the extension of an already proved active petroleum system in the Tano basin.

## Shell uncovers deepwater gas in Rosmari-1 well off Malaysia

Shell said it has a deepwater gas discovery off Malaysia. Located 135 km offshore in Block SK318, the Rosmari-1 was drilled to a total depth of 2,123 m and encountered more than 450 m of gas column. The company is planning further exploration and marks the finding as a positive indicator of the gas potential in an area of strategic interest.

"We are expanding and rejuvenating heartlands across our exploration portfolio, including in Brunei, Australia and the Gulf of Mexico," said Andy Brown, Shell upstream international director.

Shell owns 85% interest in the Block SK318, while the remaining 15% is held by Petronas Carigali Sdn Bhd.

"This adds to Shell's sequence of recent exploration successes in Malaysia, with these discoveries expanding the company's heartlands positions," Shell Malaysia chairman Iain Lo said.

Block SK318 is located approximately 200 km offshore in water depths of 200 to 1,000 m.

## CNOOC proves up gas in new deepwater play offshore China

CNOOC has made what it describes as a breakthrough gas discovery in the deepwater Qiongdongnan basin in the South China Sea. Lingshui 17-2 was drilled in the east Lingshui Sag, in an average water depth of around 4,757 ft. The well, completed at a depth of 11,516

ft, encountered a gas reservoir with total thickness of around 180 ft. CNOOC said the outcome underlined the exploration potential of the structural and lithologic trap in the central Canyon channel of Lingshui Sag and of the deepwater area.

Meanwhile, CNOOC said it made a mid-sized natural gas discovery with the Bozhong 22-1 well in Bohai Bay. The structure is located in an average water depth of about 82 ft. The gas production of the well was tested around 14.2 mmcf/d, CNOOC said.

# InterOcean

## A leader in Ocean Technology Since 1945

- Integrated Monitoring Systems
- Oceanographic Sensors
- Hydrographic Winches
- Acoustic Releases
- Oil Spill Detection






Contact us today!

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


InterOcean systems, inc.



## Jacket loaded out for DONG Hejre development in Danish North Sea

Heerema Fabrication Group loaded the 8,500-ton Hejre jacket onto a Heerema barge at Vlissingen. The jacket will be part of DONG Energy's Hejre development, the largest oil and gas project in the Danish sector of the North Sea.

Heerema secured the contract for the construction of Hejre jacket from Technip, which will, in cooperation with DSME, provide topsides for the platform.

The eight-legs launch jacket has a length of 60 m, a width of 35 m and a height of 85 m. Along with the jacket, Heerema will deliver piles and a 900 ton pre-drilling wellhead deck that was scheduled for load out in the first week of May. The costs of the field development are expected to amount to about \$2.18

billion, and the production from the reservoir is expected to be about 15 million m<sup>3</sup> of oil and about 10 billion m<sup>3</sup> of gas during the term of the project.

The Hejre oil and gas field is located in central part of the North Sea. It lies 300 km away from the Danish coast in License 5/98 at a water depth of 70 m.

DONG Energy is the operator of the field and holds a 60% interest in the field. Bayergas Norge holds the remaining 40% interest. The field is expected to come online in late 2015, reaching full production in 2016.

## Murphy Oil terminates Bamboo-1 deepwater well offshore Cameroon

Murphy Oil will P&A the deepwater Bamboo-1 well offshore Cameroon as a dry hole, according to partner Sterling Energy. The well was the first on the Ntem concession. It was drilled in 5,249 ft of water to a true depth of 15,574 ft.

The target was a series of stacked Cretaceous-aged, basin floor submarine fans. Murphy and Sterling will now assess remaining prospectivity over the concession, the current phase of which runs to April 2015.

"Bamboo-1 was the first well in a

large unexplored area. We have identified further Cretaceous and Tertiary prospects in the Ntem block and these will be re-evaluated with the significant new data from Bamboo-1 before determining our future plan for the Ntem block," said Alastair Beardsall, Sterling's chairman and acting chief executive officer.

## Petrobras brings third well online at Sapinhoá offshore Brazil

Petrobras has started up 7-SPH-04-SPS, the third production well of the Sapinhoá Pilot Project in the Santos basin presalt region. Water depth is 6,954 ft.

The well, which has an estimated production potential of 26,000 b/d, is connected to the FPSO Cidade de São Paulo through a buoyancy supported risers (BSR) system. It is the second well connected via the BSR gathering system following the start-up of well SPS-77A in February.

FPSO Cidade de São Paulo, which started operating in January 2013, has the capacity to process up to 120,000 b/d of oil. A fourth production well will be brought onstream early in the second half of this year, at which point the platform will reach its full output capacity.

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

**CLICK OR SCAN**

8 0 0 . 2 5 6 . 9 1 8 7 • W W W . G J F O O D . C O M • S A L E S @ G J F O O D . C O M

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



**LAND & MARINE**  
FOOD DISTRIBUTORS INC

## ExxonMobil starts production ahead of schedule at LNG project

ExxonMobil Corp.'s \$19 billion PNG LNG project has started producing liquefied natural gas (LNG) in Papua New Guinea ahead of schedule. Production from the first LNG train will increase over the coming weeks and the first cargo is expected to be shipped to Asia markets before midyear, the company said.

Work on the second train is progressing and LNG production from this unit was expected to start within weeks. The project, which is operated by ExxonMobil affiliate ExxonMobil PNG Ltd., is expected to produce more than 9 tcf of gas over 30 years of operations.

"Project revenue and profitability are underpinned by long-term LNG sales contracts covering more than 95% of the plant's capacity," said Neil W. Duffin, president of ExxonMobil development.

The project is an integrated development that includes gas production and processing facilities in the Southern Highlands, Hela, Western, Gulf and Central provinces of Papua New Guinea. Approximately 435 mi of pipeline connect the facilities, which include a gas conditioning plant and liquefaction and storage facilities with capacity of 6.9 million tons of LNG per year.

Flooding, minimal pre-existing infrastructure and extremely steep slopes were among obstacles that were overcome in constructing the project. Pipe had to be airlifted in some areas because the soil could not support heavy machinery and lack of infrastructure required construction of supplemental roads, communication lines and a new airfield.

"The project is optimally located to serve growing Asia markets where LNG demand is expected to rise by approximately 165% between 2010 and 2025, to 370 million tons per year," said Duffin.

In addition to ExxonMobil PNG Limited, co-venturers include Oil Search Ltd., National Petroleum Co. of PNG, Santos Ltd., JX Nippon Oil & Gas Exploration Corporation, Mineral Resources Development Co. (representing landowners) and Petromin PNG Holdings Ltd.

## Nova Scotia seeks bids on four blocks in active eastern Canada

Nova Scotia has issued a call for bids covering four blocks on the Scotian Slope east of its offshore gas-producing area. The area covered by the offering is near current exploration and north and east of areas where BP and Shell each plans investments totaling \$1 billion over the next several years.

Shell is preparing to drill as many as

seven wells starting next year in the area covered by its six contiguous blocks. Company geoscientists are said to be reviewing 10,000 sq km of data acquired in the first 3D wide-azimuth seismic survey ever conducted off Canada, which it completed last year.

On four blocks between Shell's acreage and the producing area, BP soon will begin a 3D seismic survey over a 14,000-sq-km area in 100 to 3,000 m of water.

Water depths in the parcels newly

offered for bid are 100 to 4,100 m. The two eastern-most blocks lie along the maritime boundary with Labrador and Newfoundland.

A well drilled on the western-most block in 1986 identified a large structure on the upper slope in 1,540 m of water, according to a press statement. The blocks are considered prospective for oil and gas in Cretaceous and Jurassic formations. The Canada-Nova Scotia Offshore Petroleum Board will accept bids through October 30.

**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

The advertisement features a large image of the ocean with a research vessel in the background. In the foreground, there is a close-up view of a clear, rectangular underwater vehicle or enclosure, likely a submersible or a specialized research device, partially submerged in the water.

## PUQ deck departs UAE for Golden Eagle in North Sea

Lamprell has completed the production, utilities, and quarters (PUQ) deck for Nexen Petroleum's Golden Eagle area development platform in the UK central North Sea. According to Guinness World Records, this was the heaviest ever load moved by self-propelled modular trailers (SPMTs) at 13,191.98 metric tons (14,541 tons). ALE was the transport provider.

This was also the largest platform structure that Lamprell has ever built. Its total weight, including grillage, temporaries and SPMTs, was 15,511 metric tons (17,098 tons). ALE/Lamprell applied 512 axles on the SPMTs for the load-out. The PUQ deck is 323 ft long, 151 ft wide, and 193 ft high. Last June, the company also delivered the well-head platform deck for the same project.

This was the sixth topsides for a fixed platform that Lamprell has completed in the past 4 years.



*The Golden Eagle PUQ deck is the largest platform ever built by Lamprell*

### Keppel Shipyard to supply turret for TEN FPSO offshore Ghana

SOFEC has commissioned Keppel Shipyard to fabricate an external turret mooring system for the FPSO that will serve the Tweneboa-Enyenra-Ntomme (TEN) fields offshore Ghana. The fields are in average water depth of 4,921 ft. The turret is expected to be completed early next year.

Bumi Armada Offshore Holdings has awarded Keppel Singmarine contracts to build two ice-class supply vessels and an ice-class multi-purpose duty-rescue vessel, all due for delivery next year.

They will support platforms serving Lukoil's V.Filanovsky oil field development in the Russian sector of the Caspian Sea. The vessels will provide year-round delivery of cargoes, salvage, search and rescue, fire-fighting, and towing and tanker mooring operations.

### Asian Offshore completes largest offshore laboratory on FLNG

Asian Offshore Services (AOS) has recently completed the design, build and fit-out of a large offshore laboratory building that will soon be installed on the newbuild Petronas FLNG vessel currently being built in Korea.

In support of the vessel's operating philosophy, the laboratory was designed to take into consideration a combination of analysis requirements

typically performed for offshore oil and gas operations and also onshore oil and gas plant processing.

Typical analytical equipment that will be installed in the laboratory will include gas chromatographs, fluorescence/moisture analysers, centrifuges, oil/water analysers and many more specialist sampling and analysis equipments used to monitor oil and gas processing conditions.

AOS believes this new modular building is one of the largest laboratories ever built for an offshore application, and Petronas is likely to be the first global operator to put into service this new operating philosophy of combining onshore processing with offshore production.

MD Faisal Siebel stated, "Asian Offshore Services are very proud to be part of the dedicated Malaysian team to design and build one of the modules that forms an integral part of this first FLNG vessel to be delivered and operated by Petronas that will support of the ongoing new developments of Malaysian oil and gas operations."

"Building what we believe is the largest offshore laboratory module has shown that our company continues to be a market leader in design-and-build of specialist offshore modules and this one we see as an historical milestone being involved with the first of what will likely be many other FLNG vessels to be built throughout the world."

### North Sea Gudrun delivers first production for Statoil, partners

Statoil and partners GDF Suez and OMV have started production from the Gudrun oil and gas field in the Norwegian North Sea. Gudrun is the first new Statoil-operated platform onstream offshore Norway since 2005. The company expects to produce 184 mmboe over the field's life.

Statoil submitted the plan for development and operation in 2010. "We have delivered the Gudrun field on time and below the cost estimate in the PDO," said Margaret Ørum, head of the company's technology, projects and drilling business area.

Gudrun, discovered in 1975, is a high-pressure and high-temperature field. Development was only possible when suitable drilling technology and capacity in facilities and pipelines in the area became available.

Produced oil and gas is sent to the Sleipner complex for processing, with the resultant crude sent to Kårstø in western Norway, and the gas through the Norwegian trunkline system to mainland Europe. The project entailed modifications on Sleipner and at Kårstø.

### Ghana's parliament, five groups sign offshore exploration deal

The Ghana parliament has ratified a petroleum agreement among the government of Ghana and five organizations for the exploration of oil in the Expanded Shallow Water Tano block, the Ghana News Agency reported.

The organizations include the Ghana National Petroleum Corp. (GNPC), CAMAC Energy Ghana Ltd., Base Energy Ghana Ltd., and the GNPC Exploration and Production Co. Ltd.

As per the agreement, if a commercial discovery of oil is made in the Expanded Shallow Water Tano block, the GNPC, CAMAC Energy Ghana Ltd., and Base Energy Ghana Ltd., who would be referred to as the contractor, would prospect for oil in the block for 25 years. If no commercial discovery of oil is made after 7 years, the contract expires.

The contractor is required to reprocess existing 2D and 3D seismic data over the applied contract area and to drill one exploration well. Operations are to begin no later than 60 days after this ratification. Under the agreement, the contractor would relinquish 25% of the original contract area at the end of the exploration period and 25% of the remaining contract area after the first extension period.

Ghana is entitled to 12.5% of oil and 7.5% of gas as royalties. The GNPC has an initial carried interest of 10%.

## BC Petroleum receives approval for Bentara Phase 1 offshore Malaysia

Petronas has approved BC Petroleum's plan for the initial development phase of the Bentara oil field in the Balai Cluster offshore eastern Malaysia.

Phase 1 will use the existing wellhead platform and two wells producing from Bentara-2 and Bentara-3 through the early production vessel Balai Mutiara.

According to BCP shareholder ROC Oil, production is expected to begin during the second quarter of 2014 and average around 2,000 to 3,000 b/d, depending on weather and sea conditions.

Bentara is 109 mi northwest of Bintulu in water depths of 197 to 229 ft, according to the company.

"Approval for the initial phase of the Bentara oil development is a direct outcome of the risk managed and staged pre-development approach implemented by BCP to appraise and accelerate oil production from the Balai Cluster," said Alan Linn, ROC chief executive officer.

"In the process, we have also identified additional potential within the cluster area and will be proposing further study and appraisal activity in support of the next stage of potential development from Bentara and associated fields."

## Keppel and Seafox partner on engineering of P&A jack-up rig

Keppel FELS and Workfox, a subsidiary of Seafox, have formed a partnership to conduct an engineering study of a new generation, multi-purpose jack-up rig, which will be equipped with well intervention and plug and abandonment (P&A) features.

The hull and legs of the jack-up rig feature KFELS J Class design, which supports operations in water depths of up to 112 m in harsh offshore weather conditions in the Norwegian North Sea.

The project, known as Seafox 8, will offer P&A services, well intervention services, accommodation services and crane support services.

Keppel and Workfox are also in talks on ordering the unit after the study's planned completion in the second half of 2014.

Keppel claims that the Seafox 8 is anticipated to be 25% to 30% more economical in terms of day rates, compared with existing methods of P&A.

The companies previously teamed up on the multi-purpose self-elevating platform Seafox 5, which has been used for both offshore wind installation and oil and gas accommodation and maintenance works. The new unit would be owned in a joint-venture between the two companies similar to the Seafox 5.

"With our background in providing accommodation support, workover, construction and decommissioning services to the offshore oil and gas industry, we noticed the strong demand for P&A services and identified a need for a specialized rig in this market," said Keesjan Cordia, Seafox chief executive officer.



KFELS J Class design

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.



**SHARK MARINE TECHNOLOGIES INC.**

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

[sales@sharkmarine.com](mailto:sales@sharkmarine.com)

Ph: (905) 687-6672

53

Ocean News & Technology

## GE Oil & Gas launches new 20ksi BOP system

GE Oil & Gas has launched a new blowout preventer system, 20ksi BOP, which the company said is capable of operating at greater depths and under higher pressures.

The new 20ksi BOPs, which will be manufactured at GE's drilling systems facilities in Houston, Texas, are critical pieces of subsea drilling equipment. Their 60-ft tall valves with several hundred thousand pounds weight are designed to isolate pressure in oil and gas wells during drilling.

The 20ksi is designed for the specific demands of containing high-pressure, high-temperature reservoirs and is upgraded with GE ram and annular BOPs. GE's SeaONYX BOP control system and SeaLytics BOP advisor software are also key features of the new 20ksi system.

While the BOP control system is designed to provide maximum system uptime and is based on mission-critical GE power & water systems, BOP advisor software is designed to provide real-time performance and maintenance data to significantly reduce unscheduled BOP maintenance requirements.

"GE's new BOP system will enable operators to explore deepwater basins that are currently inaccessible with conventional 15ksi BOP systems," said Andrew Way, GE oil & gas president and chief executive officer.

"Our new BOP system uses all of GE's latest Predictivity™ communications software solutions to allow for real-time remote monitoring of equipment status and performance, thus offering new degrees of reliability and performance."

## Tracerco granted patent for well flow measurement technology

Tracerco, part of the FTSE 100 Johnson Matthey PLC, has won a patent for its oil and gas flow measurement technology, which allows empirical measurement of hydrocarbon flow from individual stages in a well.

Tracerco's technology allows operators to better understand how hydrocarbon flow relates to well geometry, completion arrangement, hydraulic fracture design, and geology, so that future well developments can be optimized.

The new patent comes following recent business expansion in the Middle East, with the addition of a new laboratory in Abu Dhabi. This adds to a worldwide network of laboratories that allows Tracerco to provide local sample

analysis, giving customers a quick turnaround on tracer presence and interpretation of results. The company also provides analysis on site for immediate tracer interpretation results, allowing operators to review and refine production strategy.

## Weatherford Petroleum Consultants previews new imaging technique

Weatherford Petroleum Consultants has previewed a new imaging technique that it says removes blind spots from wireline wellbore images.

Reveal 360 reconstructs data not measured by wireline imaging tools. The technique starts by decomposing the measured sections of the borehole wall into sparse representations of the morphological components using dictionaries of multi-scale, multi-orientation transforms. This process is known as morphological component analysis. These representations are reconstructed using the dictionaries' information to fill in the blind spots.

"Gaps between the pads of wireline tools provide images in which 30% to 50% of the wellbore data is missing," said Peter Elkington, Weatherford chief geoscientist of geoscience development.

## Union of the Comoros clears way to start offshore exploration

Bahari Resources has won formal approval for an exploration and production-sharing agreement (EPSA) from the National Assembly of the Union of the Comoros. The islands' government signed the EPSA following implementation of a new Petroleum Code at the start of this year.

The Comoros are an archipelago of islands in the Mozambique Channel of the Indian Ocean, between Madagascar and East Africa, bordering Mozambique, Tanzania, the Seychelles, Madagascar, and the Glorioso Islands.

Bahari's license area takes in blocks 35, 36, and 37 and covers around 6,950 sq. mi offshore the Comoros. It is adjacent to the Rovuma gas basin, offshore Mozambique, where Anadarko and Eni have proven 175 tcf of in-place gas in Area 1 and Area 4. Existing 2D seismic suggests the Rovuma basin floor fans could extend into the EPSA license area.

Bahari, working with partner Discover Exploration, will conduct a phased seismic and drilling program, and complete a regional study of the entire Comorian territory on behalf of the government. Seismic work is

expected to start in the second quarter of 2014.

Discover was founded by the former management of Cove Energy, one of Anadarko's original partners in its breakthrough exploration campaign off Mozambique.

## RWE, SOCAR to evaluate Caspian Sea area off Azerbaijan Republic

Germany-based oil and gas firm RWE Dea has signed a joint study agreement with the State Oil Co. of the Azerbaijan Republic (SOCAR) to evaluate the hydrocarbon prospectivity in an area south of Baku in the Caspian Sea.

The main objective of the agreement is to identify further exploration opportunities in the study area, which is located between Karadag and Hamamdag. The area covers approximately 850 sq. km and lies in shallow waters, with water depths up to 30 m.

"The agreement gives us the opportunity to deepen our knowledge about the subsurface in an highly prolific area of the Caspian Sea," said Hans-Hermann Ecke, RWE Dea senior vice president of new ventures. "We are pleased to have such an experienced partner as SOCAR by our side and we are looking forward to continuing to work with them."

RWE Dea said the region around the Caspian Sea will play an important role in the future to secure the European energy supply and is also of strategic interest for the company. The agreement expands RWE Dea's activities in the Caspian region, where the company has been operating since 1995.

The company has interests in production facilities and concessions in Germany, the UK, Norway, Denmark, Egypt and Algeria.

RWE Dea also owns exploration licenses in Guyana, Ireland, Libya, Mauritania, Poland, Suriname, Trinidad and Tobago and Turkmenistan.

## Noble Energy contracts subsea installation work for Gunflint

Noble Energy signed a letter of agreement with EMAS AMC to install pipelines, umbilicals, and ancillary equipment for the Gunflint development in the Gulf of Mexico. Gunflint is in more than 6,560 ft of water in Mississippi Canyon. EMAS will use the Lewek Constellation for the offshore work, and will use its Ingleside, Texas, marine base for pipe stacking and fabrication.

# need hydraulic power?



**800-925-4966**

2306 Engineers Road  
Belle Chasse, LA USA 70037-1196

## T.D. Williamson helps relieve stress on riser offshore Malaysia

T.D. Williamson (TDW) said it recently completed a comprehensive pipeline services program for a major offshore operator to assist with efforts to relieve increasing contact stress between a gas export riser and platform jacket offshore East Malaysia.

Due to changes in seabed conditions, the platform jacket had moved, producing stress on the gas export riser attached to the platform jacket. The stress was most acute at the contact point between the bracings—or riser clamps—that anchor the riser to the platform structure.

Concerned that the amount of stress developing at the contact point could eventually damage the riser, the operator decided that the best solution was to cut out and remove a section of the jacket bracing. Removal of the brace would not affect the technical integrity of the structure.

To ensure that the bracing could be safely removed from the pipeline, the customer requested TDW to isolate the affected section of the subsea line by inserting and setting a remotely-operated SmartPlug® isolation tool in the line approximately 100 m from the platform. By doing so, only a short section of the



*Riser operation offshore East Malaysia*

pipeline had to be depressurized and isolated while the bracing was removed. The only alternative would have been to depressurize the entire pipeline, which would have been extremely time consuming and costly. Further complicating the situation was the fact that the line is tied in to another major pipeline that extends to a central riser complex. This line would have had to have been bled down as well, causing major disruption to overall production from the field.

Before the pipeline could be isolated, however, it became apparent that one of the topside motor-operated valves (MOVs) closest to the pig launcher would not open properly, so it would have to be replaced in order that the SmartPlug tool could reach the point of isolation. To rectify this, TDW per-

formed a hot tap and STOPPLE® plug isolation on the line at a point located on the riser above the shutdown valve (SDV), thereby providing double-block isolation so that the operator could safely replace the malfunctioning MOV.

Once the MOV was replaced, TDW launched the SmartPlug tool to the set location in order to isolate the line connected to the jacket bracing, which required a section removed. The line was isolated for 5 days, which allowed a diving contractor to safely remove the bracing without disrupting production. The SmartPlug tool was then unset and retrieved back to the launcher.

As a result of the unforeseen requirement to replace the MOV, the challenges faced by the customer grew significantly. TDW worked closely with the customer to make certain that, in spite of the MOV replacement, the bracing would be safely removed within the original timeframe. First, TDW manufactured a special custom fitting for the hot tap and STOPPLE plugging operation at its manufacturing plant in Tulsa, Oklahoma in a very short time. TDW then managed the entire operation, working closely with its teams, and collaborating with its network of trusted specialists.

## The VA500 Altimeter range

a new approach to subsea distance measurement

- 500kHz Broadband Transducer
- 0.1 - 100m range
- Both Digital & Analogue outputs as standard
- 9 - 28v dc power input
- Standard & Right angled sensors
- Magnetometer fit options
- High accuracy 0.01% pressure transducer option



Echo Sounders  
& Bathymetry



# **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

# UNDERWATER INTERVENTION

ROVs • AUVs • Imaging • Mapping • Diving Systems • Support Equipment

## SMD to Supply Assodivers with 2nd Atom ROV

Greece-based Assodivers have confirmed an order for an additional SMD Atom 100 hp 3,000 m rated work class remotely operated vehicle (ROV) complete with Launch and Recovery system (LARs). The work class ROV system will be delivered during the third quarter of this year and will complement their existing Atom ROV system that has been performing successfully since it was delivered in 2012. Assodivers plan to use the Atom straight from delivery to support a series of projects in Europe for the provision of submarine cable installation and protection services for some of their major clients. The Atom is an ultra-compact work class ROV, comparable in size to a large electric ROV but providing the customer with true work class capability. The system is suitable for drill support, IRM, survey and light construction duties and can be mobilized on vessels and rigs with limited deck space. Designed with ease of operation and maintenance in mind, Atom boasts the DVECS II distributed control system with graphical displays and pilot aids coupled with latest generation Curvetech™ multiplatform components.

## Balmoral invests in new ROV buoyancy plant

ROVs and AUVs are becoming progressively more sophisticated in the tasks being demanded of them—from exploration and installation exercises to production operations and decommissioning projects. The ever-increasing global demand for all classes of vehicles, and the corresponding requirement for buoyancy packs, has seen Aberdeen-based Balmoral Offshore Engineering completely overhaul its ROV buoyancy production capability into a dedicated center of excellence at its city HQ. The move has seen the company create approximately 20 new jobs spanning design, engineering and manufacturing. Following a £1 million+ investment in the plant and supporting infrastructure, Jim Milne, chairman and managing director of Balmoral, said at OTC: "The last couple of years have seen an upturn in demand for ROVs around the world. This helped us make the decision to refurbish our buoyancy processing facility and increase production capacity so that we can meet customers' lead times which are often necessarily short. Our impressive new milling and boring CNC capability has made a huge difference in terms of improved manufacturing tolerances as well as product processing time." The new facility incorporates an end-to-end process that includes design, testing, temperature-controlled curing facilities and a state-of-the-art buoyancy block boring and milling plant. By bringing the complete process in-house Balmoral now creates intricate ROV/AUV buoyancy profiles with virtually no size limitations at its CAD/CAM-controlled operation.

## Rem Offshore Extends Veripos Positioning Contract

Aberdeen-based Veripos, leading suppliers of high-precision GNSS positioning services for offshore applications, is to provide dedicated positioning support for a number of Platform Supply vessels (PSVs) operated by Rem Offshore, the leading specialist Norwegian company which maintains a global fleet of ships. Under the new agreement, which extends present contract arrangements between the two companies, Veripos will provide the PSVs with a combination of its proprietary Standard and Standard2 GNSS data augmentation positioning services, the latter designed to increase the availability of GNSS observations during periods of local masking, ionospheric scintillation or inadequate GPS geometry; both are capable of providing typical accuracies of 1-2 m over ranges between 1,000 km and 2,000 km.

## Triton Imaging and Applied Acoustics announce OEM Agreement

Triton Imaging, Inc., Capitola, U.S., and Applied Acoustic Engineering Ltd., Great Yarmouth, UK have announced that they have signed an OEM agreement under which Applied Acoustics will offer Triton ISIS Offshore-SB data acquisition and Perspective-SB processing and interpretation software bundled with Applied Acoustic sub-bottom profiling hardware. With this arrangement, Applied Acoustics' customers will have the advantage of using the proven Triton topside software to acquire high-resolution seismic data from the Applied Acoustic sparker/boomer systems. The Perspective-SB software will give these users the tools they need for the accurate processing, display and interpretation of these data in a broad range of applications where an accurate understanding of subsurface geology is critical.

## Ennsub wins major contract to build two ultra-deepwater ROV deployment systems



Ennsub, the independent subsea design, engineering and technology company, has been awarded a multi-million pound contract by leading independent ROV service provider ROVOP.

The deal involves the design and manufacture of two ultra-deepwater workclass ROV launch and recovery systems to be installed into global oil and gas subsea construction specialist Ceona's new-build multiple lay vessel, the Ceona Amazon.

The scope of work involves the provision of fully integrated deployment systems capable of operating in heavy-weather conditions through the use of high-speed electric winches providing Active Heave Compensation (AHC) capability.

The equipment, which is estimated to take around 6 months to design and build, will be installed into the Ceona Amazon during Q3 2014 and will commence operation in January 2015 when the vessel is due to come into service.

Ennsub's integrated ROV launch and recovery solutions offer a next generation approach to ROV deployment, particularly in situations where ROV operations are required to support top-tier subsea construction assets such as the Ceona Amazon.

The company offers a range of deep and ultra-deepwater deployment solutions for ROVs, subsea modules and bespoke subsea packages in addition to a suite of pipeline installation-related products and pipeline repair solutions. It also boasts an operations-led approach to design to suit the specific requirements of its customers.

Ennsub's contract comes after ROVOP secured a 5-year deal with Ceona to provide hydraulic, work-class services on board the company's fleet of new, purpose-built deepwater pipelay and construction vessels including the Ceona Amazon, Polar Onyx and Normand Pacific.

ROVOP is deploying HD (heavy duty) and UHD (ultra-heavy duty) hydraulic work-class ROV systems, manufactured by FMC Technologies Schilling Robotics, from its growing fleet of modern ROVs to Ceona. These ROVs represent the most technologically-advanced ROV systems available in the market, including a modular design that significantly improves repair and maintenance times, as well as providing a range of "auto-pilot" style functions that improve safety and efficiency.

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

### Kongsberg GeoAcoustics GeoChirp 3D – 3D subsurface goggles delivered to China

GeoChirp 3D provides three dimensional acoustical images of shallow sub-seabed structures and buried objects. It transfers the well-established principles of conventional 3D reflection seismics, used in hydrocarbon exploration, to high resolution chirp sub-bottom profiler technology.



It has been used in a wide variety of applications, including marine archaeology, imaging buried wrecks of historical importance in the UK; marine geology, researching landslide mechanisms in Norwegian Fjords and locating buried objects in UXO (un-exploded ordnance) surveys. The First Institute of Oceanography (FIO), in Qingdao is its first commercial customer. China's internationally reputed research institution is looking forward to applying the state-of-the-art technology in its line of research. The system has been originally developed at the National Oceanography Centre, Southampton, UK with support from Kongsberg GeoAcoustics, who now have made this unique technology available in the commercial market.

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

### Deep Trekker DTG2 ROV aids in the recovery investigation of South Korea ferry

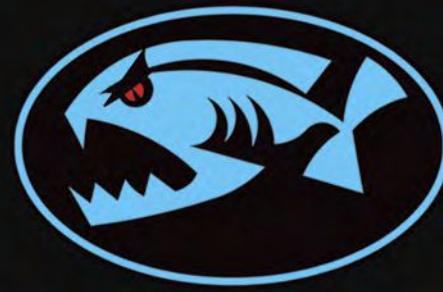
The dangerous waters in South Korea have made the search and recovery efforts for the Ferry Sewol disaster on April 16, 2014 painstakingly difficult. With the death toll rising to beyond 120 victims, Websolus Co., Ltd.—a Deep Trekker dealer in South Korea, has offered the help of the DTG2 ROV to carry out the inspections without putting more divers at risk. The use of ROVs in such a dire situation allows searchers to inspect areas that are too dangerous for divers to search for possible survivors on the sea floor and within the interior of the ship.

The complete portability of the Deep

Trekker DTG2 ROV makes this an ideal tool for rescue situations, allowing for immediate response without the use of top-side power or generators. The extreme cold of the water and low-visibility make it almost impossible for a diver to stay underwater for any length of time; Deep Trekker ROVs can remain working underwater for up to 8 hours on one battery charge and use a sophisticated low-light camera that rotates 270° for ultimate visibility.

Deep Trekker DTG2 ROVs can dive to depths of 250 ft, providing a reliable and clear image of what obstacles lie below and can retrieve evidence with the optional 2 function grabber attachment. This allows rescue teams and divers view the wreckage before diving in blindly or eliminate the need for a dive entirely.

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



**seanic ocean systems**

**THE SUBSEA SPECIALISTS**  
**YOU CAN RELY ON FOR YOUR**  
**DEEPWATER CHALLENGES**





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

## DeepOcean picks new Leopard concept for MV Deep Holder

DeepOcean has opted for the new concept Leopard ROV from Saab Seaeye.

Seen as the most powerful ROV of its size in the world, its combination of 11 thrusters, unrivalled payload, and a host of advanced technology features won over DeepOcean, which itself is an innovator in providing subsea services.

"It's a pioneering design from Saab Seaeye—a company with a track record of innovation," says Rick Green, regional manager Netherlands at DeepOcean, "and will be a valuable addition to our fleet."

He points out that with eight horizontal thrusters and three vertical thrusters the Leopard can hold steady in strong cross-currents.

Rick Green also likes the ROV's inventive new chassis concept. Its large open payload bay allows for ample tooling and survey sensors to be installed on sliding trays for rapid reconfiguration and easy maintenance.

The combination of new chassis design, iCON intelligent architecture with building-block capability, and

exceptional power, means that more interchangeable equipment can be fitted than ever before in a vehicle of this size.

With a 1-tonne through-frame lift capability and a four-point docking system for tooling skids, more demanding payloads can be added to the Leopard as needed.

Yet despite its extra capabilities, the total Leopard package is designed for easy transport and rapid mobilization—by staying within a minimal deck footprint combination of 20 ft x 8 ft single lift A-Frame & winch LARS, and a 20 ft control cabin.

The pilot will find that the iCON intelligent control system delivers better handling characteristics—including pitch and roll stabilization for the best quality survey data—and offers stable flight even when large tools and sensors are deployed.

The iCON architecture also gives clear and enhanced information while independently managing each device on the vehicle, including auto redundancy that will keep the ROV working even with multiple equipment damage.

Through iCON the main electronics



pod has been refined into an intelligent power distribution and data hub, with the brains of the system re-located into sensors and actuators around the vehicle. This provides greater information for the user and makes maintenance far simpler and quicker.

Distributing intelligence around the vehicle avoids the need to partially dismantle the ROV to reach a central electronic heart and offers building-block simplicity for equipment changes, along with enhanced remote internet access for upgrades and support.

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

  
**Coda Octopus:MOTION**  
Precision Attitude & Positioning

## High-quality navigation solutions for precise surveys

*"I have performed extensive precision multibeam surveys with a variety of INS systems. The Coda Octopus F180® Series are easy to use, quick to setup, require a short calibration time and provide reliable high quality data. It is the best value for a high quality INS system."*

Kevin Tweed, Bay Marine Services LLC

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

For more details email [sales@codaoctopus.com](mailto:sales@codaoctopus.com) or phone +44 131 553 1380 / +1 863 937 8985

F180®, F175™, F180R™ are registered trademarks of Coda Octopus.  
Data courtesy of Aspect Land & Hydrographic Survey.

New  
Pricing  
for 2014

### Scan QR Code

For more information on the MOTION series from CodaOctopus.



## Ashtead Technology announces distributor agreement with SeaBotix

Leading international subsea equipment specialist, Ashtead Technology, has announced a distributor agreement with SeaBotix Inc for the sale and exclusive global rental of its miniROV systems.

The agreement with SeaBotix includes sales representation in the UK, Gulf of Mexico and Mexico. The deal also allows Ashtead to deliver dedicated after-sales support and product training from its facilities in Aberdeen and Houston.

As part of the agreement Ashtead has been appointed as the exclusive global rental agent for SeaBotix systems and has invested in SeaBotix vLBV300 and LBV150-4 ROV systems for both rental and demonstration purposes.

The vLBV300 is the latest in highly capable vectored ROVs. Weighing only 40 lbs, the vLBV300 features powerful, variable, vector thruster configuration, optimised mechanical design, a flexible and stable platform, a strong ultra-low drag tether and an intuitive control system. The entire system is easily transportable and can be quickly configured and deployed. These features make the



ROV ideal for offshore inspection work, nearshore survey and environmental monitoring.

The streamlined LBV150-4 inshore miniROV which is 150 m depth rated, comes complete with a 150 m tether on a hand reel and an integrated control console providing a well-rounded system that is simple to setup and operate.

The deal is the latest in a number of contracts with niche product suppliers to further secure Ashtead's position as a leading provider of state-of-the-art subsea equipment on both a sale and rental basis.

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

## ROVOP expands ROV fleet

Rapidly growing subsea specialist ROVOP announced that it is set to take delivery of five new ROVs, representing an investment of £17 million (approx. \$28 million) and building significantly upon the company's market-leading fleet of ROVs.

The ROVs include two UHD-III's, which are the most advanced heavy-duty work-class vehicles in the market, as well as three HD work-class systems. All ROVs are being supplied by leading manufacturer FMC Technologies Schilling Robotics in Davis, California, with the first of the HDs being delivered to ROVOP in Aberdeen, Scotland.

Both of the UHD-III systems are to be deployed on the Ceona Amazon which is one of global oil and gas subsea construction specialist Ceona's new-build multiple lay vessels. The ROVs will include Ennsub-designed ultra-deepwater launch and recovery systems (LARS) which will be fully integrated into the vessel and will enable operations in harsh environment conditions through the use of active heave compensation and heavy-weather deployment capabilities.

## SeaLite® Sphere

### Evolution in Action

Quick & Easy In-Field Connector Replacement

RS-485 Controllable Dimming

UV Output Option (365nm or 405nm)

Upgraded Bracket with Titanium Inserts

Offers a Wide Dynamic Range of Dimming

Covers a Variety of AC/DC Input Voltages

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



ROVOP's latest investment in its ROV fleet comes less than 3 months after the independent company, which is dedicated to providing ROV services and equipment to the subsea sector, took delivery of four new hydraulic work class systems.

Among many of the UHD-III features is that with its ISOL-8 auxiliary pump of 150-hp capacity for intervention applications, the vehicle delivers combined pressures and flows that cannot be achieved with conventional ROV systems. This enables ROV compliance with API Standard 53 that requires a secondary intervention method on blowout preventors to close rams in less than 45 s and, as such, offers considerable cost reduction for secondary BOP intervention.

The contract announcement comes after ROVOP secured a 5-year deal with Ceona to provide hydraulic, work-class services on board the company's fleet of new, purpose-built deepwater pipelay and construction vessels including the Ceona Amazon, Polar Onyx and Normand Pacific.

Earlier this year, ROVOP contracted Aberdeen-based Ennsub to design and manufacture the ROV Deployment LARS for the Ceona Amazon in addition to supplying the integrated winch and A-frame to be used on ROVOP's HD ROV delivery this month. This LARS offers latest generation capability including unrivalled umbilical handling which prevents point loading and twisting of the umbilical cores, particularly in deepwater and during high frequency cycling associated with active heave compensation operation.

Award-winning ROVOP, which is headquartered in Westhill, Aberdeenshire, is an independent company dedicated to providing ROVs and services to the oil & gas and offshore wind industries.

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



## Applus RTD unveils pioneering deepwater NDT technology

Applus RTD, the global leader in the provision of integrity technology services, unveiled the latest addition to its revolutionary NDT range – an ROV deepwater inspection tool for non-pigable pipelines.

The RTD INCOTEST (INSulated COmponent TESTing) system was developed in partnership with Delta SubSea and uses the latest pulsed eddy current technology to ensure reliable detection of surface and subsurface corrosion in both thin and thick-walled pipelines.

The strategic partnership allows the companies to build upon their respective skills base by marrying the NDT expertise of Applus and subsea capabilities of Delta SubSea. The resulting INCOTEST system will revolutionize the subsea inspection industry, providing reliable data on the integrity of deep-sea infrastructure.

The tool allows operators to perform up to 10,000 measurements a day at depths as great as 3,000 m (9,842 ft). It is capable of measuring through marine growth and concrete to provide figures for the average wall thickness of each interrogated area.

The capabilities of the INCOTEST system have already been successfully demonstrated during oil and gas operations in Southeast Asia, Australia and the North Sea in water depths of up to 200 m (656 ft). It has already been used to test the integrity of subsea infrastructure in Angola, where it provided reliable data measurements at depths of 1,600 m (5,249 ft).

Riccardo Scottini, application center project manager at Applus RTD, said: "More traditional techniques rely on either visual inspection of pipelines or ultrasonic testing, but the INCOTEST system delivers a number of advantages to operators looking to make informed decisions about maintenance programs, such as reducing inspection budgets and providing more detailed analysis of infrastructure."

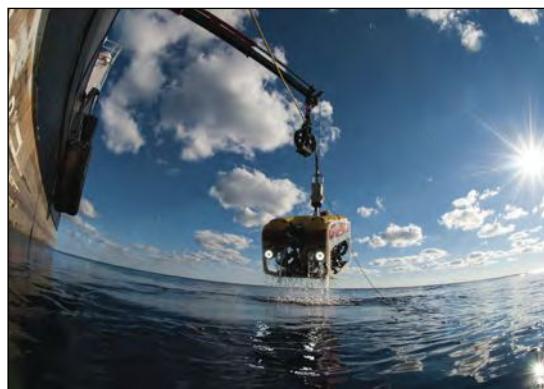
For more information, visit [www.applusrtd.com](http://www.applusrtd.com).

## Meridian Ocean Services adds Saab Seaeye Lynx ROVs

Meridian Ocean Services has added two Saab Seaeye Lynx ROVs to its Falcon fleet to undertake a wider range of deeper inspection tasks at short notice.

The company has already won a niche in the market for undertaking fast response assignments in the offshore fields of America, Trinidad and Mexico.

It has created a suite of rapidly deployable ROV packages comprising Saab Seaeye Lynx and Falcons set in



small-footprint containerised systems ready for speedy deployment from a 150 ft vessel.

Nat Spencer, Meridian's principal and director of business development, explains that the Lynx, with its TMS and enhanced operating features, will expand the company's range of inspection roles in deeper platform work, around buoys, artificial reefs, and for cleaning and diver support.

He says the Falcons are already deployed on a range of these tasks, which include monitoring fish populations around artificial reefs created by rigs. Here the Falcons film and record the effect on local fish when invasive species are introduced that follow rigs when moved from one location to another.

Speaking from Saab Seaeye's Houston office, Chris Roper, the North America sales manager, says he is pleased to see another successful company among the growing list of Saab Seaeye ROV owners in the USA.

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

## EdgeTech's new 6205 Bathymetry System maps St. John's Harbor

EdgeTech, the leader in high resolution sonar imaging systems and underwater technology, mapped St. John's Harbor in record time during the recent Canadian Hydrographic Conference.

During the on-water demonstrations, EdgeTech's recently introduced 6205 bathymetry system collected co-registered bathymetry and side scan sonar data in less than 3 hrs. The processed data created a stunning bathymetric map of the complete harbor and the "Narrows" entrance to the harbor.

Traditional multi-beams used to map the harbor previously had taken considerably more time due to their narrow swath coverage. Multi-beam systems in their design are inefficient in shallow water due to the narrow 3 to 4 times water depth coverage. Additionally, traditional multi-beam systems do not produce true side scan sonar data nor do they operate at simultaneous dual fre-

quencies. Previous phase differencing bathymetry systems were plagued with a nadir gap, latency issues and were often large and heavy.

The newly designed EdgeTech 6205 uses an advanced transducer array configuration and signal processing techniques to solve the limitations of the above mentioned systems. The resulting solution is one that can maintain IHO accuracies out to 10 times water depth, collect true side scan data, and perform these operations at a price point that is competitive in the market. The 6205's bathymetry is impressive on its own, and with the addition of co-registered side scan sonar imagery surveyors and data processors can now also cross reference and verify features or targets when cleaning the bathymetry data to be certain real features are not deleted from the data set.

The 6205 also comes in an AUV version, the EdgeTech 2205, which in the past year has been installed on many AUVs to produce high resolution 3D maps of the seafloor. Attached is an image of the processed bathymetric map of St. John's Harbor.

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

### Deep Blue Engineering introduces Shuttle Sub

Deep Blue Engineering UK Ltd, a specialist engineering design and development company serving the international marine, oil, gas and renewable energy industries, announced the introduction of the Shuttle Sub. The new lift and deployment system is a large payload-carrying ROV.

Developed for companies involved in subsea operations, the Shuttle Sub offers an efficient and cost-effective way to deploy heavy payloads—such as cables and umbilicals—to and from the seabed. It is used to install and retrieve equipment, lay cable and conduct salvage operations. Even when laden with a payload of 100 tonnes, the buoyant-controlled Shuttle Sub can float, dive, surface and maintain neutral buoyancy, so it is ideally suited for work being carried out in deepwater environments on—or near—the seabed.

Deep Blue's long-term objectives for this technology are diverse. "The Shuttle Sub is essentially an ROV in its own right, but it combines this with a transport function," said David Webster, managing director of Deep Blue Engineering. "The vast majority of deployment opera-



tions are conducted from the surface, using ships with cranes, which has limitations. Shuttle Sub offers an alternative. Eighty percent of our planet is covered with water. In the future, offshore industries will migrate into the vast, deeper and more remote areas where there is currently no activity. Whether installing generating equipment, laying cables, mining, conducting exploration or salvage operations, the industry needs a safe, efficient transport capability—a delivery vehicle—and the Shuttle Sub fulfills that role."

Deep Blue will use a reduced scale Shuttle Sub prototype for the first set of wet trials that will take place in Q4 2014.

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

## G-882

### Everything you could ever want in a Marine Magnetometer... and more!

**2 YEAR WARRANTY**

4,000 PSI Depth Rating

Nose or CG Tow

Connects via RS-232 or Telemetry (coax)

Depth Transducer

Add Additional Weights for Deep Tow

Echosounder Altimeter

No-catch Fin Assembly

Paired G-882 Transverse Gradiometer (TVG) Array

**Super sensitivity and high speed surveying,**

0.004nT/ $\sqrt{\text{Hz}}$ -RMS at up to 20 samples per second!

- Find smaller targets at higher tow speeds, farther from the seafloor
- Survey anywhere, in any direction
- Complete Data Processing software included (MagPick)
- Powerful MagLog Lite logging software provides:
  - » Survey design tools to generate multi-line survey grid on MagLog GPS map
  - » **NEW:** Real-time navigation with cross-track error steering
  - » Start-Stop logging automatically when fish enters or leaves survey grid

Visit our online video library on Marine Magnetometry



**GEOMETRICS**  
Innovation • Experience • Results

## Harris wins broadband satellite terminal contract from U.S. Navy

The U.S. Navy has awarded Harris Corporation an 8-year contract valued at up to \$133 million to provide shipboard terminals that give crews access to high-bandwidth voice and data communications. Under the agreement, Harris will provide up to 120 terminals in addition to the 70 terminals already delivered since 2008 under the indefinite delivery/indefinite quantity Commercial Broadband Satellite Program (CBSP) Unit Level Variant (ULV) contract. The new award brings the total potential value of CBSP ULV and Force Level Variant contract awards to Harris to more than \$250 million through 2022. The program provides worldwide, commercial, end-to-end telecommunications services to the Navy. The 1.3-m Harris terminals offer X-band operation over existing military satellites, and the option of military/commercial Ka-band operation for future deployed satellite systems. They support essential mission requirements and provide high-speed Internet access and video communications on small combatant and support ships. Harris terminals also are used onboard Navy amphibious assault ships.

## Boeing chooses ETL's RF equipment for Inmarsat GX fleet

ETL Systems, a global designer and manufacturer of RF signal distribution equipment for satellite communications, has been chosen by Boeing to support Inmarsat's GX services for high-speed maritime communications. A range of ETL's RF systems will support the first of three Global Xpress® (GX) satellites. The Inmarsat-5 F1 has launched and successfully completed its orbital deployment stages on schedule. The first teleport, in Fucino, Italy, where ETL's equipment is installed, is being commissioned next month. Inmarsat-5 F1 is on course to commence commercial service of its high-speed broadband GX connectivity service by mid-year 2014. From its geostationary orbital location at 62.6 degrees East, the I-5 F1 will offer high-throughput broadband services. The satellite, manufactured by Boeing, features 89 beams and six steerable high-power spot beams, which will enable Inmarsat to increase capacity based on customer demand. ETL Systems was chosen to supply its new Alto range of line amplifiers as well as RF splitters and combiners for the ground segment of the project. These offer signal optimization and signal distribution over L-band, and provide remote control and monitoring for 24 hour operations. As ETL systems recently launched its North American operations, headed by Susan Saadat, vice president of ETL's North American sales and operations, this is an excellent example of the expansion that is being achieved in the U.S.

## Redline extends high speed wireless ships and offshore operations

Redline Communications Group Inc. announced a new specialized addition to its RAS series of high speed mobile wireless terminals—RAS-Extend Marine. RAS-Extend Marine delivers high speed network connectivity to effortlessly connect offshore platforms and marine vessels. The RAS-Extend Marine is a wireless broadband networking system designed to connect mobile assets in remote locations, by automatically locating and connecting to a network base station and establishing reliable high speed connectivity. RAS—which stands for Rapid Alignment System—combines an intelligent antenna positioning system and integrates it into Redline's flagship product family, the RDL-3000. These features allow mobile users in remote areas to maintain wireless connections with speeds as fast as 100 Mbps and a range exceeding 50 mi (80 km) from the closest base station. The new RAS system is built on top of Redline's Universal Wireless Transport™ (UWT™) platform, the industry's first and only wireless broadband network solution to operate on any frequency between 100 MHz and 6 GHz—a range that encompasses virtually all wireless broadband applications—giving network planners the broadest range of options to build networks globally.

## IMO to consider Iridium application to be a GMDSS service provider



Iridium Communications Inc. has formally submitted a comprehensive application to the International Maritime Organization (IMO) through the United States for the provision of mobile satellite communications in the Global Maritime Distress and Safety System (GMDSS). If the application is approved, Iridium could begin providing GMDSS services in late 2015.

Today, ship operators are forced to carry multiple communications systems to meet GMDSS requirements as well as the operational communications needs of the vessel. Iridium's entrance into GMDSS communications will be supported by an array of maritime communications systems, giving the industry the option of a single, affordable communications terminal to satisfy both safety and business communications requirements wherever they operate. Iridium is working with recognized maritime communications equipment manufacturers for the production and certification of GMDSS terminals that use the Iridium® network, which are expected to be available before the end of 2015.

Iridium's constellation of 66 low-Earth orbit satellites provides truly global and reliable coverage everywhere on Earth—including Polar regions—where demand for reliable voice and data communications is on the rise as shipping and trade routes continue to expand into these remote waters. The Iridium network meets all of the criteria for the provision of mobile satellite communications to be part of the GMDSS. Additionally, GMDSS terminals utilizing the Iridium network are expected to have an operational longevity of nearly 20 years, eliminating the need for vessel owners and operators to purchase new equipment every few years. The approved technologies in operation today are not keeping pace with maritime communications requirements, but Iridium's network provides the reliability, coverage and functionality designed to ensure that vessels' safety and operational communications needs are met, no matter where they operate around the world.

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

## KVH mini-VSAT increases lead in maritime VSAT market share

The mini-VSAT Broadband service from KVH Industries, Inc. increased its dominance of the maritime VSAT market according to the latest edition of a report from Euroconsult, the leading global consulting firm specializing in space markets.

"Maritime Telecom Solutions by Satellite: Global Market Analysis & Forecasts, 3rd Edition," reports that KVH's share of the industry's 11,000 activated maritime VSAT terminals is 26%, up from 16% two years ago. In the new analysis, KVH's market share was reported to be double that of its next closest competitor.

KVH recently shipped its 4,000th TracPhone system for the mini-VSAT Broadband service, which provides satellite Internet and phone services to commercial ships, government vessels, and pleasure yachts around the globe. KVH reported in its 2013 year-end investor conference call that its maritime VSAT service revenues grew by 33% in 2013. Euroconsult estimates the overall maritime VSAT market has grown at a 28% compounded annual growth rate since 2010, and that by the end of 2023 maritime VSAT services will account for 61% of a \$1.5 billion maritime communications market.

In response to its increasing customer base worldwide, KVH has more than doubled the capacity of the mini-VSAT Broadband network in the last 12 months by deploying Adaptive Coding, Spreading, and Modulation (ACSM) technology provided by ViaSat, which enables the network to handle transmissions more efficiently and increases the amount of data that can be carried.

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

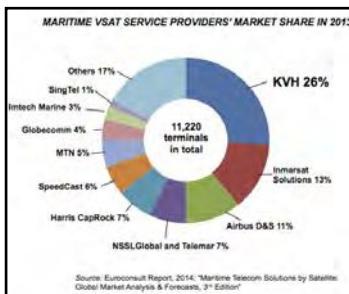
## RigNet completes acquisition of Inmarsat's Energy Broadband business

RigNet, Inc. has completed a strategic transaction with Inmarsat plc involving the sale of substantially all of Inmarsat's Energy Broadband business to RigNet and the appointment of RigNet as a Value Added Reseller of Inmarsat's Global Xpress® (GX) service and as a Distribution Partner for Inmarsat's L-band services to the energy sector worldwide.

RigNet has acquired Inmarsat's Energy Broadband business for \$25 million in cash. Under the terms of the deal, Inmarsat sold to RigNet substantially all of its energy broadband assets, which include microwave and WiMAX networks in the U.S. Gulf of Mexico and the North Sea serving drillers, producers and energy vessel owners; VSAT interests in the United Kingdom, U.S. and Canada; an M2M SCADA VSAT network in the continental U.S. serving the pipeline industry; a telecommunications systems integration business operating worldwide; and a global L-band MSS retail energy business. The energy business includes assets, employees, contracts and working capital. Inmarsat's energy interests in Russia have been excluded from the transaction.

In addition, RigNet has agreed to become a Value Added Reseller of Inmarsat's GX satellite communications network services and also a distribution partner for its L-band services to the energy sector. RigNet has agreed, under certain conditions, to a significant purchase of capacity from the high-throughput GX network during the 5 years after it becomes operational.

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



## WHEN YOU HAVE TO GET THERE AND BACK... ACCURATELY AND COVERTLY



### NAVIGATION PLATFORMS FOR DIVERS AND VEHICLES

For over 15 years, RJE INTERNATIONAL has been supply navigation solutions to divers worldwide...getting them home safely.



**WORLDWIDE LEADER IN SUBSEA ACOUSTIC RELOCATION AND DIVER NAVIGATION**

[www.rjeint.com](http://www.rjeint.com) • (949) 727-9399

# SUBSEA AMERICAS

### An ROV Tooling Rentals & Services Company

- Class 2-4 and Class 5 Torque Tools
- Cable Cutters up to 6" diameter
- Heavy Duty Flying Lead Orientation Tools
- Anchor Zip Suction Pile Kits
- Glycol Injection Units (IHPUs) up to 15k
- Electric Hydraulic Power Units
- Hot Stabs
- SIT Services
- Tooling Technicians both On and Offshore

Subsea Americas

P.O. Box 185

Berwick, LA 70342

+1 985 714-1767 sales

[info@subseaamerica.com](mailto:info@subseaamerica.com)

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

## MTN launches OceanCast HD live event streaming from ships

MTN Communications is launching "MTN OceanCast." MTN OceanCast is the only high-definition (HD) system for live streaming of events from any maritime vessel offering simple, cost effective and potentially profitable end-to-end program management. MTN OceanCast enables concerts, sports tournaments, celebrity interviews, educational sessions, charter voyage events, or even unplanned emergencies to be broadcast live to any smartphone, tablet, TV or other device anywhere in the world from a maritime vessel.

Vessel operators can now deliver a high-definition broadcast from their fleet, creating new revenue-generating events or simply sharing content, such as educational explorations, with minimal impact to the overall bandwidth or leverage on their existing communications service.

With MTN OceanCast, the vessel operator can select who views the broadcast, who gets security access, and ways to generate new revenues through live event streaming. Live chat boxes can be available during a broadcast

event, making it truly interactive with the viewing audience.

MTN OceanCast is a new service delivered through the company's TV and Broadcast Group. MTN introduced MTN Worldwide TV (MTN TV) as the only live, worldwide maritime television service for the enjoyment of passengers and crew on vessels around the world. MTN TV is a turnkey solution, including equipment installation and service provisioning, for MTN partners as well as for vessel operators just using this particular MTN service.

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

## Inmarsat to offer Hollywood blockbusters at sea

The stars of Hollywood are set to shine across the world's oceans with the signing of a global distribution deal to beam blockbuster movies to ships at sea. The latest films, as well as television programming, sport and news, will be viewable by the world's shipping fleet thanks to Fleet Media, a new service being launched by Inmarsat in July.

A globally-exclusive, 5-year agreement allows for the content's digital dis-

tribution via Inmarsat FleetBroadband. A selection of movie and television packages will be offered every month, beamed directly to participating vessels over the Inmarsat network for "offline" viewing on PCs, laptops and tablets.

"Inmarsat is extremely excited by this agreement and the opportunities to bring more benefits to seafarers," said Frank Coles, president, Inmarsat Maritime. "This service continues our commitment to welfare at sea and we will be offering it through our global distribution channel."

Fleet Media will be available to all Inmarsat broadband service subscribers and content will be securely downloaded and stored on the vessel's Inmarsat iFusion box. The service is transferable with any upgrade from one Inmarsat service to the next—such as FleetBroadband to XpressLink.

NT Digital is a joint venture between Spafax, a leader in inflight entertainment and Swank Motion Pictures, the world's largest non-theatrical distributor.

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

With our line  
of standard & modular ROVs,  
we meet your demand.

**eca**  
**HYTEC™**  
WE LIKE CHALLENGES

[ecahytec.sales@ecagroup.com](mailto:ecahytec.sales@ecagroup.com) | [www.ecahytec.com](http://www.ecahytec.com)

### EMAS migrates to Inmarsat's XpressLink service

EMAS, a leading global contracting group providing offshore/subsea construction, marine, production and well intervention services, has equipped 35 vessels with Inmarsat's XpressLink service. The company took the decision to migrate its vessels from Inmarsat FleetBroadband to XpressLink to more efficiently deliver enhanced services to its customers.

XpressLink is the world's leading, fully-integrated Ku-band and L-band solution with VSAT and FleetBroadband terminals. It is proving highly popular with ship owners across the world with its offer of unlimited data for a fixed monthly fee, while also delivering a fully-redundant and resilient service.

XpressLink also offers an easy upgrade path to Global Xpress, which is on schedule to achieve full global coverage by the end of 2014.

With a combined fleet of over 65 marine support and offshore construction vessels and over 8,000 employees located all over the world, EMAS is a leading full field contracting group providing specialized marine support services, subsea construction and offshore installation, floating production, fabrication and well services to the global offshore energy sector coupled with a 40-year track record of providing subsea engineering solutions for the offshore oil and gas industry.

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

### 2014 World Cup™ coverage to be available via KVH's Satellite

KVH Industries, Inc., has come to an agreement with IMG Media to distribute video content of the 2014 FIFA World Cup™ to merchant ships. KVH will deliver coverage of the month-long tournament, which takes place in Brazil this summer, via KVH's satellite network to merchant maritime customers, with the exception of passenger vessels, cruise ships, and ferries.

It is estimated that 3.2 billion people, or about 46% of the world's population, watched at least part of the 2010 FIFA World Cup™ coverage, making it the "biggest TV sports event in the world," according to FIFA.

KVH's coverage of the 2014 FIFA World Cup™ will include highlights of each of the Finals rounds matches and full coverage of the championship match, distributed via KVH's satellite network.

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

**TELEDYNE  
RD INSTRUMENTS**  
Everywhereyoulook™



### NUMBERS TO NAVIGATE BY...

**#1**

Teledyne RDI's Doppler Velocity Logs are the undeniable market leader, with units installed on over **95%** of the world's commercial AUVs and a continuously growing number of ROVs.

**3**

In the past 10 years, Teledyne RDI's DVL lineup has grown to span three product families: **Explorer**, **Navigator**, and now **Pioneer**.

**3000**

Since 1993, Teledyne RDI has delivered over 3000 DVLs around the globe, providing our users with over **33,000,000** hours of precision vehicle navigation.

**<1-6000m**

From small littoral vehicles to full ocean AUVs, Teledyne RDI has a DVL that's certain to meet your unique navigation needs.

Get the full story at: [www.rdinstruments.com/dvl-stats](http://www.rdinstruments.com/dvl-stats)

## ABB wins order for Horns Rev 3 offshore wind farm link

ABB has won an order worth around \$40 million from Energinet.dk, the Danish transmission system operator, to build an alternating-current (AC) power cable system that will help integrate and transmit power from the Horns Rev 3 offshore wind farm. The order was booked in the first quarter. The new Horns Rev 3 wind farm is located in the North Sea, about 30 km off the western-most point of Denmark, Blåvands Huk. Once completed, the 400 MW wind farm will have the capacity to supply electricity to around 400,000 local households. Green power generated by the offshore wind farm will be brought to shore via a 32-km long, 220 kV three-core polymeric insulated submarine cable with integrated fiber optics for data communications and temperature monitoring of the power cable. ABB's project scope includes the technical design, engineering and production of the high-voltage cable system including accessories and installation. The world's second largest submarine cable in diameter will be manufactured at ABB's high-voltage cable factory in Karlskrona, Sweden, and delivery will commence in 2016. Energinet.dk is an independent public enterprise owned by the Danish state as represented by the Ministry of Climate, Energy and Building. ABB has previously delivered high-voltage cables from 145 kV to 420 kV to Energinet.dk for several projects including the recent Lille Belt, 420 kV link.

## MMT awarded survey contract by Svenska kraftnät

Swedish marine survey company MMT has been awarded the contract for a cable route survey by Swedish electricity grid operator Svenska kraftnät. The contract is to investigate and verify the feasibility of the new submarine power cable linking Sweden and Denmark, planned by Svenska kraftnät and Danish counterpart Energinet.dk as the transmission system owners and operators of the 400 kV high voltage AC cable system to be laid across the Öresund. This marine cable route survey covers geophysical information such as bathymetry, surface geology and sub-bottom conditions. MMT will also perform a geotechnical investigation, cable tracking and identification of cable crossings. The offshore operations will be performed from MMT's survey and ROV vessel Icebeam and the coastal surveys from the survey vessel Seabeam. The operations will start in spring 2014.

## GBI signs MoUs with Djibouti's Telecom, DDC

Gulf Bridge International (GBI) signed Memorandums of Understanding (MoUs) to collaborate with Djibouti Telecom, for landing the extension of its cable, and with the Djibouti Data Center. The new partnership will provide a platform for growth of GBI's customers. Djibouti, one of the fastest growing telecom markets in a strategically located country in the Horn of Africa, will serve as a unique gateway to millions of customers in the countries of East Africa. This partnership will strengthen GBI's network reach to new markets and contribute to the growth of an industry that enhances communication and societal development. The current GBI network extends north connecting the GCC to Europe via Iraq and Turkey, East connecting India, West via the Red Sea across Egypt, using two alternative terrestrial routes to protect traffic, onwards across the Mediterranean to Italy and major European cities. The Djibouti Data Center (DDC) is an independently owned company that has leveraged the country's unique strategic position in East Africa, and is now providing enhanced services to carriers, mobile network operators, ISPs, and even content delivery network providers. DDC services include cable head access, backhaul, and cross connect services, all part of an expanded portfolio that also includes colocation, Vpop, and a newly launched Internet Exchange (IXP).

## TI Sparkle invests in SEA-ME-WE 5

Telecom Italia Sparkle has signed all relevant contracts and is among initial investors for the implementation of the new submarine cable system connecting Europe to Singapore. The new cable system is planned to reach 17 countries including Indonesia, Thailand, Malaysia, Myanmar, Bangladesh, Sri Lanka, UAE, Yemen and Saudi Arabia. Devised with the latest 100Gbps technology, SEA-ME-WE 5 is a multiregional superhighway that will provide lowest latency and represents an additional network layer of diversity and resilience for the heavily loaded Asia to Europe route. With a design capacity set at 24 Tbps on three fiber pairs deployed for a total length of 19,500 kilometers, the ready for service date is expected in the first half of 2016.

## Blue Offshore, Caley deliver cable carousel



Blue Offshore Marine Services and Caley Ocean Systems have supplied a basket carousel to maritime services company Stemat for offshore cable storage for the Nordergrunde wind farm. Completed in just 10 weeks, from order to delivery, the 2,200Te capacity basket carousel is providing Stemat and VSMC (Visser and Smit Marine Contracting) with a flexible resource for storing, transporting and installing cable offshore.

Jointly designed and fabricated by Caley Ocean Systems and Blue Offshore, the 18 m diameter basket carousel can hold dynamically 2,200 Te of subsea cable. Mounted on the Stemat 91 barge, the carousel uses a modular construction with grillage, enabling it to be readily mobilized to other vessels and barges.

Blue Offshore and Caley Ocean Systems have collaborated on a number of cable handling projects, including the world's largest modular basket carousel with a capacity of 5,000 Te upgradable to 9,000 Te.

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

## NordBalt cable laying begins in the Baltic Sea

On April 11, a ship that arrived at the Baltic Sea coast of Lithuania early in the morning laid the first meters of underwater power cables through the prepared pipes leading towards the Curonian Spit. Thus began one of the major stages of the building of NordBalt, a 450-km long international power connection across the Baltic Sea to Sweden.

Laying of the power cable is carried out by ABB, which in mid-April also began with the construction of 13 km of land cable from Curonian Spit in Klaipeda County. Cables will be connected to the DC converter of the Klaipeda 330-kV transformer substation, the reconstruction of which will be completed this year.

All preparations for the 450-km long Nord Balt connection track, including detailed route surveys, have been carried out since 2009. The first stage of cabling will last from April to September. It is planned that during the warm period of the year when the storming at the Baltic Sea is at its lowest, ABB will lay up to 250 km of connection towards Sweden. Cable-laying work will continue next year.

This year, four runs of cable-laying vessels are expected. Topaz Installer in three runs will lay a total of 150 km of the power connection. The Lewec Connector will lay the longest 100 km Nord Balt section. These submarine cable-laying vessels will be supplemented by another ship with special equipment that will perform deepening of the cable laid in the Baltic Sea.

For more information, visit [www.litgrid.eu](http://www.litgrid.eu).

## Huawei Marine upgrades PT Telkom cable system

Huawei Marine Networks Co. Ltd. has partnered with Telkom Indonesia to successfully upgrade the PT Telkom 3rd route submarine cable system utilizing 100 Gbps technology featuring soft-decision forward error correction (SD-FEC). The solution was implemented over two existing segments comprising of 380 km and 360 km for new service growth.

The application of the advanced OptiX BWS 1600S 100G platform enables Telkom Indonesia to provide a resilient, high capacity upgrade that operates seamlessly with its terrestrial network. Together with the Telkom Dumai Dangas Submarine Cable, a meshed architecture to provide vital restoration and ring protection has been created. In the event of a terrestrial or submarine cable failure, services can be restored and transported within this ring architecture.

The PT Telkom 3rd Route Submarine Cable System is one of three existing cable systems that provides significant capacity for regional growth in this quickly expanding region. The plug and play feature of the advanced OptiX BWS 1600S has enabled Telkom Indonesia to implement eight new 100G channels, and provides 800 Gbps of total system capacity. With recent advancements in Submarine Line Terminal Equipment R&D it is expected that future upgrades will continue to be implemented over time to meet Telkom Indonesia requirements in this region.

Further developing its 100G technology featuring SD-FEC since 2011, Huawei Marine has successfully completed 100G field trials on transatlantic and transpacific cable systems to improve the undersea transmission technology for both upgrades and new builds.

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

## TIME enhances global footprint with AAE-1 investment

Malaysia's TIME dotCom Berhad announced its participation in a consortium to build a new submarine cable system that will link Asia and Europe via the Middle East, further enhancing its global footprint.

Together with 16 international service providers, TIME will construct and maintain the Asia Africa Europe-1 (AAE-1) submarine cable system, a high-capacity cable system linking Asia and Europe via the Middle East, supporting burgeoning trade and economic

linkages between the three continents.

Construction of the cable system is expected to commence in the second quarter of 2014 and TIME's investment will see the Group secure 1.88 Tbps of capacity in AAE-1 upon its targeted completion in 2016.

With a length of 25,000 km, the cable system connects Hong Kong, Vietnam, Cambodia, Malaysia, Thailand, Myanmar, India, Pakistan,

Oman, UAE, Qatar, Yemen, Djibouti, Saudi Arabia, Egypt, Greece and France.

TIME's existing submarine cable investments include a stake in the highly-sought after Unity Cable System that connects Japan and the U.S., and the Asia-Pacific Gateway (APG), that links Malaysia to Korea and Japan, expected to be completed next year.

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

**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

June 2014

69

Ocean News & Technology

## Eric Handa describes “State of Subsea” – a unique event for the submarine cable industry

By John Manock, Submarine Cable Editor

In April, APTelcom, a leading telecom and fiber consulting company specializing in emerging markets, completed the second in its series of State of Subsea expert events. State of Subsea is an event unique in the three-decade-long history of the submarine fiber optic cable industry. It brings together an eclectic mix of executives, influencers, and leaders from all walks of the submarine cable and telecom industry to address the latest trends and share expert insights and knowledge on the future of the industry. The live event is by invitation only and free of charge, but the video of the entire event (and the inaugural event held last fall) is publicly available on the State of Subsea website ([www.StateofSubsea.com](http://www.StateofSubsea.com)) for anyone interested in hearing the presentations and panel discussions.

I recently had the opportunity to speak with Eric Handa, co-founder of APTelcom, about the State of Subsea events. The question I most wanted to ask him was “Why now?” What made this the right time in the submarine fiber optic cable industry to hold this unique event?

“These are tight times for the industry,” Mr. Handa said. “People don’t have the travel and entertainment budgets that they used to have in the good old days. There is a need to share information. There is a need for continuing education. We can’t do the same things

over and over again. The time has come to learn from each other.”

State of Subsea gives us the opportunity to cover things that don’t always get covered in the traditional conferences. Things like Software Defined Networks (SDN) and spectrum sharing. We need to look at more of the substance, to talk X’s and O’s, not marketing spin.

Subsea fiber optics is a tough industry. Look at the pace of change—10 Gbps to 40 Gbps to 100 Gbps and beyond, upgrades or new builds, etc. Providing a forum to share ideas and experience is a positive thing. It is something I learned in my college days at Bryant University—continuing education, lifelong learning—these are vital to development, both as individuals and of the industry as a whole.

The thing about State of Subsea is that, being independent, we hope to bring a fair and reasoned approach to the conversation. Everybody should have a chance to contribute to the discussion.

These are challenging times in the submarine cable business. Financing for new cable projects is still difficult to arrange. There is a need for new routes to avoid over concentration. In many cases in recent years, upgrades have dictated the market, but no amount of upgrades will make up for antiquated infrastructure.

There are a lot of good business cases out there for new cables. The overbuilding of routes in the late 1990s and early 2000s, especially on the NY-London route, gave the industry a bad reputation. There is a need for a fair analysis on what makes sense. Projects that choose a good route and plan efficiently to get a good return on investment will be able to succeed.

And the industry seems to agree with our approach. We had nearly 300 people at the last event or viewing live on our new streaming video option. In addition, since the event, there have been more than 245 archived views of the video. The number of archived views alone is more than the number of people that attended our first State of Subsea last October.

We hope to continue to advance and improve our State of Subsea series. We have good partners—The Pacific Telecommunications Council, Telecom Review North America, SubTelForum. Our next conference will be in Bangkok, Thailand, in October 2014. This will be our first outside of the United States. And we expect that there will be many more to come.

For more information visit [www.StateofSubsea.com](http://www.StateofSubsea.com) or [www.APTelcom.com](http://www.APTelcom.com) and follow them on Facebook, Twitter, and LinkedIn.

### AAE-1 supply contract comes into force

The AAE-1 Consortium, owners of the Asia-Africa-Europe-1 submarine cable spanning approximately 25,000 km connecting Asia, Middle East, Africa and Europe, and TE SubCom, a TE Connectivity Ltd. company, announced that the contract for the majority of segments of the AAE-1 system has come into force.

AAE-1 will link Asia, the Middle East, Africa and Europe with low latency, high capacity transmission. Each trunk fiber-pair in AAE-1 segments supplied by TE SubCom has a cross-sectional capacity of minimum 80 x 100Gbps and each branch is implemented with optical add/drop multiplexing (OADM) nodes containing TE SubCom’s industry leading OADM wavelength re-use technology.

The unique cable system will contribute significantly to the volume growth in the involved countries and will eventually connect more than 40% of the world’s population. When completed, the AAE-1 system will connect landings in Hong Kong SAR, (China), Vietnam, Cambodia, Kuala Kurau (Malaysia), Satun (Thailand), Mumbai (India), Karachi (Pakistan), Al Bustan (Oman), Fujairah (UAE), Doha (Qatar), Aden (Yemen), Djibouti, Jeddah (Kingdom of Saudi Arabia), Zafarana and Abu Talat (Egypt), Chania (Greece), Marseille (France), plus other landings under development.

AAE-1 will deploy 100Gbps technology with wavelength add/drop branching units along the lowest latency route with design capacity of over 40 terabits. AAE-1 is one of the largest cable systems launched and will stimulate an exponential business growth in participating countries by providing robust, reliable and lowest latency connectivity. Additionally, having two diversified Points of Presence (PoP) in Asia (Hong Kong and Singapore) and diverse onward connectivity options in Europe (France and Greece) will provide the requisite flexibility for these carriers and their customers.

The target completion date for AAE-1 cable construction is 2016.

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



## OSI Sees "Room for Growth" in Submarine Fiber Market

Tom Soja, vice president of Ocean Specialists, Inc. (OSI), believes that emerging regions such as Africa will help drive the growing submarine fiber optic cable market.

Mr. Soja, with more than 20 years of experience in the submarine cable industry, including conducting market studies for more than 200 cable projects, made his comments during a panel discussion at APTelecom's "State of Subsea" conference held in April.

Commenting on the state of the world's emerging markets, Mr. Soja said, "From our perspective, there are a lot of things going on in Africa. We've been doing a lot of work with Angola Cables, which is building the South Atlantic Cable System (SACS) between Angola and Brazil, but there is also work being done by our team in Nigeria, Ghana and other places throughout the continent.

I think for a long-term perspective, you begin with a period of time in the emerging markets where the telecom network was nothing but fixed lines. The way we counted traffic then was by the number of connections, how many phones were at home or at the office and there were very few.

Then came a period when the popular markets were going through a process that I would call 'irrational exuberance.' I would argue that in places like Africa and the rest of the emerging markets, that was a period of 'irrational complacency.' Nothing was getting built there. But we have seen that change in the last 10 years with multiple cables on the East and West coasts of Africa and now connecting the Southern Hemisphere between Africa and Brazil. That's been driven by what we have in our pockets, our Smartphones.

The market has developed through a combination of on-the-ground-fiber and the cellular networks that extend the reach to the people in the street. That has been the driver of growth in the traditional markets for telecom traffic—consumer and business.

Now we also are seeing two new markets for traffic—the oil & gas (O&G) industry and, more recently, the scientific community, which is beginning to build more and more networks offshore to do things like monitoring ocean conditions. I think that is going to be a growing area in the next few years.

We've managed to marry a business model between the scientific community

and the O&G market in a project in the Eastern Mediterranean called Poseidon. This is probably the first project that makes economic sense for the monitoring of sea bottom conditions along with traffic for more traditional telecom applications in the O&G environment.

Besides the submarine cable activity in Africa these days, it is important that the terrestrial infrastructure both within countries and between countries continues to develop. You still have this phenomenon in the Southern Hemisphere where traffic is going outside the region to hubs in Europe (for Africa) and Miami (for South America). That is going to change as they will be able to route traffic economically and efficiently through SACS some of the other cables going in today."

Mr. Soja noted how technology has changed the way business is done in emerging markets, saying, "Some of my younger colleagues don't believe me when I tell them that to make an international call from Africa several years ago, I had to wait in line at an international telephone bureau to make an appointment to sit in a booth to make a call. Now they sit by the pool in Lagos and complain that their email connection could be better.

All of these developments make me optimistic for the future of our industry. You can see it with the number of projects that have been announced in the last few years, as well as the number of supply contracts awarded to build these networks. We see new cable building in places where there are not enough cables or there are no cables at all. This, plus the emergence of new markets like scientific and O&G, means that there is a lot of room for growth in the submarine cable market," Mr. Soja concluded.

OSI provides major project development services to the global undersea telecommunications and offshore oil & gas markets worldwide. OSI specializes in the development of undersea telecommunications networks and market analyses for a broad variety of clients worldwide, ranging from Africa to Asia and Europe to the Americas. The company supports projects through their full life cycle, from conceptualization through ongoing operations and maintenance (O&M), supplier management, and support. Ocean Specialists, Inc. is headquartered in Stuart, Florida with offices in Houston, Boston, and Singapore.

Easiest way for offshore

BGC measurements

**PROVOR CTS4**

**BGC\* Profiling float**



**Self-ballasted**

**No pilot needed**

**Remote-controlled**

**Up to 2000m**

**High payload capability**

*CTD, DO, nutrient,  
Fl, Cdom, radiometer,  
transmissiometer...*

**nke**  
INSTRUMENTATION



[www.nke-instrumentation.com](http://www.nke-instrumentation.com)

## SLT to build South Asia's first cable depot

Sri Lanka Telecom (SLT) has been given the opportunity to build, operate and manage South Asia's first state-of-the-art submarine cable depot in Magampura Mahinda Rajapaksa Port (MMRP) at Hambantota.

SLT will operate the cable depot in Sri Lanka as a joint venture with IOCPL (Indian Ocean Cablesip Pvt Ltd), which is a ship service provider for SEAIOCMA (South East Asia & Indian Ocean Cable Maintenance Agreement). This opportunity was realized as a result of a free port policy declaration and tax concessions offered by the GOSL for MMRP operations at Hambantota.

SEAIOCMA is the international consortium for maintaining the undersea cables. Sri Lanka is an important destination where multiple cable systems are already in operation passing the country. Sri Lanka will be the only submarine cable depot in the South Asian region. Prior to this initiative, the submarine cable depot facilitating international cable systems in the Indian Ocean

was located in Singapore. Through this operation in the South Asian region, SLT believes in the possibility of bringing in foreign currency to strengthen the country's economy in the future.

Magampura Mahinda Rajapaksa Port at Hambantota has been selected to set up a submarine cable depot by the SEA-ME-WE 5 cable consortium and Sri Lanka will facilitate the cable maintenance ship berth and warehouse facility. SLT has already commenced on the construction work of its submarine cable depot in Hambantota and SEA-ME-WE 5 cable landing station in Matara.

SLT recently announced its partnership of the new SEA-ME-WE 5 submarine fiber optic cable system, expecting to increase by tenfold its international bandwidth capacity for the future requirements of the country as well as the South Asian region. With this global initiative, SLT will further strengthen its position as the only ICT solutions provider in the country having multiple global connectivity options with a gigantic bandwidth capacity that is adequate to cater to the requirements for

more than 25 years. The SEA-ME-WE 5 project is a partnership of 15 global operators and can supply more than 24 Tbps of capacity.

While addressing the matters raised by the SEA-ME-WE 5 consortium, SLT selected a location at Browns Hills, Matara, to establish the full cable landing station. Landing this international cable at Matara will be a key milestone as well as a landmark for the telecom industry of Sri Lanka. The SEA-ME-WE 5 submarine cable system will provide greater reliability for international Internet traffic in the region as it will be interconnected with the existing SEA-ME-WE 3 and SEA-ME-WE 4 cables.

The new cable system will enable Sri Lanka to leverage on its geographical location in achieving the country's strategic goals. Moreover, this global project will have a positive impact on the overall growth of the country's economy. On the economic front, a high speed broadband environment will encourage higher GDP, enhanced exports, increased productivity, inward

# HYtech

**WORLD CLASS** Through People,  
Technology & Dedication

For more information about our products,  
please contact us at +1 508-563-6565

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



**HYDROID**  
A KONGSBERG COMPANY



KONGSBERG





# TELEDYNE MARINE INTERCONNECT SOLUTIONS



## Making Connections in Harsh Environments



As a team, we provide the broadest range of high performance electrical, optical, and hybrid interconnect capabilities, optimized for use in mission-critical applications.

[www.teledynemis.com](http://www.teledynemis.com)  
teledynemis@teledyne.com

DGO

IMPULSE

ODI

PDM

STORM CABLE



**“Tracking cables just got easier and cheaper with Fishers Cable Tracker 1”**

*-Jack Fisher,  
President*

**CT-1  
Cable Tracking System  
Only \$15,495**

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

<b>Scan-650</b> Scanning Sonar <b>\$6,995</b>	<b>DDW-1</b> Depressor Wing <b>\$1,295</b>	<b>Pingers</b> Pingers and Receivers <b>\$795</b>	<b>Side Scans</b> <b>\$20,995</b>	<b>ROVs</b> <b>\$20,995</b>	<b>P12</b> Boat-towed Metal Detector <b>\$9,495</b>
---	--	---	--------------------------------------	--------------------------------	---

**1953 County St., E. Taunton, MA 02718 USA • (800)822-4744 (508)822-7330 • FAX: (508)880-8949 • email: [jwfishers@aol.com](mailto:jwfishers@aol.com) • [www.jwfishers.com](http://www.jwfishers.com)**

migration and modernizing of other sectors. At all micro and macro-economic levels, it will reduce transaction costs, increase market coverage and competitiveness and create significant opportunities for job creation and income generation. In addition, it will foster economic growth and development through affordable, reliable and seamless global communications. This initiative will be one of the key enablers in achieving the move towards an inclusive digital economy and a SMART Sri Lanka.

The SEA-ME-WE 5 submarine cable system, spanning approximately 20,000 km, will offer a POP to POP solution from Singapore, all the way to Europe via France and Italy. It connects 17 countries altogether, serving as the new platform for future business ICTs. The SEA-ME-WE 5 cable system, which is scheduled to commence operations by early 2016, is designed to provide upgradeable transmission facilities by adopting the latest state-of-the-art 100 Gbps WDM coherent technology. When fully loaded, the SEA-ME-WE 5 cable system would be able to carry 24; the

equivalent of transmitting around 4800 high-definition movies every second.

For more information, visit [www.slt.lk](http://www.slt.lk).

#### Global Cloud Xchange announces plan for new cable

Global Cloud Xchange announced that plans are underway for the company's latest investment into expanding its transpacific footprint. The new submarine fiber optic cable infrastructure is part of the company's strategy to lead and drive the world's critical digital trading routes.

“The cable with its open architecture and flexible landing station technology will allow companies to rent and own subsea capacity from speeds of 10 megabits to 1,000 gig between Silicon Valley and key technology centers in Asia and India,” said Bill Barney, CEO, Global Cloud Xchange. “With flexible access speeds and open co-location, the system will be designed to allow start-ups and smaller cloud operators to buy and rent fiber affordably in a scalable model.”

Based on state-of-the-art 100G tech-

nology, the Pacific Cloud Xchange (PCX) cable will be a four fiber pair system with initial design capacity per fiber pair at 100 x 100 Gbps using next generation coherent submarine fiber. The new system will be ready for service in 2015.

“The new fiber system, which runs approximately 8,300 km between Japan (Tokyo) and California (Silicon Valley), will create a next generation IP and Cloud environment held together with a single AS number and connecting into Tier III+ data center facilities on the ground,” Barney added.

Submarine cable vendors and additional partners for the PCX cable are being finalized. Global Cloud Xchange will announce the awarding of the supply contract in second quarter 2014.

Global Cloud Xchange, formerly Reliance Globalcom, brings together the synergies of Reliance Communications' Global Business encompassing capacity sales, managed services and a portfolio of products and services comprising of Internet solutions and value added services.

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

“Fishers CT-1 Cable Tracking System was specifically designed to locate and track buried power and communications cables. The system will locate and track cables on land or underwater and will locate faults or breaks in a cable.

The Cable Tracker 1 system consists of the Signal Injector and the Cable Tracker Probe all for one low price.”



# Offshore At-A-Glance

## Quest Offshore Activity Report

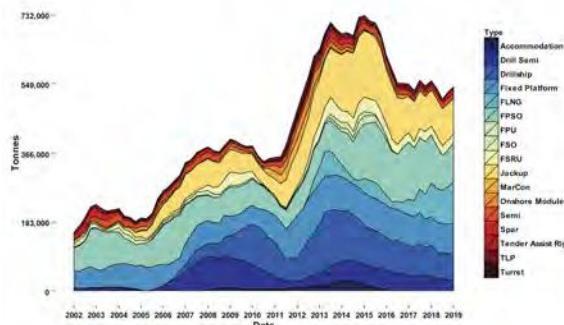
June 2014

75

Ocean News & Technology

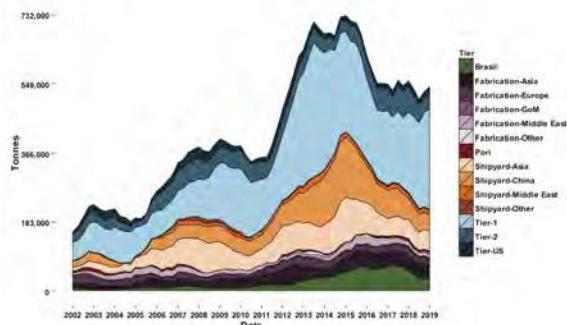
Forecasted & Awarded Global Tonnage by Type

2002 – 2019e



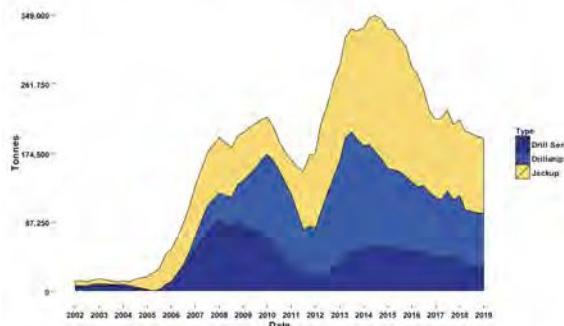
Forecasted & Awarded Global Tonnage by Tier

2002 – 2019e



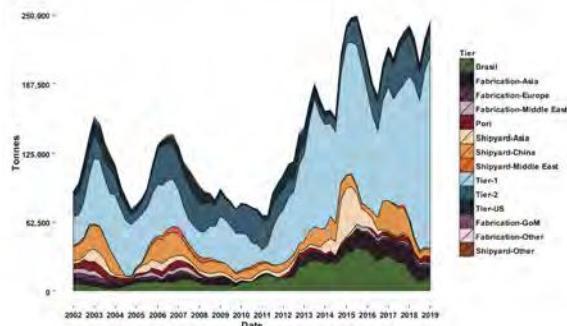
Forecasted & Awarded Drilling Unit Tonnage by Type

2002 – 2019e



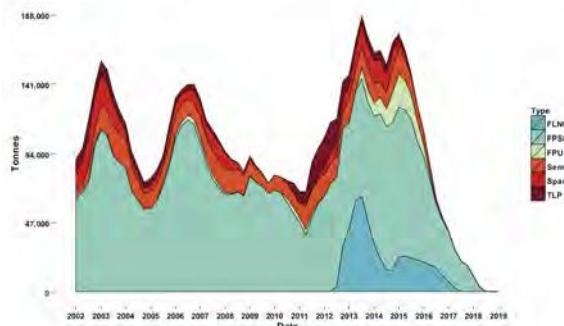
Forecasted & Awarded Floating Production Unit Tonnage by Tier

2002 – 2019e



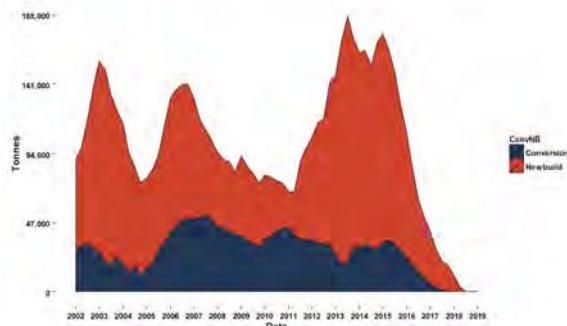
Forecasted & Awarded Floating Production Unit Tonnage by Type

2002 – 2019e



Conversion vs. Newbuild Awarded FPU Tonnage

2002 – 2019



FOR MORE DETAILED INFORMATION

(281) 491-5900 - USA • 44 (0) 1737 371704 - London • e mail: corp@questoffshore.com  
www.QuestOffshore.com • www.SubseaZone.com • www.FloatingProductionZone.com

# Monthly Stock Figures & Composite Index

Industry Company Name	Symbol	Close(Mid) May	Close(Mid) April	Change	Change %	High 52 week	Low
<b>Diversified, Production Support and Equipment Companies</b>							
Baker Hughes, Inc.	BHI	68.92	64.50	4.42	6.9%	71.52	43.34
Cameron Intl. Corp.	CAM	64.64	62.31	2.33	3.7%	66.93	52.50
Drill-Quip, Inc.	DRQ	102.76	109.46	-6.70	-6.1%	121.07	86.48
Halliburton Company	HAL	62.37	59.09	3.28	5.6%	65.11	40.12
Tenaris SA	TS	42.85	44.74	-1.89	-4.2%	49.87	38.47
Newpark Resources, Inc.	NR	11.22	11.57	-0.35	-3.0%	13.64	10.30
Schlumberger Ltd.	SLB	99.50	98.46	1.04	1.1%	103.58	70.25
Superior Energy Services, Inc.	SPN	31.66	30.78	0.88	2.9%	33.71	22.85
Weatherford International, Inc.	WFT	20.49	17.15	3.34	19.5%	21.50	12.97
Deep Down, Inc.	DPDW	1.99	1.70	0.29	17.1%	2.70	1.44
FMC Technologies	FTI	55.53	52.47	3.06	5.8%	59.79	47.58
<b>Total Diversified, Production, Support and Equipment.....</b>	<b>561.93</b>	<b>552.23</b>	<b>9.70</b>	<b>1.8%</b>	<b>542.49</b>	<b>426.30</b>	
<b>Geophysical / Reservoir Management</b>							
Dawson Geophysical Company	DWSN	26.05	28.07	-2.02	-7.2%	40.86	25.47
Mitcham Industries, Inc.	MIND	13.54	13.57	-0.03	-0.2%	18.41	13.05
Compagnie Gnrale de Gophysique-Veritas	CGV	13.42	16.58	-3.16	4.50%	26.09	13.31
<b>Total Geophysical / Reservoir Management.....</b>	<b>53.01</b>	<b>58.22</b>	<b>-5.21</b>	<b>-8.9%</b>	<b>85.36</b>	<b>51.83</b>	
<b>Offshore Drilling Companies</b>							
Atwood Oceanics, Inc.	ATW	47.23	47.30	-0.07	-0.1%	59.49	44.88
Diamond Offshore Drilling, Inc.	DO	49.96	47.50	2.46	5.2%	73.19	43.69
ENSCO International, Inc.	ESV	50.20	50.98	-0.78	-1.5%	64.14	47.85
Nabors Industries, Inc.	NBR	24.81	24.00	0.81	3.4%	28.20	14.50
Noble Drilling Corp.	NE	29.87	30.48	-0.61	-2.0%	42.34	28.67
Parker Drilling Company	PKD	5.99	6.54	-0.55	-8.4%	8.67	4.15
Rowan Companies, Inc.	RDC	30.11	30.79	-0.68	-2.2%	38.65	29.88
Transocean Offshore, Inc.	RIG	41.75	41.35	0.40	1.0%	55.79	38.47
<b>Total Offshore Drilling.....</b>	<b>279.92</b>	<b>278.94</b>	<b>0.98</b>	<b>0.4%</b>	<b>370.47</b>	<b>252.09</b>	
<b>Offshore Contractors, Services, and Support Companies</b>							
Helix Energy Solutions Group, Inc.	HLX	22.44	22.32	0.12	0.5%	27.58	19.44
Gulf Island Fabrication	GIFI	18.79	22.15	-3.36	-15.2%	26.82	18.06
McDermott International, Inc.	MDR	7.07	6.91	0.16	2.3%	9.60	6.58
Oceaneering International	OII	70.34	70.93	-0.59	-0.8%	87.64	66.00
Subsea 7 SA	SUBCY.PK	19.78	17.6	2.18	12.4%	22.76	17.05
Technip ADS	TKPPY.PK	27.18	25.99	1.19	4.6%	31.32	21.08
Tetra Technologies, Inc.	TTI	11.21	12.49	-1.28	-10.2%	13.43	9.32
Cal Dive International, Inc.	DVR	1.42	1.65	-0.23	-13.9%	2.38	1.22
<b>Total Offshore Contractors, Service, and Support.....</b>	<b>178.23</b>	<b>180.04</b>	<b>-1.81</b>	<b>-1.0%</b>	<b>221.53</b>	<b>158.75</b>	
<b>Offshore Transportation and Boat Companies</b>							
Seacor Holdings, Inc.	CKH	78.84	83.92	-5.08	-6.1%	99.00	76.58
Gulfmark Offshore, Inc.	GLF	42.25	42.63	-0.38	-0.9%	53.89	39.31
Bristow Group	BRS	72.91	71.84	1.07	1.5%	85.70	61.04
PHI, Inc.	PHII	41.40	41.30	0.10	0.2%	42.70	31.92
Tidewater, Inc.	TDW	50.39	47.97	2.42	5.0%	63.22	45.51
Trico Marine Services, Inc.	TRMAQ.PK	0.04	0.04	0.00	0.0%	0.11	0.01
Hornbeck Offshore	HOS	41.80	38.57	3.23	8.4%	59.93	37.44
<b>Total Offshore Transportation and Boat .....</b>	<b>327.63</b>	<b>326.27</b>	<b>1.36</b>	<b>0.4%</b>	<b>404.55</b>	<b>291.81</b>	

June 2014

Ocean News &amp; Technology

76

# Monthly Stock Figures & Composite Index

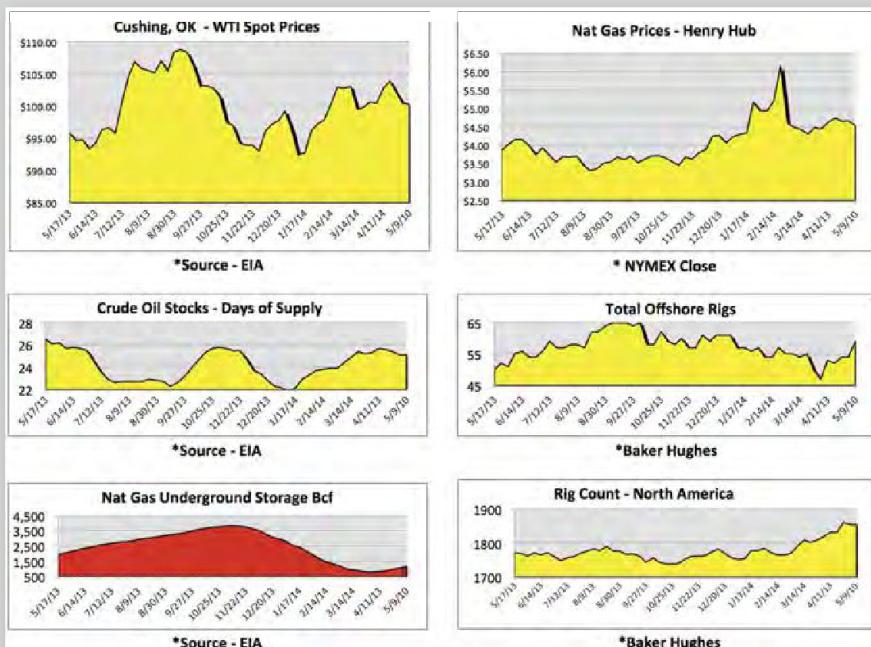
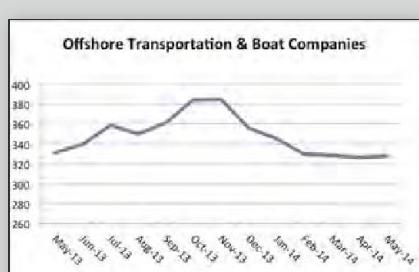
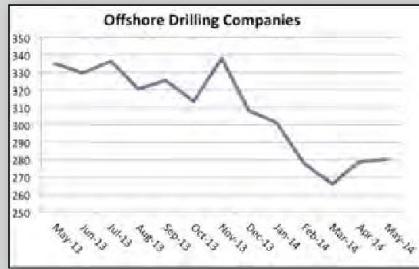
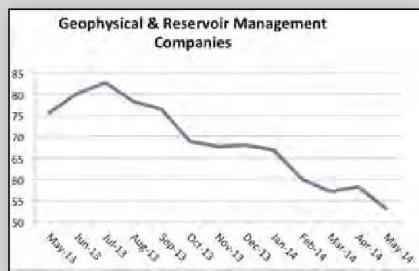
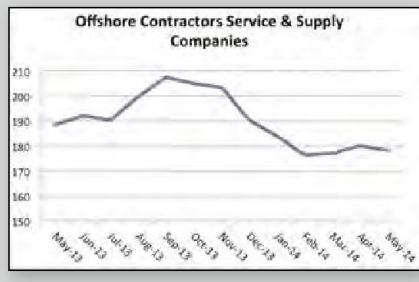
Industry	Close(Mid) May	Close(Mid) April	Change	Change %	High 52 week	Low
Diversified, Production Support & Equipment Companies						
Total Diversified, Production, Support and Equipment	561.93	552.23	9.70	1.8%	542.49	426.30
Total Geophysical / Reservoir Management	53.01	58.22	-5.21	-8.9%	85.36	51.83
Total Offshore Drilling	279.92	278.94	0.98	0.4%	370.47	252.09
Total Offshore Contractors, Service and Support	178.23	180.04	-1.81	-1.0%	221.53	158.75
Total Offshore Transportation and Boat	327.63	326.27	1.36	0.4%	404.55	291.81
Total Offshore Source Index	1,400.72	1,395.70	5.02	0.4%	1,624.40	1,180.78

## DISCLAIMER

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

## Oil & Gas Industry Trends

Monitoring the Pulse of the U.S. Offshore Oil & Gas Industry



\*Source - EIA

\*Baker Hughes

\*Source - EIA

\*Baker Hughes

Positive trend, at least 3 weeks  
Changing trend, less than 3 weeks  
Negative trend, at least 3 weeks

For Subsea Telecom, Power Cable and GoM Rig data, please visit  
[www.ocean-news.com/offshore-at-a-glance](http://www.ocean-news.com/offshore-at-a-glance)

## MacArtney ice core drilling winch for British Antarctic Survey

The MacArtney Group is pleased to announce the supply of an intelligent and rugged ice core drilling winch solution to British Antarctic Survey (BAS).

The winch will be used to deploy the new BAS Rapid Access Isotope Drill (RAID) which is able to complete a complete 600 m drilling cycle in just 1 week, before being redeployed at the next drilling location.

The drill will collect ice chippings, which can be used for isotope analysis and climate profiling, and leave an access hole to allow deployment of a temperature sensing cable. Both types of investigation and analysis will be used to identify good sites to find old ice. So far, shallow BAS drills have reached ice ageing between 150,000 and 350,000 years of age, while the oldest ice that has currently been investigated is 800,000 years old. BAS hopes that with the new drill, the organization will find sites with ice as old as 1.5 million years.

Operation of the drill system will take place in East Antarctica at sites that are likely to be both cold (-25° C to 35° C) and high (>3,000 m above sea level). Winching under these conditions is difficult and places very high demands on operators and the equipment they use.

First of all, due to the remote location of the drill sites, the MacArtney BAS ice core drilling winch needs to be transportable by a standard Twin Otter turboprop aircraft that also needs to carry the RAID drill system, a generator, fuel, tents, supplies and the four person scientist crew. With this in mind, the entire winch system, including a demountable cable sheave pole and the integrated sledge, is made from aluminium and designed to be extremely light and compact. Moreover, the winch is engineered to boast a high level of ruggedness and dependability—as it must be used time and time again, without requiring servicing and access to spares.

The extreme conditions at the drill sites also place extensive demands on the winch system in terms of efficiency,

intelligent user friendliness and safety as the combination of high altitude and extreme cold make it difficult for operators to stay concentrated for extensive periods of time. In response to this, the MacArtney ice core drilling winch system is designed for speed, accuracy, safety and operational simplicity empowered by

automated functions and drilling modes. For instance, a PLC on the winch makes sure that the winch is automatically stopped at 20 cm above the last depth of drilling. Subsequently, either the operator or an automatic drill programme will take control to secure that optimal ice chipping samples are collected. When the drill is recovered, the PLC makes sure to cease winch operations 1 m before the back of the drill reaches the surface.

British Antarctic Survey has been using a MacArtney winch for ice core operations for the last 20 years and with the new system, the organization commands a state-of-the-art system with a wide range of improved features and benefits. According to Julius Rix of British Antarctic Survey, the MacArtney winch was chosen for its reliability and impressive track record in uniquely harsh polar environments.

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



## Unique Maritime Group signs joint venture agreement with OEG Offshore to offer offshore equipment

Unique Maritime Group, which is one of the world's leading integrated turnkey subsea and offshore solutions providers, is proud to announce a joint venture agreement with OEG Offshore (OEG), to offer the rental and sale of offshore equipment in the Middle East region.

The new joint venture company, OEG Unique, which will be based in UAE & Qatar, will provide local access to OEG's full range of over 200 individual certified designs of DNV 2.7-1 certified Cargo Carrying Units (CCUs) and A60 modules across the GCC countries.

The partners have jointly invested over \$1 million USD in new equipment including offshore containers, baskets, half heights, tanks and waste equipment rated to the leading international standards DNV 2.7-1 and EN 12079. The sales and rental fleet is located in bases at Sharjah, UAE and Doha, Qatar and is available for immediate mobilisation. The modern and diverse fleet will be supported by OEG Unique's customer and technical support resources from facilities in Dubai, Sharjah, Abu Dhabi and Qatar.

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



## Teledyne BlueView releases new M900 Deep 4,000 m depth rating

Teledyne BlueView has released the M900-D rated to 4,000 m of depth. The M900-D system is housed in thick-walled air-filled aluminum housing, providing maximum reliability while keeping to the compact nature of the MSeries sonar line. The M900-D also includes BlueView's third generation electronics package, which is smaller, lower power, and produces improved imagery over previous models by applying techniques such as automatic transmit power adjustment.

"The M900-D is the first expansion of the next generation of Teledyne BlueView's 2D sonar family. We strive to continually improve the technology to provide the most reliable, versatile and user friendly sonar systems on the market," said Ted Germann, Teledyne BlueView's Chief of Sales and Marketing.

Teledyne BlueView is a leader in 2D forward looking imaging sonar and 3D mechanical scanning sonar with hundreds of systems installed in the field worldwide. Teledyne BlueView's advanced sonar systems are currently deployed on AUVs, ROVs, surface vessels, fixed positions and portable tripods, and have been adopted by leading manufacturers and services providers to support mission critical operations. Teledyne BlueView customers enjoy a low cost of ownership with reliable operation, exceptional service, in-person training, extensive online information and worldwide after-sale support.

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

## Seateronics invests to stay ahead in ROV tooling rental market

Seateronics, an Acteon company, has invested more than £1 million in the latest technologies, sensors and tools available from Tritech International Ltd, a Moog Inc. company. Many of the products will enhance the ROV tooling capabilities, which are available through recently acquired Acteon Company, J2 Subsea.

Phil Middleton, Seateronics deputy managing director, said, "As part of our strong international growth plans for J2 Subsea, we are adding to our already extensive stock of dredge pumps by purchasing multiple Merlin, Super ZipJet and AZ10 suction anchor pumps. The investment we made in

# Falmouth Scientific Sensors - Systems - Service

**Hardware**  
**Software**  
**Field Services**  
**Global Support**

### PLUS Instrumentation Family

#### ACM-WAVE-PLUS

ACM with Directional Wave Measurement

#### WAVE-TIDE-PLUS

Wave & Tide Measurement

#### ACM-PLUS

Shallow or Deep Single-Point

3D Current Speed & Direction

- Reliable Measurement Even at the Surface or Bottom
- Internal Data Logging
- Real-Time Monitoring
- Optional Integrated CTD

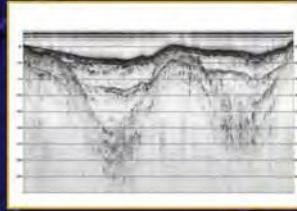


Update your old FSI 2D or 3D ACMS via the PLUS-UPGRADE Program

### HMS-620 Bubble Gun™ Family

Portable Low-Frequency Acoustic Seismic Systems

- Light-Weight & Portable
- Easy to Deploy by Hand
- Operates on Less Than 1 KWatt Power Source
- Excellent Sub-Bottom Penetration Through Many Sediment Types



Small-boat Coastal & Freshwater Engineering  
Geotechnical Site Investigation  
Offshore Wind Turbine and Dam Site Surveys  
Bedrock Investigation  
Pipeline, Bridge, and Construction Surveys



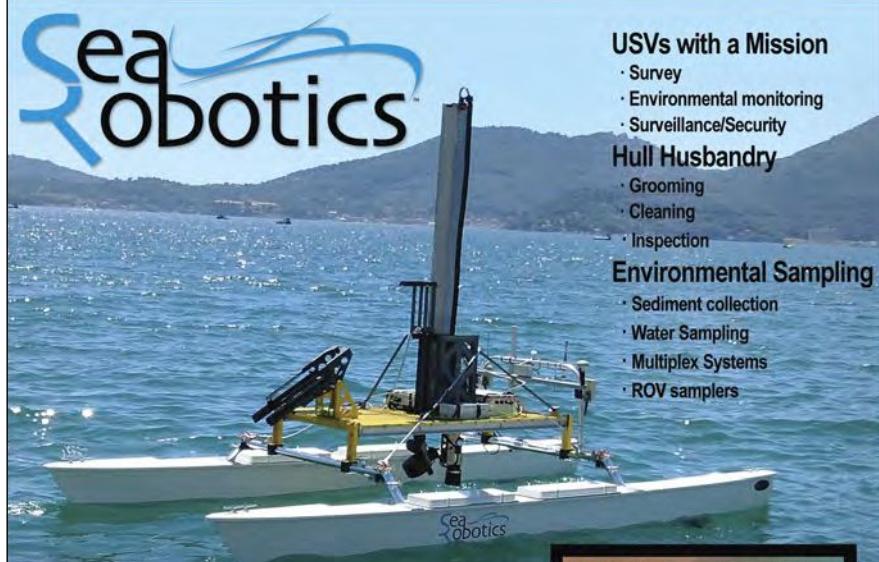
**Falmouth Scientific, Inc**

[fsi@falmouth.com](mailto:fsi@falmouth.com) • [www.falmouth.com](http://www.falmouth.com) • 1-508-564-7640

June 2014

79

Ocean News & Technology



[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)



HullBUG grooming ship hull





Tritech systems recently will ensure that our rental fleet delivers what customers expect from Seatronics: the latest in highquality technology.

"Tritech products have long been a staple of the Seatronics rental fleet and are widely regarded as industry standard. Furthermore, we have seen rising demand for the Gemini sonar range and have received enthusiastic feedback from many clients using these systems to great affect under low visibility con-

ditions in the Southern North Sea and offshore West Africa."

Scott McLay, Tritech sales director, added, "Seatronics and Tritech have enjoyed a productive working relationship for many years. The investment Seatronics has made in Tritech's suite of sensors, dredge pumps and sonars, notably throughout 2013, is testament to this. Our relationship with Seatronics is one we will continue to support throughout 2014 and beyond. The new investment will give Seatronics' customers access to our latest technologies, sensors and tools."

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

#### **OceanWise supplier of choice to UK Governments for digital marine mapping**

Independent marine data management and publishing specialist, OceanWise, is pleased to announce the award of the Framework contract for the supply of Marine Mapping Data to the Scottish Government. This award means that OceanWise is now the supplier of choice to all UK Government

organizations requiring marine data for use in desktop and web GIS, including the Welsh Government, Northern Ireland Government, the Isle of Man, the Channel Islands, Natural England and the Environment Agency.

The Framework will involve delivery and maintenance of OceanWise's Raster Charts and its third generation marine mapping product, Marine Themes, which includes a high resolution Seabed Digital Elevation Model. The data will be delivered as OGC compliant web services via OceanWise partner and distributor, FIND Mapping Ltd, as well as in file-based open and proprietary formats such as GML, Esri Geodatabase and MapInfo TAB.

Marine Themes is as close as possible to a seamless definitive marine base map. The dataset addresses the numerous issues associated with data captured from nautical charting. This includes resolving fragmented geometry across chart boundaries, tracking multiple links back to source data and presenting these to users, and replacing chart data with authoritative source

## **OCEAN NEWS IS PROUD TO PRESENT OUR ADVERTISERS WITH VIP: VIDEO IN PRINT™**

### **A Revolutionary New Marketing Tool!**

Ocean News & Technology's VIP technology gives your company an opportunity to embed video in your ad! Viewed by our digital and APP subscribers, your video can be informational, inspirational, and/or entertaining.

No other marketing tool in the industry is as effective as ONT's VIP: Video-in-Print!



- Demonstrate product
- Illustrate services
- Deliver a "live" instruction manual
- Offer facility tours
- Create a commercial

For a VIP demonstration go to [www.ocean-news.com](http://www.ocean-news.com).

For details on VIP advertising, contact your representative today!



#### **Advertising Representatives**

**Corporate:**  
MJ McDuffee  
VP Sales & Marketing  
Ph: +1 772.617.6836  
Fax: +1 772.221.7715  
[mj@tscpublishing.com](mailto:mj@tscpublishing.com)

**North America:**  
Lisa Chitlik  
Ph: +1 574.261.4215  
Fax: +1 574.255.1006  
[Lchitlik@tscpublishing.com](mailto:Lchitlik@tscpublishing.com)

**Texas/Louisiana:**  
Amy Dukes  
Ph: +1 713.557.8057  
Fax: +1 281.497.6608  
[adukes@tscpublishing.com](mailto:adukes@tscpublishing.com)

**International:**  
Zinat Hassan  
Ph: +44 (0) 845 6522 483  
Fax: +44 (0) 845 6522 483  
[zhassan@tscpublishing.com](mailto:zhassan@tscpublishing.com)

**Mimi Shipman**  
Mo: +44 (0) 777 601 7564  
Ph: +44 (0) 193 550 8698  
[mshipman@tscpublishing.com](mailto:mshipman@tscpublishing.com)

datasets, such as Traffic Separation Schemes and Particular Sensitive Sea Areas supplied under license to OceanWise by the International Maritime Organization (IMO).

The aim under this framework, as with OceanWise's other Government frameworks, is to make marine data as widely accessible as possible to all public sector bodies including local authorities and emergency services, as is currently the case with land mapping data provided by Ordnance Survey, for example, under the various Public Sector Mapping Agreements.

For more information, visit [www.oceanwise.eu](http://www.oceanwise.eu).

#### **Submersible pressure sensor from AST**

The Model AST 4530 liquid level transmitter from American Sensor Technologies, Inc. (AST) is designed to measure the level of harsh liquids such as slurries, salt water and oil in vented tanks or containers. Constructed with PVDF material and a PTFE diaphragm, the AST 4530 submersible pressure sensor features a submersible PVDF cable,



cord grip and housing as well as a conduit connection for turbulent installations such as process plants, salt water holding tanks, on-board ships, turbulent tanks, and rail cars. Sensors are certified to Class I Div 1, Groups C and D for use in intrinsically safe areas with an approved barrier.

Offering highly reliable operations and long life, the PVDF liquid level transmitter is not affected from lid angle or proximity to tank wells. In comparison to ultrasonic and radar sensor technologies, the AST4530 Liquid Level Transmitter will not have an offset in output due to foaming, reflectivity as well as lid angle or proximity to the

tank wall. In plastic tanks, a metal plate is not required to be installed under the transmitter. Vapor and condensation will not affect the reading or survivability, as the transmitter is vented through the cable to the outside of the tank or container. For marine and water processing applications, it offers the distinct advantage of not requiring sacrificial anode to reduce corrosion over time. It will also survive longer than standard submersible transmitters in applications where bacteria can attack metal.

Voltage and 4 to 20 mA output signals allow users to interface for low current consumption or long distance transmission applications. A 4 to 20 mA output is the most common signal in monitoring applications that require long distance transmissions as the current can be read at the controller without signal loss for hundreds of feet. For either battery-powered or solar-powered applications, voltage output signal is ideal. Typically the solar panel will be located close the pressure sensor, so there is no signal loss in the cable.

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

**MCE DEEPWATER  
DEVELOPMENT 2015**

24 - 26 MARCH, 2015

ExCeL • LONDON

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

Organized by

 Quest Offshore

**CALL FOR ABSTRACTS**

- Open now through October 2014
- Submit at: [www.mcedd.com](http://www.mcedd.com)
- Deepwater technical topics include: FPS technology, marine construction, subsea production, drilling, pipeline & riser technologies and installation, life of field
- For more information:  
[Caitlin.Traver@questoffshore.com](mailto:Caitlin.Traver@questoffshore.com)











## PRODUCT NEWS

# LAUNCH AND RECOVERY SYSTEMS



**APPLICATIONS:**  
AUVs, ROVs, Towed Systems,  
USVs, RHIBs, Drills, Custom

**STYLES:**  
Ramp Style, A-Frame, Gantry,  
Containerized, Hybrid

**FEATURES & OPTIONS:**  
Single Operator, Vessels of  
Opportunity, Sea State 5,  
Various Control Options,  
Autonomous, ABS, DNV,  
UNOLS, MIL-STD

# SOSIK

SOUND OCEAN SYSTEMS, INC.  
1 (425) 869-1834  
[INFO@SOUNDOCEAN.COM](mailto:INFO@SOUNDOCEAN.COM)  
[WWW.SOUNDOCEAN.COM](http://WWW.SOUNDOCEAN.COM)

### Lloyd's Register recognizes Cobham Life Support's 'Survivor+'

**Survivor+™**, Cobham Life Support's new wearable personal overboard survival system, has received a certificate of compliance from Lloyd's Register. To achieve the required standard, Survivor+ successfully completed all the materials and performance testing required under the IMO Life-Saving Appliance (LSA) Code, Section II, which allows it to be recognized internationally by the commercial maritime and offshore oil and gas industries as an IMO compliant personal life-saving appliance.

A significant step-change in worker safety, Survivor+ incorporates a SOLAS-approved inflatable life jacket and a tethered, military-qualified, personal life raft into a single compact vest. The integration of the life vest and raft, using Cobham's own vacuum-packing technology, is so ground-breaking that no specific SOLAS category exists for it. Recognizing this, Cobham Life Support submitted Survivor+ for extensive laboratory and performance testing procedures witnessed by Lloyd's Register Surveyors. The successful testing resulted in a certificate of compliance for the system by Lloyd's Register, under IMO Resolution A.520 (13) for Personal Life-Saving Appliances. This IMO resolution was created to facilitate the evaluation, testing and acceptance of newly-developed products that do not fit into existing categories under SOLAS, "but which will provide the same or higher safety standards."

The Lloyd's Register Group, one of the world leaders in assessing business processes and products to internationally recognized standards, was represented at a recent Survivor+ demonstration in Southampton, UK. Technical manager, fire & safety, Bruce McDonald, said: "Lloyd's Register was pleased to have issued Cobham a certificate of compliance for the Survivor+ product because Lloyd's Register believes Survivor+ provides a definite improvement to safety at sea."

Although there is currently no IMO or ISO category for a single-person life raft integrated with a life jacket, the qualified, military version of Survivor+, the LRU-23P raft, has been in use by both the UK and U.S. military since 2004 and has proved in tests to be high-



ly effective in maintaining the core body temperature of its occupants under extreme environmental conditions.

The new enhanced version of the military raft intrinsic to Survivor+ has been designed to ensure it is very intuitive and easy to use for non-military people, with minimal or no training. Additional features include vacuum-packing, water activated or manual inflation, additional CO<sub>2</sub> cartridge for the canopy inflation, and a single-pull canopy zipper.

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

### Pure UV LED leak detection flashlight pinpoints fluid leaks on marine vessels

Tracer Products has introduced the powerful Tracerline® OPTIMAX™ 365 - a cordless, rechargeable pure UV leak detection flashlight featuring state-of-the-art, ultra-high-flux LED technology.

When used with the appropriate fluorescent dye, this powerful UV lamp will locate leaks in all fluid systems on marine vessels. The exact location of every leak is revealed by a bright yellow-green glow.

The OPTIMAX 365 is extremely lightweight and compact, weighing just 11.8 oz (335 g). Its inspection range is 25 ft (7.6 m) or more. The flashlight has a corrosion-resistant, anodized alu-



minimum lamp body, which will stand up to years of heavy use.

Powered by a rechargeable NiMH battery, it provides 90 min of continuous inspection time between charges. Just the push of a button turns the lamp on instantly at full power.

The OPTIMAX 365 comes with UV-absorbing spectacles, a belt holster and smart AC and DC battery chargers, all conveniently packed in a padded carrying case.

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

### Tritech StarFish for Z-Boat 1800

The Oceanscience Group has unveiled the first Z-Boat 1800 remotely-operated survey boat with integrated side scan sonar from Tritech International.

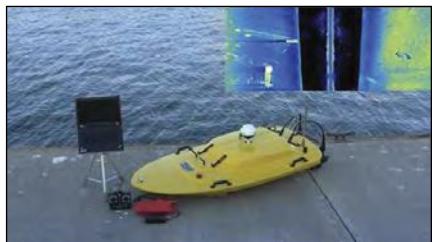
The new boat provides a shore operator with real-time high definition side scan imagery from Tritech's StarFish 990F side scan on a portable 1.8 m surface vessel. The StarFish side scan is attached to a special skeg (keel fin) under the Z-Boat, eliminating the need for a dedicated hull mounted transducer. In addition, the compact size of the StarFish topside box means that a single or dual frequency single beam echosounder can still be accommodated on the Z-Boat.

Adrian McDonald, Oceanscience Group, Z-boat comments: "Adding side scan capability was a natural progression for our development of the Z-boat and the Tritech side scan sonar was selected owing to its small size and good shallow-water performance."

Mike Broadbent, sales manager, comments: "The StarFish has been highly successful in wreck location, shallow water survey and search and recovery applications. The Z-Boat represents a new fast and convenient way to carry out imaging surveys where the deployment of a manned boat may not be possible."

Z-Boats with single beam echosounders are in operation around the world and can perform shallow water hydrographic surveys in natural and industrial water environments.

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



# HAWBOLDT INDUSTRIES

## AUV AND ROV LAUNCH & RECOVERY SYSTEMS

### AUV LARS

Ramp style deployment and retrieval  
Custom design for different AUV models  
Increased vessel operation time



### ROV LARS

Available in 15mt,  
10mt, and 6mt  
configurations  
Hydraulic or Electric  
Active Heave option



A MEMBER OF  
**TIMBERLAND**  
Engineered solutions. GROUP

Phone: 902-275-3591  
[www.hawboldt.ca](http://www.hawboldt.ca)

**UI**  
**2015**

FEBRUARY 10-12 • NEW ORLEANS

## Introduces Polyethylene Molding

**FEATURES**

- Custom molded polyethylene subsea cable splices, breakouts and connector terminations
- Low moisture absorption
- Long life
- High Reliability

**NEW**

Polyethylene Molding

Contact: [scpsales@ametek.com](mailto:scpsales@ametek.com)  
Visit: [www.ametekscp.com](http://www.ametekscp.com)

## PRODUCT NEWS

### Trelleborg launches thermal insulation material portfolio

To cater for industry demands, Trelleborg's offshore operation has consolidated its range of high performance thermal insulation materials, to house them all under one brand – Vikotherm™.

All solutions in the Vikotherm™ range will guarantee maintained flow rates, optimum productivity, reduced costs and protection against wax and hydrate formations.

Two of the featured products in the portfolio include the R2 and S1 materials. Vikotherm R2 consists of a three-layer coating system that provides total protection against corrosion and hydrogen induced stress cracking (HISC). Similarly, its seawater, impact and creep resistance means that it offers excellent thermal insulation properties. The material is suitable for jumpers and spool pieces, tie in spools, manifolds, subsea trees, risers and flowlines, joints, insulation covers and many more applications.

With the capability to be applied in any geographic location, this material can operate in temperatures ranging from -49°C to +155°C / -56°F to +311°F, and depths as low as 3,000+ m / 9,843+ ft. In addition, being almost entirely maintenance and absorption free, the R2 allows for undisturbed, optimal high pressure and temperature flow performance.



In addition, the Vikotherm S1 is based on non-syntactic silicone technology. This material is ideal for risers and flow lines, subsea trees, pipeline end manifolds, pipeline end terminations and more, with operating temperatures of -40°C to +135°C/-40°F to +275°F and depths of 3,000+ m / 9,843+ ft.

The S1 cures at room temperature without exposure to air, making it resistant to cracking and shrinking. In addition to this, the absence of glass microspheres means it provides superior joint strength, increased thermal conductivity, long-term flexibility and increased hydrolytic stability. As it's not restricted by geometry or thickness limitations, the S1 can meet a broad range of application specifications.

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

### MacArtney to distribute LISST instruments in Scandinavia

MacArtney is pleased to announce the entry of an exclusive representative agreement with Seattle-based oceanographic instrument manufacturer, Sequoia Scientific Inc., to distribute the full range of LISST laser particle sizers and other Sequoia products in Denmark, Norway, Sweden, Finland and Iceland.

For two decades, Sequoia has held the position as the world's only manufacturer of portable, field, and submersible laser particle sizers. The company is primarily renowned for its LISST product range, which boasts an extensive track record of use for environmental monitoring, industrial, and scientific applications across the globe.

The unique submersible LISST laser particle sizers help engineers, scientists, and monitoring agencies to reliably measure the concentration and size of sediment, plankton and oil droplets in any water body. Likewise, for a wide range of industrial applications, from hydropower turbine monitoring to optimization of drilling operations, portable and industrial LISST models will get the job done.

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

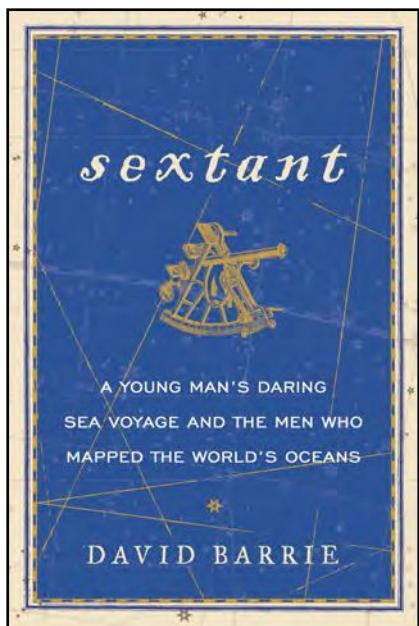
**SUBSALVE**  
USA

**UNDERWATER LIFT BAGS**  
ENGINEERED FROM THE BOTTOM UP!

**SUBSALVE**  
RAISING THE WORLD TO NEW HEIGHTS IN THE MILLENNIUM

**SUBSALVE USA CORPORATION**  
P.O. Box 2030, North Kingstown, RI 02852, USA  
P: 401.884.8801 • F: 401.884.8868 • E: [richard@subsalve.com](mailto:richard@subsalve.com)  
[www.subsalve.com](http://www.subsalve.com)

## MEDIA SHOWCASE



### SEXTANT

#### A Young Man's Daring Sea Voyage and the Men Who Mapped the World's Oceans

By David Barrie

In *Sextant: A Young Man's Daring Sea Voyage and the Men Who Mapped the World's Oceans*, David Barrie tells the story of this elegant instrument and how it not only saved the lives of navigators in wild and dangerous seas, but played a pivotal role in their ability to explore, conquer, and chart the globe.

In prose as crisp and graceful as the book's subject, infused with a sense of wonder and dramatic discovery, Barrie synthesizes diary entries from his own trans-Atlantic voyage at the age of 19 with centuries of seafaring history and the sailors who have become legend—James Cook, the great French navigator; La Pérouse, who built on Cook's work in exploring the Pacific; Matthew Flinders, the first man to circumnavigate Australia; Robert FitzRoy of the Beagle; Joshua Slocum, the redoubtable old “lunarian” and first man to single-handedly sail around the world; and Frank Worsley of the *Endurance*, among others.

A heady mix of history, science, mathematics, and derring-do, *Sextant* is an eloquent homage to one of the most important navigational instruments ever created - a timeless tale of seafaring and exploration that will inspire star gazers, sailors, and anyone with a taste for adventure.

William Morrow/An Imprint of HarperCollins Publishers; ISBN 978-0-06-227934-7  
Hardcover, 368 pages, May 2014

June 2014

85

Ocean News & Technology

## Dive into our APPs

### News Splash!

Now Also Available  
for Android!

Available on  
iPad and iPhone!



**Ocean News**  
& Technology

[www.ocean-news.com](http://www.ocean-news.com) • Contact 772-617-6836 for more information

BP appointed **Angela Strank** to the position of BP chief scientist. She succeeds Ellen Williams, who has been nominated as director of the Advanced Research Projects Agency – Energy, in the U.S. Department of Energy. As chief scientist, Strank will be responsible for developing strategic options to ensure the company can benefit from developments in science and technology worldwide. She will also co-ordinate BP's Technology Advisory Council (TAC), which advises BP's executive management on the status of science and technology within the company. Since joining BP as a geologist in 1982, Strank has held a wide variety of technical and commercial leadership roles in BP's upstream and downstream businesses and in its corporate center, working in the UK, United States, Africa and Asia. Most recently, for the past 2 years she has worked directly for BP Group chief executive Bob Dudley, as joint head of his executive office. Strank has a Ph.D. in geology from the University of Manchester and the Institute of Geological Sciences.

The American Petroleum Institute said veteran Democratic policy strategist **Louis Finkel** will lead the oil and natural

gas industry association's government relations efforts. As API's second-in-command, the executive vice president for government relations heads a 64-person staff responsible for federal and state advocacy efforts on behalf of the oil and natural gas industry, including multi-functional teams executing comprehensive policy campaigns, and will direct a grassroots operation of more than 24 million American voters from every state and congressional district. Finkel serves as executive vice president of government affairs for the Grocery Manufacturers Association, where he led two come-from-behind statewide ballot initiatives in California and Washington, saving consumers billions of dollars in increased food costs. And he was one of the architects of the food and beverage industry's recent collaborations with the White House on combating childhood obesity. Finkel has more than 20 years experience leading and directing public policy on energy issues. On Capitol Hill, he was a lead negotiator on the 2007 Energy Independence and Security Act



Finkel

and served as chief of staff for the science and technology committee under former Chairman Bart Gordon (D-Tenn.). He has advised oil and natural gas pipeline companies and other industry operators for two D.C. consulting firms.

Reamco Inc., an international provider of downhole equipment, has opened a business development office in Aberdeen, Scotland. The new office will enable Reamco to better communicate with existing clients and aid in obtaining new business throughout the region. The office will be responsible for business development in the North Sea, Europe, Middle East and Africa. Tasked with developing the Aberdeen office, **Jamie Shepherd** joins Reamco with nearly 40 years of experience in the oil and gas industry. Shepherd began his career as a field service manager involved in directional drilling and has held management positions for more than 25 years in several international, down-hole tool manufacturing companies. He graduated from Edinburgh University in 1975. "As we strive to better support our current clientele and expand into new markets, the opening of this office is a key component to continue our global expansion," said Ashley Lane, Reamco's chief executive officer.



Stay Current,  
Stay Competitive  
-Subscribe today!  
(it's free!)

[www.ocean-news.com](http://www.ocean-news.com)

## Industry News from Around the World - Almost as Fast as it Happens

**OCEAN E-NEWS™**  
brought to you by **Ocean News** magazine TSC

**SUBSEA SURVEY IMM**

June 12, 2013      Issue # 20

**CALL FOR PAPERS**  
2013 Galveston, Texas November 11 - 12 [www.subseasurvey.com](http://www.subseasurvey.com)

**Rutgers Findings May Predict the Future of Coral Reefs in a Changing World**  
Study is first to pinpoint how coral make their mineral skeletons; process also works in more acidic water

Rutgers scientists have described for the first time the biological process of how corals create their skeletons - destined to become limestones - which form massive and vital coral reefs in the world's oceans. [More>>](#)

**Ocean Specialists Inc. Achieves Major Milestone in Gulf of Thailand Offshore Fiber Network**  
Ocean Specialists Inc. (OSI) reports that 17 major oil and gas company offshore platforms located in the Gulf of Thailand are now connected to shore via a submarine fiber optic network. This caps a six-year groundbreaking achieved by OSI in developing the initial technical feasibility and then the detailed

**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.

The Board of Directors at Decom North Sea (DNS), the offshore oil and gas decommissioning forum, are pleased to announce the appointment of a new chief executive to lead the organization as it further strengthens its position as the representative body for the decommissioning industry. **Nigel Jenkins** will take up the post on 1 July and replaces Brian Nixon, who is retiring after playing an instrumental role in establishing DNS as the voice of the decommissioning sector. Jenkins previous roles include board leadership positions with AMEC and AECOM and most recently as board director with KDC Contractors, which has a long and successful track record of working on decommissioning projects on and offshore. He also served as a director with DNS from 2011 to 2013.

CSA Ocean Sciences Inc. (CSA) is pleased to announce the addition of **Ms. Melisa Reiter** as Regional Manager in the Tampa Bay area. Ms. Reiter will work closely with CSA's scientific and business development staff to assist in the growth and diversification of CSA services along Florida's west coast. In addition to expanding the client base, she will be involved in project management and supporting ongoing work efforts. Ms. Reiter brings more than 25 years of environmental consulting and management experience to CSA. Her specialized expertise includes regulatory permitting, marine studies, habitat assessment and evaluation, water quality studies, seagrass mapping, aerial photograph interpretation, land use mapping, ecological assessments, threatened and endangered species studies, and wetland mitigation design and monitoring. Her regulatory permitting experience includes single-family home docks, canal dredge projects, large-scale marinas, seagrass assessments, and coral reef natural resource damage assessments. In addition to her consulting experience, Ms. Reiter is an accomplished scientific diver and a Professional Wetland Scientist.

Perth hydro firm Green Highland Renewables has appointed experienced executive **Richard Round** as their new chief executive officer. He will join the leading small-scale hydro specialists in August. Round has a 25-year track record in senior finance and leadership roles, principally in the energy and mining sectors, and for the last 4 years has

been chief financial officer of wave energy company Aquamarine Power where he has developed the business plan and raised in excess of £60 million for the high-profile Edinburgh firm. Prior to this, he was acting chief executive of quoted Novera Energy plc, where he managed the sale of the wind, landfill gas and hydro group for over £100 million.

Horizon Marine, Inc. continues to expand with the recent hire of University of Rhode Island – Graduate School of Oceanography graduate **Kelsey Obenour**. This follows the opening of the Brazilian office in Rio and doubling of its space at the Offshore Division in Richmond, Texas, to accommodate two oceanographers, drifting buoy production, and a new laboratory for underwater gliders. Obenour graduated from Valparaiso University with a B.S. in Meteorology and Geography and a minor in Mathematics. Following her undergraduate studies, Kelsey received her M.S. in physical oceanography from the University of Rhode Island – Graduate School of Oceanography. For her thesis, she used 30 years of sea surface temperature (SST) AVHRR Pathfinder satellite data to analyze ocean fronts on global and regional scales to observe decadal and global climate trends since 1982.

**FoundOcean, Inc. and Delta SubSea LLC** signed a strategic agreement to provide subsea grouting and scour remediation services in Trinidad, Tobago, and Venezuelan waters. The two companies bring complementary services to the table, giving clients a true turnkey solution for pipeline scour remediation and stabilization solutions in the region.

**Ocean Sonics Ltd.**, has announced the appointment of two new distributors to its global network to increase awareness and sales of the icListen Smart Hydrophone in both Japan and Singapore. Tokyo-based SHOSHIN Corporation will leverage its sales and marketing experience and distribution capabilities within Japan to establish Ocean Sonics as the preferred provider of Digital Hydrophones. Under the terms of the agreement, SHOSHIN will also provide service and technical support for Ocean Sonics products. Sea and Land Technologies (SALT), headquartered in Singapore, will supply, distribute, and support the technology of the

icListen products in the ASEAN countries. The company already handles product ranges from many leading marine equipment companies making them ideal partners for Ocean Sonics and its range of acoustics products for the marine industry.

The **Oceanscience Group** is pleased to announce their appointment as an authorized HYPACK® OEM partner, to further strengthen the available options for the popular Z-Boat® 1800 remotely-operated hydrographic survey boat. Oceanscience can now supply their top specification single beam and side-scan equipped Z-Boats, largely used by land survey and engineering firms or dedicated hydrographic survey operators as a full turnkey package including HYPACK® software.

**AML** has been named a finalist for Innovative Excellence by the judges of the VIATEC Technology Awards. The category seeks to recognize the company that has best embodied the progressive nature of the technology sector by designing and producing a revolutionary product. VIATEC, a networking and resource hub for Greater Victoria's technology sector, has taken notice of AML this year for its development of UV•Xchange, a biofouling control product unlike any currently on the market.

**2G Robotics** announced they will open a new office in Aberdeen, Scotland. The new office will serve as 2G Robotics UK headquarters. Strategically situated along the shores of the North Sea, the new 2G Robotics Aberdeen office will improve our ability to interact with companies who are exploring improved sub sea survey and inspection technology.

**JDR** is increasing its global footprint with the opening of a new service and maintenance facility in Brazil. The JDR facility will be the latest addition to the bustling port city of Macaé when it opens for business in Q3 of 2014. The city is seen as an ideal location to build the company's local presence and reputation, with more than 80% of the oil produced by Brazil being linked through the port in some way.

**InterMoor**, an Acteon company, has enhanced its customer support, substantially added to its stock of mooring equipment in Asia Pacific and opened a new office at the Loyang Offshore Supply Base in Singapore. The new office will accommodate InterMoor's Asia Pacific team, including engineering, offshore installation and commercial activities.



Reiter



Obenour

# CALENDAR & EVENTS

June 2014

**88**

Ocean News & Technology

June 3-5, 2014  
**Energy Ocean International**  
Atlantic City, NJ  
[www.energyocean.com](http://www.energyocean.com)

June 10-12, 2014  
**Capitol Hill Ocean Week**  
Washington, D.C.  
[www.nmsfocean.org/CHOW-2014](http://www.nmsfocean.org/CHOW-2014)

June 10-12, 2014  
**SeaWork International**  
Southampton, UK  
[www.seawork.com](http://www.seawork.com)

June 10-12, 2014  
**UDT**  
Liverpool, UK  
[www.udt-global.com](http://www.udt-global.com)

June 11-12, 2014  
**Global Offshore Wind**  
Glasgow, UK  
[www.renewableuk.com](http://www.renewableuk.com)

August 12-14, 2014  
**Deepwater Intervention Forum**  
Galveston, TX  
[www.deepwaterintervention.com](http://www.deepwaterintervention.com)

August 25-28, 2014  
**Offshore Northern Seas**  
Stavanger, Norway  
[www.ons.no/2014](http://www.ons.no/2014)

September 3-5, 2014  
**Oceanology International China**  
Shanghai, China  
[www.oichina.com.cn](http://www.oichina.com.cn)

September 14-19, 2014  
**Oceans '14 MTS/IEEE**  
St. John's, Newfoundland  
[www.oceans14mtsieestjohns.org](http://www.oceans14mtsieestjohns.org)

September 15-17, 2014  
**Int'l Conf. on Offshore Renewable Energy**  
Glasgow, UK  
[www.marinescienceandtechnology.com](http://www.marinescienceandtechnology.com)

September 22-25, 2014  
**Maritime Security Conference**  
Oxford, UK  
[www.maritimessecurityconference.org](http://www.maritimessecurityconference.org)

October 6-9, 2014  
**Oceanic Engineering Society IEEE AUV**  
Southampton, UK  
[www.auv2014.org](http://www.auv2014.org)

October 7-9, 2014  
**AWEA Offshore Windpower**  
Atlantic City, NJ  
[www.awea.org](http://www.awea.org)

October 13-15, 2014  
**WJTA-IMCA Expo**  
New Orleans, LA  
[www.wjta.org](http://www.wjta.org)

October 13-17, 2014  
**Sea Tech Week**  
Brest, France  
[www.seatechweek.com/](http://www.seatechweek.com/)

October 14-15, 2014  
**MTS Dynamic Positioning**  
Houston, TX  
[www.dynamic-positioning.com](http://www.dynamic-positioning.com)

October 14-16, 2014  
**Deep Offshore Technology International**  
Aberdeen, Scotland  
[www.deepoffshoretechnology.com](http://www.deepoffshoretechnology.com)

October 27-29, 2014  
**SPE ATCE**  
Amsterdam, The Netherlands  
[www.spe.org](http://www.spe.org)

## OTC sets attendance record

Experts from the offshore energy industry around the world came together 5-8 May for the 2014 Offshore Technology Conference at Reliant Park in Houston. Attendance at the annual conference reached a 46-year high of 108,300, the highest in show history and up 3.3% from last year.

Attendance surpassed the 2013 total of 104,800 and the sold-out exhibition was the largest in show history at 680,025 sq. ft, up from 652,185 sq. ft in 2013. The event had 2,568 companies representing 43 countries, including 163 new exhibitors in 2014. International companies made up 44% of exhibitors.

This year's event featured nine panel sessions, 29 executive keynote presentations at luncheons and breakfasts, and 308 technical papers. Speakers from major, independent, and national operators; federal and regional government officials; academia; and more presented their views on a wide variety of topics while discussing views on the current challenges and future directions of the industry.

OTC's Spotlight on New Technology recognized 12 technologies for their innovation in allowing the industry to produce offshore resources.

Safety and environmental protection, always key areas of focus at OTC,

was at the forefront of many discussions including on Thursday when the day featured a special breakfast and luncheon focused on the subject.

Several sessions also delved into new opportunities in Mexico, including a topical breakfast and networking event on Tuesday that focused on Mexico's energy reform, and an industry breakfast co-sponsored by the U.S. Department of Commerce.

Additional highlights included a number of discussions about the impact of the unconventional revolution onshore on the offshore deepwater industry. Mike Bloomfield, former astronaut and vice president and general manager of Oceaneering Space Systems spoke at the luncheon "The Oil & Gas Industry Commercial Use of NASA's Neutral Buoyancy Laboratory." A panel session entitled "Global Energy Outlook: Shaping the Future!" featured government officials from Canada, USA and Mexico.

More than 150 Houston-area classroom teachers and 200 students attended the Energy Education Institute. Teachers learned about scientific concepts of energy and its importance in a fun and exciting way. Participating students saw firsthand the exciting opportunities the oil and gas industry can offer.

## EdgeTech announces 2014 sonar training seminar

EdgeTech, the leader in high resolution sonar imaging systems and underwater technology, will be holding their annual sonar training seminar in New Bedford, Massachusetts September 23-25, 2014. This comprehensive course will cover sonar theory, operational training, system maintenance and post processing data for all of EdgeTech's standard side scan sonar, sub-bottom profiling and combined systems. The format for the 3-day seminar includes 2 1/2 days of classroom instruction and 1/2 day at sea.

Topics and systems to be addressed include the following:

- 4125 Side Scan Sonar  
Shallow water side scan sonar operations
- 4200 Side Scan Sonar  
Offshore multifaceted side scan sonar solutions
- 3100 Sub-bottom Profiler  
Sub-bottom profiling system for various operations
- 6205 Side Scan/Bathymetry  
Combined side scan sonar & bathymetry system
- 2000 Series Combined Systems  
Combined side scan/sub-bottom profiler systems.

For additional information contact Amy LaRose Tel: +1-508-291-0057.

# Ocean News & Technology 2014 EDITORIAL CALENDAR

## JANUARY

**Editorial:** Forecast: 2014 and Beyond; GIS/Mapping  
**Distribution:** GOM Oil Spill & Ecosystem; Subsea EXPO;  
**Product & Services Focus:** Multibeam & Side Scan Sonars; Research & Development Services

## FEBRUARY

**Editorial:** Oceanology & Meteorology; Decom & Abandonment  
**Distribution:** NACE Corrosion; Decommissioning and Abandonment Summit; Oceanology International  
**Product & Services Focus:** Buoys & Monitoring Instrumentation; Environmental Monitoring/Testing Services

## MARCH

**Editorial:** Subsea Fiber Optic Networks; Maritime Security  
**Distribution:** GMREC; Offshore Well Intervention Conference  
**Product & Services Focus:** Connectors, Cables & Umbilicals; Diver Detection Systems

## APRIL

**Editorial:** Offshore Technology; Ocean Mapping & Survey  
**Distribution:** OTC; AUVSI; Well Control and Containment Conference  
**Product & Services Focus:** Subsea Tools & Manipulators; Offshore Risk Assessment; Training/Safety

## MAY

**Editorial:** UW Imaging & Processing; Marine Salvage/UW Archeology  
**Distribution:** Energy Ocean; Seawork International; UDT  
**Product & Services Focus:** Magnetometers; Water Dredges & Airlifts; Diving Services

## JUNE

**Editorial:** AUVs & Gliders; Defense & Naval Systems; *Industry in Action*  
**Distribution:** TBD  
**Product & Services Focus:** Tracking & Positioning Systems; Seismic Monitoring Equipment Leasing/Rental Services

## JULY

**Editorial:** Workclass ROVs; Deepwater Pipeline/Repair/Maintenance  
**Distribution:** Offshore Northern Seas  
**Product & Services Focus:** Cameras, Lights & Imaging Sonars; Oil Spill Clean-Up Services

## AUGUST

**Editorial:** Ocean Observing Systems; Subsea Telecom  
**Distribution:** Oceans'14 MTS/IEEE  
**Product & Services Focus:** Water Sampling Equipment; Cable Installation Services

## SEPTEMBER

**Editorial:** Ocean Engineering; Marine Construction; *Corporate Showcase*  
**Distribution:** SPE ATCE; AWEA Offshore Windpower; Sea Tech Week; MTS Dynamic Positioning  
**Product & Services Focus:** Navigation, Mapping & Signal Processing; Data Processing Services

## OCTOBER

**Editorial:** Offshore Communications; Subsea Inspection, Monitoring, Repair and Maintenance  
**Distribution:** OilComm; North Sea Decommissioning; Submarine Cable Forum; International Conference on Ocean Energy  
**Product & Services Focus:** Acoustic Modems, Releases & Transponders; Marine Communications; Survey & Exploration Services

## NOVEMBER

**Editorial:** Offshore Support, Supply & Emergency Vessels; Deep Sea Mining  
**Distribution:** Clean Gulf; International Workboat  
**Product & Services Focus:** Ship Protection Systems; Winches & Control Systems; Vessel Charter/Leasing Services

## DECEMBER

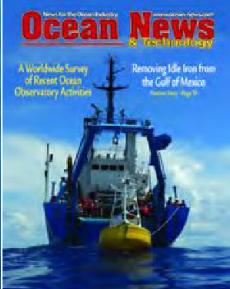
**Editorial:** Light Workclass ROVs; Commercial Diving; *Year in Review*  
**Distribution:** Underwater Intervention  
**Product & Services Focus:** Diving Equipment & Services; Buoyancy Materials; Construction & Repair Services

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 more than 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's free APP is utilized thousands of times each month, creating an instant path from ads to websites 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.



### ADVERTISING

#### North America

Lisa Chilik

574-261-4215

lchilik@tscpublishing.com

#### Texas/Louisiana

Amy Dukes

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

#### Editorial

Ladd Borne

772-285-8308

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! Listing can be changed at any time.

## CONNECT ONLINE PRINT LISTINGS

- Add your QR code to direct print readers to your website
- Your print listing is duplicated online for no additional charge

## ONLINE LISTINGS

[www.ocean-news.com/industry-directory](http://www.ocean-news.com/industry-directory)

Take advantage of these valuable new tools :

- Product Spec Sheets
- Videos
- Photos
- Interactive Maps



Check out our  
New & Improved  
Online Directory!

## ACOUSTIC SYSTEMS

**Applied Acoustic Engineering Ltd**  
Marine House, Gapton Hall Road, Great Yarmouth, NR31 0NB, UK  
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

- POSIDONIA 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. Use the new Webserver to configure data collection, set triggers and check status of the icListen. Synchronize your hydrophone using PPS to form an array and determine direction. Smart enough to gather waveform, spectral or event data in standard formats.

- icListen HF 10Hz to 2kHz
- icListen LF 0.01 to 1600 Hz
- icListen AF 10Hz to 12kHz or 0.01Hz to 12 kHz
- icTalk Calibrated Smart Projector: 10kHz to 200kHz
- LUCY PC software for instrument control and data presentation
- Radio Buoy, 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



**RTSYS**

- 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 02921 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 Thornhill 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, SLDBMB, and iSLDMB.

## BUOYANCY PRODUCTS

### Subsalve USA

P.O. Box 2030  
North Kingstown, RI 02852  
Phone: 401-884-8801  
Fax: 401-884-8868  
E-mail: richard@subsalve.com  
Website: www.subsalve.com  
Contact: Richard Fryburg



Since 1977 Subsalve USA has been America's #1 manufacturer of standard and custom flotation devices and we are the innovators in buoyancy and engineered inflatables. Our products include: Professional, Commercial, Standard, Shallow Water, Enclosed Flotation Bags, Cable & Pipeline Floats, Water Load Test Bags, Rapid Recovery & Mark V/ORCA EOD Systems.

## CABLES

### Falmat Cable

1873 Diamond Street  
San Marcos, CA 92078  
Toll Free: 800 848 4257  
Tel: +1 760 471 5400  
Fax: +1 760 471 4970  
E-mail: sales@falmat.com  
Website: www.falmat.com  
Contact: Shawn Amirehsani



Falmat Custom Cable Technologies is a global leader in providing innovative and high performance designs for use in harsh and demanding environments. Our proven and hard-working "XTREME" cables are known worldwide for superior reliability and durability in commercial and military projects.

High quality engineered cables for ROV, side scan sonar, video, communication, towed array, geophysical, instrumentation, deep-water Ethernet and many other specialized applications. We offer installing braided hair fairing, single and multilayered steel armored cables in short lengths. Falmat is a Certified ISO9001/AS9100 organization. Visit our web site: www.falmat.com.

# OCEAN INDUSTRY DIRECTORY

## ON&T's Product & Service Directory

### South Bay Cable Corp

54125 Maranatha Drive  
P.O. Box 67  
Idyllwild, CA 92549  
Phone: (951) 659-2183  
Fax: (951) 659-3958  
Contact: Gary Brown, Sales Manager  
Email: Sales@southbaycable.com  
Website: www.southbaycable.com



Since 1957, South Bay Cable Corp has designed and manufactured specialized electrical, electro-mechanical and electro-optical-mechanical cables for use in demanding marine environments. Cables are designed to meet customer requirements and include tether and umbilical cables for ROV's, tow cables, video inspection, faired cables and a host of other customer specific applications.

### 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.com  
Website: www.teledyne-tss.com  
Contact: Carolyn Jones



**USA Office:** 7701 West Little York, Suite 300  
Houston, TX 77040, Contact: Keith Pope  
Tel: +1 713 461 3030, Fax: +1 713 461 3099

Underwater detection systems for determining the location, relative position and burial status of offshore pipelines, umbilicals and subsea telecommunications & power cables.

### CONNECTORS

#### AK Industries

3115 East Las Hermanas Street  
Rancho Dominguez, CA 90221  
Tel: +1 310 762 1600  
Fax: +1 310 762 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 (+1 888 247 6788)  
E-mail: service@birns.com  
Website: www.birns.com  
Contact: Eric Birns



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, CA 92020 USA  
Tel: +1 619 562 7071  
Fax: +1 619 562 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 and Texas, 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.

### 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-us@macartney.com  
www.macartney.com

For more than 35 years, SubConn® wet mateable connectors have been the number one connector supplier for 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

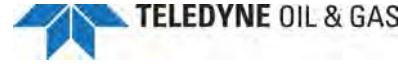
1026 North Williamson Blvd.  
Daytona Beach, FL 32114  
Tel: +1 386 236 0780  
Fax: +1 386 236 0906  
Toll Free: (888) 506 2326  
E-mail: ODI\_marketing@teledyne.com  
Website: www.odi.com



A leader in subsea electrical & fiber optic interconnect systems. Wet-mateable connectors include signal & high-power electrical, optical, and hybrid products. All based on patented PBOF technology. These rugged components are designed for use at any ocean depth, in the harshest environments. ODI also provides top quality custom engineered solutions for any subsea networking challenge.

### Teledyne Oil & Gas

1026 North Williamson Blvd.  
Daytona Beach, FL 32114  
Tel: +1 386 236 0780  
Fax: +1 386 236 0906  
Toll Free: +1 888 506 2326  
E-mail: oilandgas@teledyne.com  
Website: www.teledyneoilandgas.com.



Delivering engineered solutions for subsea & topside monitoring, sensing and interconnection applications. Technology-focused capabilities include corrosion & erosion monitoring networks, data acquisition/evaluation/reporting systems and turnkey systems integration, power & data interconnection systems and subsea engineering. Teledyne Oil & Gas is Teledyne ODI, Teledyne Impulse, Teledyne Cormor & Teledyne DG O'Brien.

### DATA ACQUISITION

#### Geometrics, Inc.

2190 Fortune Drive  
San Jose, CA 95131  
Tel: +1 408 954 0522  
Fax: +1 408 954 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.

## 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, JDS, 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 PRODUCTS

**BGB Technology Inc.**  
1060 Port Walthall Drive  
Colonial Heights, VA 23834  
Tel: +1 804 451 5211  
E-mail: sales@bgbtechnology.com  
Website: www.bgbtechnology.com and www.bgbengineering.com



*BGB is a manufacturer of fiber optic rotary joints (FORJ), media converters and wave division multiplexers used in the transmission of high speed data and video signals. The Optilinc FORJ is available with either ST or Deutsch RSC TM connectors. BGB can also supply integrated slip ring/FORJ assemblies if required.*

### Moog Components Group

77 Frazee Avenue  
Dartmouth, Nova Scotia  
Canada B3B 1Z4  
Toll free: +1 800 361 2263 USA,  
Toll free: +1 888 302 2263 Canada  
Tel: +1 902 468 2263, Fax: +1 902 468 2249  
E-mail: mcg@moog.com  
Website: www.moog.com/marine  
Contact: John Purdy



*Moog Components Group now offers Focal™ and Prizm™ 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.*

### SeaView Systems

7275 Joy Road, Suite A  
Dexter, MI 48130, USA  
Tel/Fax: +1 734 426 8978  
E-mail: info@seaviewsystems.com  
Website: www.seaviewsystems.com  
Contact: Matthew Cook



*SeaView Systems Fiber Optic Multiplexer: PC-104 PCB assembly supports 3 channels SD video, 100mb Ethernet (onboard 2 port switch), 8 serial (RS-232 and RS-485 with onboard conversion) and two high speed trigger channels. Easy: Baud-rate tolerant circuitry. No DIP switches. Flexible: Options for HD-SDI and Gigabit Ethernet. Reliable: Robotically assembled and thoroughly tested. Cost: Affordable!*

## 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



**TELEDYNE TSS**  
Everywhereyoulook™

**USA Office:** 7701 West Little York, Suite 300  
Houston, TX 77040, Contact: Keith Pope  
Tel: +1 713 461 3030, Fax: +1 713 461 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, NJ 07446 USA  
Tel: +1 201 825 1400  
Fax: +1 201 825 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, ethylene glycol, hydraulic fluids and chemical cleaning cocktails. Expedited deliveries are also available.*

## MAGNETOMETERS

### Geometrics, Inc.

2190 Fortune Drive  
San Jose, CA 95131  
Tel: +1 408 954 0522  
Fax: +1 408 954 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.

# OCEAN INDUSTRY DIRECTORY

ON&T's Product & Service Directory

## MANUFACTURERS' REPRESENTATIVE

### **ROMOR Ocean Solutions**

51 Raddall Ave, Unit 10  
Dartmouth, Nova Scotia  
Canada B3B 1T6  
Tel. +1 (902) 466-7000  
Fax. +1 (902) 466-4880  
Email: Sales@romor.ca

Website: www.romorceansolutions.com  
Contact: Darrin Verge, President & CEO



*ROMOR Ocean Solutions provides instrumentation solutions for the geophysical, oceanographic, defense, security, oil & gas, and renewable energy industries. By partnering with world renowned manufacturers, ROMOR is able to offer technical knowledge, value added services, logistics expertise, and the most reliable instrumentation on the market.*

## MARINE ENVIRONMENTAL CONSULTING SERVICES

### **ASRC Energy Services**

3900 C Street, Suite 700  
Anchorage, AK 99503  
Tel: +1 907 339 6200  
Fax: +1 907 339 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: +1 772-219 3000  
Fax: +1 772-219 3010  
E-mail: tmarin@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.*

June 2014

94

## MOTION SENSING EQUIPMENT

### **iXBlue**

Tel: +33 (0) 1 30 08 88 88  
Fax: +33 (0) 1 30 08 88 01  
Website: 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**

Pirsentet  
N-7462 Trondheim, Norway  
Tel: +47 73 54 55 00  
Fax: +47 73 51 50 20  
E-mail: km.seatex@kongsberg.com  
Website: www.km.kongsberg.com/seatex  
Contact: Finn Otto Sanne at finn.otto.sanne@kongsberg.com



*Kongsberg Seatex is a leading international marine electronics manufacturer specializing in the development and production of precision positioning and motion sensing systems. Our commitment is to provide quality products and solutions for safe navigation and operations at sea in the commercial offshore, maritime, hydrographics and defence industries*

## 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! +1-772-617-6787

### **Teledyne TSS Ltd.**

UK Office: 1 Blackmoor Lane  
Croxley Business Park  
Watford, Hertfordshire WD18 8GA  
Tel: +44 (0) 1923 216020  
Fax: +44 (0) 1923 216061  
E-mail: tsssales@teledyne.com  
Website: www.teledyne-tss.com  
Contact: Carolyn Jones



**TELEDYNE TSS**  
Everywhereyoulook™

**USA Office:** 7701 West Little York, Suite 300  
Houston, TX 77040, Contact: Keith Pope  
Tel: +1 713 461 3030, Fax: +1 713 461 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/SERVICES

### **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  
Web: 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  
Website: 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 or Goulien Prud'homme - gprudhomme@nke.fr
- Provor and Arvor profiling subsurface floats (ARGO project), CTD, dissolved oxygen and optical sensors; Argos & Iridium transmission. • Drifting surface buoys with temperature and GPS receiver for Surface velocity project. • Carioca drifting buoy: sea water dissolved pCO2, chlorophyll, wind speed and salinity. Contact: Patrice Brault - pbrault@nke.fr

### **Nortek AS**

Vangkronen 2  
1351 Rud, Norway  
Tel: +47 6717 4500  
E-mail: inquiry@nortek.no

### **Nortek USA**

27 Drydock Avenue  
Boston, MA 02210  
Tel: +1 617 206 5750  
Email: inquiry@nortekusa.com  
Website: 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 6,000 m deep. Nortek is global, positioned to help you wherever your solution is needed.*

### **RBR**

95 Hines Road, Ottawa  
Ontario Canada K2K 2M5  
Tel: +1 613 599 8900  
Fax: +1 613 599 8929  
E-mail: info@rbr-global.com  
Website: 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 Scientific**

13431 NE 20th St.  
Bellevue, WA 98005  
Tel: +1 425 643 9866  
Fax: +1 425 643 9954  
E-mail: info@sea-birdscientific.com  
Website: www.sea-birdscientific.com  
Contact: Calvin Lwin, Sales



**SEA-BIRD**  
SCIENTIFIC

*Sea-Bird Scientific, comprised of Sea-Bird Electronics, WET Labs, and Satlantic, provides integrated solutions to customers' measurement needs. Sea-Bird Scientific is the leader in accurate, stable ocean instruments for measuring conductivity (salinity), temperature, pressure, oxygen, pH, chlorophyll, CDOM, turbidity, beam attenuation, irradiance, radience, PAR, nitrate, and phosphate. Our CTD profilers, water samplers, moored CT recorders, wave/tide recorders, DO sensors, and optical sensors are used by research institutes, ocean observing programs, government agencies, and navies globally.*

**Star-Oddi**  
Skeidars 12, 210  
Gardabaer, Iceland  
Tel: +354 533 6060  
Fax: +354 533 6069  
E-mail: baldur@star-oddi.com  
Website: www.star-oddi.com  
Contact: Baldur Sigurgeirsson



A manufacturer of miniature data loggers with sensors as temperature, depth/pressure, salinity, tilt/acceleration, compass direction/magnetometer, light levels, acoustic receiving/transmitting. The loggers are used for various researches, including oceanography, fishing gear studies, equipment behavioral monitoring and fish tagging. Data is presented in the application software with a time-stamp for each measurement.

**TDI Brooks**  
14391 South Dowling Road  
College Station, Texas 77845 USA  
Tel: +1 979 693 3446  
Fax: +1 979 693 6389  
Email: Jimbrooks@tdi-bi.com  
Website: www.tdi-bi.com  
Contact: Dr. Jim Brooks



Scientific services with a focus on petroleum geochemistry, surface geochemical exploration, geotechnical coring and analysis, oil spill response, oceanographic surveys, hazard surveys, environmental chemistry and environmental assessments. Operating six research vessels and maintaining geochemical, geotechnical and environmental laboratory facilities

**Turner Designs**  
845 W Maude Avenue  
Sunnyvale, CA 94085  
Phone: +1 408 749 0994 x146  
Toll Free: +1 877 316 8049 x149  
Fax: +1 408 749 0998  
Contact: Tom Brumett, Sales Engineer  
E-mail: sales@turnerdesigns.com  
Website: 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.

## POWER SYSTEMS

**SouthWest Electronic Energy**  
823 Buffalo Run  
Missouri City, Texas 77489  
Tel: +1 281 240 4000  
Fax: +1 281 240 4535  
Email: seasafe@swe.com  
Website: www.swe.com  
Contact: Leon Adams



SouthWest Electronic Energy specializes in safe, high-quality battery solutions for industrial subsea applications, ranging from one bar Lithium-Ion to 10,000+ PSI tolerant Lithium-Ion polymer rechargeable battery solutions leveraging our patented battery management system. We safely deliver 4X the run time of Sealed Lead Acid with extended lifecycles for AUVs, ROVs, electronics and motors.

**Tinitron, Inc.**  
6501 NW Croeni Road  
Hillsboro, OR 97124-8506  
Tel: +1 503 533 4400  
Toll free: +1 800 786 5824 (7-VOLTAGE)  
Email: sales@tinitron.com  
Website: www.tinitron.com  
Contact: Timmy Srinivasan, President & CEO,  
David Fulton, Director of Bus. Dev. x234



Tinitron Marine designs and manufactures high-voltage systems and subsea components, transformers, Power Distribution Units, high-quality inverters, energy storage systems, optically-controlled subsea transformers, Insulation Leakage Monitors (for umbilicals), rotary switches for grounding and tap selection, and solenoids for ROVs and other subsea tools. Since 1962, over 5,000 designs. [www.tinitron.com](http://www.tinitron.com)

## PROJECT CONSULTING/ADVISORY SERVICES

**Ocean Specialists Inc.**  
8502 SW Kansas Ave  
Stuart, FL 34997  
Tel: +1 772 219 3033  
Fax: +1 772 219 3010  
Email: jbyous@oceanspecialists.com  
Website: 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.

## SONAR SYSTEMS

**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

### L-3 Klein Associates, Inc.

11 Klein Drive  
Salem, NH 03079  
Tel: +1 603 893 6131  
Fax: +1 603 893 8807  
Email: Klein.Mail@l-3com.com  
Web: [www.L-3Klein.com](http://www.L-3Klein.com)  
Contact: Deborah Durgin, Supervisor, Marketing & Sales



Klein Associates, Inc.

L-3 Klein is the world's leading sensor technology provider that manufactures and designs high-resolution side scan and multi-beam sonar equipment, and radar-based security and surveillance systems. L-3 Klein has developed a worldwide reputation of excellence in the industry by providing quality products and excellent customer service. Please feel free to check out our product offerings at [www.L-3Klein.com](http://www.L-3Klein.com).

### Marine Sonic Technology, Ltd.

P.O. Box 730  
White Marsh, VA 23183-0730  
Toll Free: +1 800 447 4804  
Email: 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 AUVs which occupy minimal space in the vessel and operate with minimal power consumption.

## SOUND VELOCITY PROBES/CTDS

### SAIV A/S

Nygardsviken 1, 5164  
Laksevag, Norway  
Tel: +47 56 11 30 66, Fax: +47 56 11 30 69  
Email: 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 profillings, 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

## 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! +1-772-617-6787

June 2014

95

Ocean News & Technology

# OCEAN INDUSTRY DIRECTORY

ON&T's Product & Service Directory

## SUBSEA FABRICATION

### New Industries

6032 Railroad Avenue  
Morgan City, LA 70360  
Tel: +1 985 385 6789  
E-mail: bill.new@newindustries.com  
Website: 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: +1 713 934 3100  
E-mail: info@seanicusa.com  
Website: 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.

### Subsea Americas

3447 Hwy 182  
P.O. Box 185  
Berwick, LA 70342  
Tel: +1 985 714 1767 or 985 518-0055  
E-mail: charles@subseaamericas.com  
Website: www.subseaamericas.com  
Contact: Charles Mayea



Subsea Americas (SSA) is a leading provider of rental ROV tooling equipment on a worldwide basis. SSA is a 24 hr. / 7 days a week service provider of a comprehensive range of standard subsea tooling equipment. From torque tools and flying lead orientation tools to 15k isolated hydraulic intensifiers and wire rope cable cutters - SSA can fully support the client's needs with quality service, and reliable equipment at a most competitive cost.

## SWITCHES

June 2014

### SEACON Advanced Products, LLC.

1321 Nelius Road  
P.O. Box 767  
Bellville, TX 77418 USA.  
Tel: +1 979 865 8846  
Fax: +1 979 865 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

Ocean News & Technology

### Exocetus Development LLC

1444 East 9th Avenue  
Anchorage, AK 99501  
Tel: 858-864-7775  
Fax: 907-569-0268  
Contact Ray Mahr  
Email: sales@exocetus.com  
Website: www.exocetus.com



The Exocetus Coastal Glider, designed for coastal waters where high currents and large variations in water densities occur, has a larger buoyancy engine than legacy gliders, enabling the glider to operate in 2+ knots of current, handling water densities from 7 - 37 ppt, operate for 60 days with a lithium battery and integrate additional sensors.

### Hydroid, Inc.

a subsidiary of Kongsberg Maritime  
6 Benjamin Nye Circle  
Pocasset, MA 02559-4900 USA  
Tel: +1 508 563 6565  
Fax: +1 508 563 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.

## OceanServer Technology, Inc.

151 Martine Street  
Fall River, MA 02723 USA  
Tel: +1 508 678 0550  
Fax: +1 508 678 0552  
E-mail: sales@ocean-server.com  
Website: www.iver-auv.com  
Contact: Jim Kirk



OceanServer Technology, Inc. is a leading provider of man-portable Autonomous Underwater Vehicles (AUVs) with over 200 AUVs deployed worldwide. The Iver AUV is an affordable, commercial vehicle used for general survey and sub-surface security work, and serves as a research platform for autonomy, behavioral and sensor development studies at universities and navy research facilities.

## UNDERWATER VEHICLES/ROVs

### Deep Ocean Engineering Inc.

2528 Quine Drive, Suite 11  
San Jose, CA 95131 USA  
Tel: +1 408 436 1102  
Fax: +1 408 436 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, TX 77316  
Tel: +1 936 582 7237  
Fax: +1 713 583 1369  
E-mail: sdgingman@delta-subsea-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.

### i-Tech

22330 Merchants Way  
Katy, TX 77449  
Tel: +1 281 693 9403  
E-mail: Katarina.Tehlirian@Subsea7.com  
Website: www.interventiontechnology.com  
Contact: Katarina Tehlirian



i-Tech is a global division of Subsea 7 delivering world class remotely operated vehicle (ROV) and intervention tooling support services to the offshore energy industry, operating from four regional centers: Europe & Africa, Asia-Pacific the Americas and Brazil.

### Perry

10344 Sam Houston Park Drive, Suite 300  
Houston, TX 77064  
Tel: +1 713 329 8230  
Fax: +1 713 329 8299  
E-mail: subsea.sales@f-e-t.com  
Website: www.f-e-t.com/Subsea



SUBSEA TECHNOLOGIES  
everything remotely possible™



Forum Energy Technologies' Perry 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, CA 95618  
Tel: +1 530 753 6718  
Fax: +1 530 753 8092  
Contact: Peter MacInnes  
E-mail: peter.macinnes@fmcti.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 is a world leading manufacturer of capable underwater MiniROVs that perform a multitude of tasks including maritime security, search and recovery, hull and pipeline inspection, hazardous environment intervention, aquaculture, sensor deployment and oceanographic research. The Little Benthic Vehicle systems have become the benchmark in compact ROVs around the world.

**Sub-Atlantic**

Woodburn Rd.  
Blackburn Business Park  
Blackburn, Aberdeen  
AB21 0PS, Scotland  
Tel: +44 (0) 1224 798660  
Fax: +44 (0) 1224 798661

10344 Sam Houston Park Drive  
Suite 300  
Houston, TX 77064  
Tel: +1 713 329 8730  
Fax: +1 713 329 8299  
E-mail: subsea.sales@f-e-t.com  
Website: www.f-e-t.com/Subsea



Forum Energy Technologies' sub-Atlantic brand manufactures world class ROVs ranging from portable units to light work class systems. Sub-Atlantic also supplies thrusters, hydraulic power units, valve packs, compensators and pan and tilt systems to other ROV manufacturers. Sub-Atlantic is part of the FET subsea group and has facilities in the US and UK and sales offices and agents around the world.

**VideoRay**

212 East High Street  
Pottstown, PA 19464  
Tel: +1 610 458 3000  
Fax: +1 610 458 3010  
E-mail: sales@videoray.com  
Website: www.videoray.com  
Contact: Brian Luzzi



With more than 3,000 ROV's 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 226501  
Email: km.camsales.uk@kongsberg.com  
Website: 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.

**ROVSCO, Inc.**

5263 Barker Cypress Road, Suite 600  
Houston, TX 77084  
Tel: +1 281 858 6333  
Fax: +1 281 858 6363  
E-mail: sales@rovenco.com  
Website: www.rovenco.com  
Contact: Jessica McKenney



Rovenco 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.

**SIDUS Solutions, LLC**

PO Box 420698  
San Diego, CA 92142  
Tel. +1 619 275 5533  
Fax +1 619 275 5544  
  
P.O. Box 925006  
Houston, TX 77292  
Tel. +1 281 596 7568  
Fax +1 281 596 7578  
Email: info@sidus-solutions.com  
Web: www.sidus-solutions.com



SIDUS Solutions, LLC is a full service manufacturer offering integrated subsea and hazardous area security & surveillance solutions, from conceptual design through engineering to technical & customer support. Our subsea products are currently operational to depths exceeding 6,500m. Worldwide, SIDUS serves the oil, gas, academic, scientific & military industries.

**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: +1 713 937 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.

**WINCHES - UNDERWATER**

**ALL OCEANS Engineering Ltd.**

Tyrebagger 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! +1-772-617-6787**

# ADVERTISER INDEX

Ametek SCP Inc.	84	<a href="http://www.ametekspc.com">www.ametekspc.com</a>
Bluefin Robotics	31	<a href="http://www.BluefinRobotics.com">www.BluefinRobotics.com</a>
CodaOctopus Ltd	60	<a href="http://www.codaoctopus.com">www.codaoctopus.com</a>
CSA Ocean Sciences Inc.	27	<a href="http://www.csaocean.com">www.csaocean.com</a>
CSnet International, Inc.	40	<a href="http://www.csnetintl.com">www.csnetintl.com</a>
DeepSea Power & Light	61	<a href="http://www.deepsea.com">www.deepsea.com</a>
Delta SubSea	7	<a href="http://www.DeltaSubSea-rov.com">www.DeltaSubSea-rov.com</a>
ECA Robotics	66	<a href="http://www.eca-robotics.com">www.eca-robotics.com</a>
EvoLogics GmbH	99	<a href="http://www.evologics.de">www.evologics.de</a>
Falmouth Scientific, Inc.	79	<a href="http://www.falmouth.com">www.falmouth.com</a>
FORUM Energy Technologies, Inc. (F.E.T.)	9	<a href="http://www.f-e-t.com">www.f-e-t.com</a>
Geometrics, Inc.	63	<a href="http://www.geometrics.com">www.geometrics.com</a>
GJ Land & Marine Food Dist., Inc.	50 	<a href="http://www.gjfood.com">www.gjfood.com</a>
Gulf Engine	55	<a href="http://www.gulfengine.com">www.gulfengine.com</a>
Hawboldt Industries	83	<a href="http://www.hawboldt.ca">www.hawboldt.ca</a>
Hydroid, Inc.	72	<a href="http://www.hydroid.com">www.hydroid.com</a>
InterOcean Systems, Inc.	49	<a href="http://www.interoceansystems.com">www.interoceansystems.com</a>
ISE, Ltd.	3	<a href="http://www.ise.bc.ca">www.ise.bc.ca</a>
JW Fishers Manufacturing, Inc.	74	<a href="http://www.jwfishers.com">www.jwfishers.com</a>
L-3 Communications Klein Associates	34	<a href="http://www.L-3com.com">www.L-3com.com</a>
LinkQuest, Inc.	57	<a href="http://www.link-quest.com">www.link-quest.com</a>
Marine Sonic Technology	5	<a href="http://www.marinesonic.com">www.marinesonic.com</a>
New Industries	45	<a href="http://www.newindustries.com">www.newindustries.com</a>
NKE Instrumentation	71	<a href="http://www.nke-instrumentation.fr">www.nke-instrumentation.fr</a>
Ocean News & Technology	80, 85, 86, 89, 91 	<a href="http://www.ocean-news.com">www.ocean-news.com</a>
Ocean Specialists, Inc.	69	<a href="http://www.oceanspecialists.com">www.oceanspecialists.com</a>
OceanServer Technology	33	<a href="http://www.ocean-server.com">www.ocean-server.com</a>
Okeanus Science & Technology	51	<a href="http://www.okeanus.com">www.okeanus.com</a>
Quest Offshore Resources, Inc.	81	<a href="http://www.questoffshore.com">www.questoffshore.com</a>
RJE International	65	<a href="http://www.rjeint.com">www.rjeint.com</a>
Rowe Technologies, Inc.	30	<a href="http://www.rowetechinc.com">www.rowetechinc.com</a>
Saab Seaeye Ltd	14	<a href="http://www.seaeye.com">www.seaeye.com</a>
Sea-Bird Scientific	100	<a href="http://www.sea-birdscientific.com">www.sea-birdscientific.com</a>
SeaBotix	4 	<a href="http://www.seabotix.com">www.seabotix.com</a>
Seacon	29 	<a href="http://www.seaconworldwide.com">www.seaconworldwide.com</a>
Seanic Ocean Systems	59	<a href="http://www.seanicusa.com">www.seanicusa.com</a>
SeaRobotics	79	<a href="http://www.searobotics.com">www.searobotics.com</a>
Shark Marine Technologies, Inc.	53	<a href="http://www.sharkmarine.com">www.sharkmarine.com</a>
Sound Ocean Systems Inc. (SOSI)	82	<a href="http://www.soundocean.com">www.soundocean.com</a>
Subsalve USA	84	<a href="http://www.subsalve.com">www.subsalve.com</a>
Subsea Americas	65	<a href="http://www.subseaamericas.com">www.subseaamericas.com</a>
Teledyne Impulse	73	<a href="http://www.teledynemis.com">www.teledynemis.com</a>
Teledyne Marine Group	35	<a href="http://www.teledynemarine.com">www.teledynemarine.com</a>
Teledyne Oil & Gas	13 	<a href="http://www.teledyneoilandgas.com">www.teledyneoilandgas.com</a>
Teledyne RDI	67	<a href="http://www.rdinstruments.com">www.rdinstruments.com</a>
Teledyne TSS Limited	21	<a href="http://www.teledyne-tss.com">www.teledyne-tss.com</a>
Tritech International Limited	19	<a href="http://www.tritech.co.uk">www.tritech.co.uk</a>
Underwater Intervention	83	<a href="http://www.underwaterintervention.com">www.underwaterintervention.com</a>
Unique System FZE	48	<a href="http://www.uniquegroup.com">www.uniquegroup.com</a>
Valeport Limited	56	<a href="http://www.valeport.co.uk">www.valeport.co.uk</a>
VideoRay	2	<a href="http://www.videoray.com">www.videoray.com</a>
Wet Tech Energy, Inc.	17	<a href="http://www.WetTechEnergy.com">www.WetTechEnergy.com</a>
Yale Cordage, Inc.	25	<a href="http://www.yalecordage.com">www.yalecordage.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

- flexible SiNAPS positioning software
- reliable data transmissions
- range: up to 8000 m
- accuracy: up to 0.04 degrees

## UNDERWATER ACOUSTIC MODEMS

reliable data transmissions even in adverse conditions, customizable standard modems or **new M-series "mini" modems** in a light and compact design, special editions for developers, S2C communication and positioning emulator for free with every purchase

- range: up to 8000 m
- depth: up to 6000 m
- data rate: up to 31.2 kbps

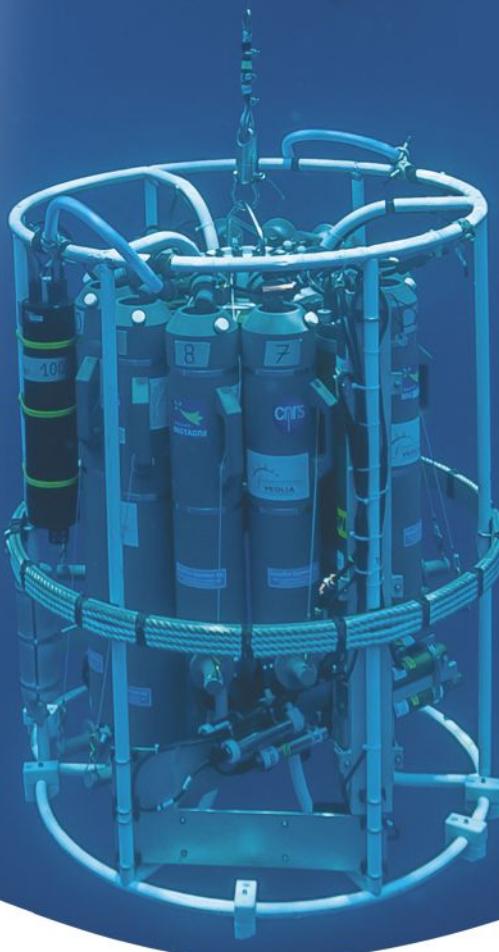
## LBL POSITIONING SYSTEMS

highly accurate, precise and stable performance, simultaneous positioning and data transmissions

- flexible SiNAPS positioning software
- reliable data transmissions
- range: up to 8000 m
- accuracy: better than 0.01 m



# Your Ocean Science Partners



**SEA-BIRD**  
SCIENTIFIC

**SBE**

WET Labs

SATLANTIC

