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October 2012

Dive Craft for Offshore IRM

Broadband Fulfills Ballard's "Telepresence" Vision

Feature Story — Page 10

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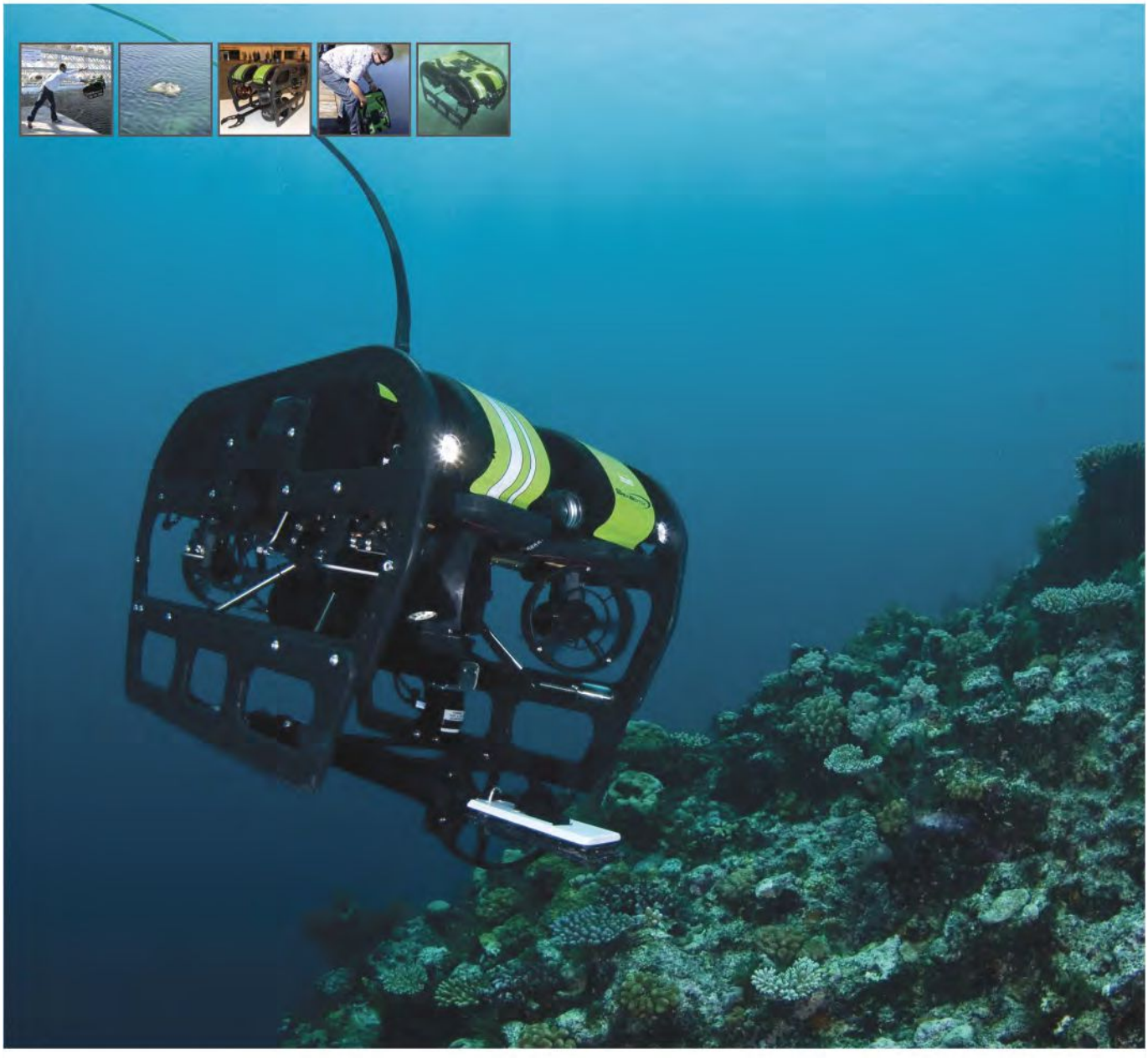

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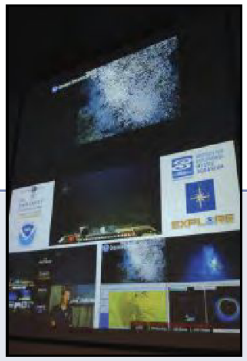

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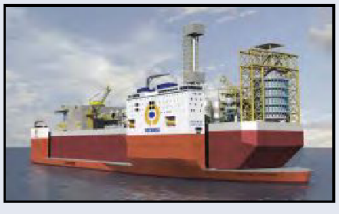

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Editorial

By John Manock

Technology brings us closer to the offshore world

Ocean News & Technology

PUBLISHER
Dan White

EDITOR IN CHIEF
Ladd Borne

OFFSHORE ENERGY EDITOR
Ray Tyson

SUBMARINE CABLE EDITOR
John Manock

SR. V.P. BUSINESS DEVELOPMENT
MJ McDuffee

PRODUCTION COORDINATOR
Amy Hamm

ART DIRECTOR
Suzanne Short

COPY EDITOR
Robyn Schuricht

CIRCULATION
Samantha Burn
subscription@ocean-news.com

ADVERTISING SALES

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

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

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

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

It is amazing how telecommunications technology has changed the world in which we live. I recall many discussions during the 1990s where we debated whether emerging fiber optics and wireless technologies would provide a real benefit to people beyond clearer phone calls, faster e-mail, and a degree of mobility. Back then, there was the dream of the "killer app" – something that would catch the public's attention and provide the real driver for a communications revolution – but nobody had a clue as to what that app would be.

Now, not all the much later, there is not one, but a billion-and-one killer apps. Telecom access and transmission technologies, along with the Internet, have changed the way we do almost everything, yet there is no end in sight for new and better applications. I have written many times about the insatiable demand for Internet bandwidth for business, entertainment, and every other sector, but there is an equally insatiable amount of ingenuity and creativity within us to develop new ways of using the Internet to further transform our daily lives.

We are clearly seeing these trends impacting offshore communications. Advances in telecommunications technologies have extended the Internet out into the oceans of the world, thus connecting us drylanders to the sea in new and sometimes inextricable ways.

Dr. Robert Ballard is best known for discovering the Titanic, but he should be better known in the offshore communications world as one of the visionaries recognizing how telecom could be used to connect people and the sea. His dream goes back some 30 years, before the technology really existed, but today it is a reality. As you will read later in this issue, undersea exploration is being transmitted live over the Internet into the homes of anyone who wants to experience it.

We are seeing the Internet extending further into the oceans almost daily. New satellite offerings now allow for entertainment options for seagoing vessels rivaling those on land as well as unprecedented safety and security measures. As competition increases and prices drop, new applications for this available and affordable bandwidth will be developed, continuing to change the way we operate at sea.

Meanwhile, fiber optics technology is working its way offshore. I am not referring to traditional submarine fiber optic cables that travel under the sea between islands or continents. These merely connect terrestrial telecom networks and markets. Their only relationship to the sea is that they pass under it.

In recent years, however, fiber optic technology has been moving into offshore applications, such as oil & gas, tsunami warning, and underwater observatories. The entry into each area is accompanied by new possibilities – some bringing improvements in the quality of life of the people working on the sea, others new efficiencies to doing business on and under the oceans, and still others adding to our knowledge of the marine world.

Even the traditional submarine fiber optic cables provide opportunities. Old cables that are taken out of service have been used for years for underwater research, but even new cables may soon serve that role. Earlier this year, plans were announced to embed sensors into a new submarine fiber optic cable so that the cable would provide data on the subsea world as it was carrying commercial traffic between continents. Market factors on the commercial side led to the cancellation of this project, but sensors in operational cables are almost a certainty in the not-so-distant future.

Interesting possibilities are presenting themselves in other types of installations, such as subsea fiber optic cables in offshore oil & gas fields. Cables connecting platforms to each other and to the shore are hardly new, but new applications are now coming into focus.

One application is to combine the basic telecom services offered to platforms with the monitoring capabilities of the cable network. This combination could lead to an entirely new level of interaction between the offshore operation and the marine environment.

Such a system would provide the ability to establish a broadband sensing footprint to allow not only baseline monitoring, but to facilitate long-term monitoring with greatly reduced operations and maintenance costs. The network would provide permanent and sustainable production, operations, and metocean data in the water column or on the seafloor. It could track currents, detect leaks, and monitor hydrocarbon emissions.

The applications for broadband capacity in the offshore environment are limited only by our imagination. As the technology continues to improve and the cost of bandwidth continues to decline, it will change our relationship with the marine world – the way we live on it, work on it, and study it.

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Broadband fulfills Ballard's "telepresence" vision

By John Mannock

In the fulfillment of a vision first described more than 30 years ago by famed ocean explorer Dr. Robert Ballard, broadband maritime communications technology is opening new windows on ocean exploration.

At the Inner Space Center at the University of Rhode Island's Graduate School of Oceanography (GSO), researchers are using broadband to connect a land-based control facility to oceanographic research ships at sea in real time, according to Dr. Dwight F. Coleman, Director of the Center. Satellites are transmitting broadband data from two research ships, the E/V Nautilus, operated by the Ocean Exploration Trust, and the NOAA Ship Okeanos Explorer, to the Inner Space Center as they travel the world exploring the ocean's depths.

The Nautilus uses a 15 Mbps link, while the Okeanos has a 20 Mbps link. The broadband connections carry voice, video, and data traffic, allowing scientists at the Inner Space Center, which was founded by Dr. Ballard, to follow the progress of the research as if they were on the ships.

While satellite broadband capacity is so expensive that it would be beyond the reach of a single institution, the Inner Space Center has mitigated the high cost by sharing the cost of the Nautilus' bandwidth with other educational institutions, such as the Sea Research Foundation's Mystic Aquarium. This makes the cost per institution affordable, while giving each access to immensely valuable research opportunities. The Okeanos, being a federally owned ship, pays for its own satellite bandwidth.

And in a fascinating twist, going broadband actually saves money by allowing the Inner Space Center to efficiently monitor and control the course of the research, thus minimizing the time that the research vessels remain at sea.

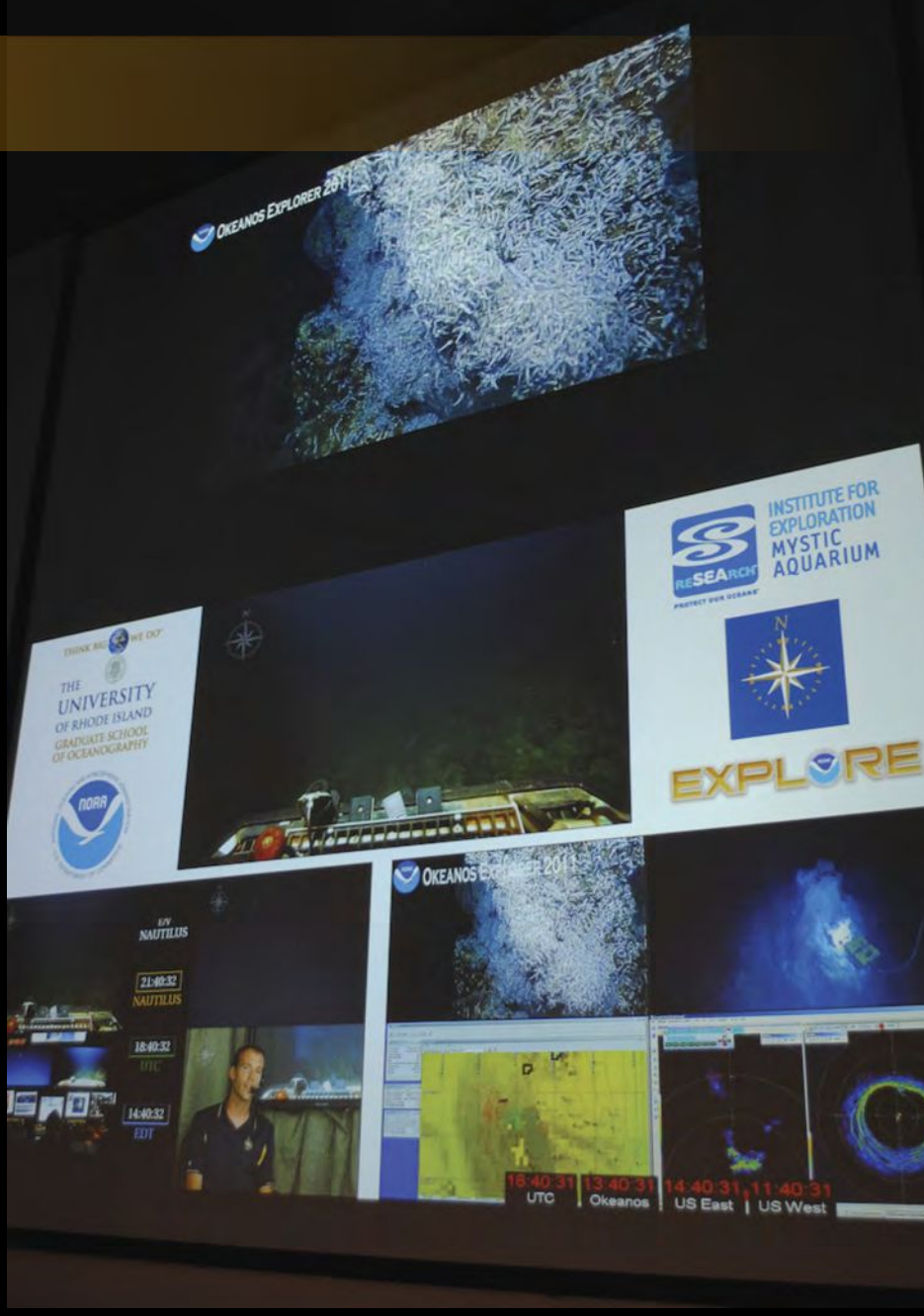
Broadband suppliers for the two ships are selected in different ways. For the Nautilus, the supply contract is put out to bid. The Okeanos Explorer is under a government contract with an existing supplier.

The technology allows many scientists and students who can't be on board the ships to directly participate in the research in real time. It can also be accessed by schools and the public over the Internet and at locations such as the Nautilus Live Theatre at Mystic Aquarium. Local school systems can participate in the voyages of the Nautilus by following the progress of the exploration on www.nautiluslive.com.

The Nautilus, in fact, recently completed a cruise in the Black Sea and the Mediterranean. Observers on shore, whether scientists at the Inner Space Center or students at home, were able to watch as the Nautilus, with its ROVs Hercules and Argus, spent 12 days studying the area off Turkey's Black Sea coast. The ship revisited a number of shipwrecks and discovered three new ones off Sinop and Eregli. It also retrieved experiments left behind 5 years ago to see how various materials decompose in the oxygen-free layer of the Black Sea. In addition, sediment core samples were retrieved from the seafloor within the surface-oxygenated layer, the deep oxygen-free layer, and the boundary layer. These will be studied at Istanbul University and the University of Rhode Island.

The Nautilus then sailed into the Mediterranean to study the Anaximander subsea mountain range. Her ROVs took 31 GB worth of pictures of the summit of the Kula mud volcano to be put together for a photomosaic composite map.

During the Nautilus' voyage, there were multiple streams of video, audio, or data being delivered from the ship to the Inner Space Center and, from there, directly to the public over the Internet. For example, during the dives of the ROVs Hercules and Argus, there was a video feed from the ROVs' camera allowing the public to observe what the cameras was picking up in real time. In addition, there was an audio feed from the Nautilus in which members of the research team discussed what the ROV was seeing or answering questions from the public that were submitted through the website. During operations such as the side-scan sonar mapping of the seafloor, a data feed would also be included, showing the scan, also in real time.



Of course, communications is a two-way street and it allowed the researchers on the Nautilus to follow another pioneering moment of scientific exploration – the landing of the Curiosity rover on Mars.

As maritime broadband technology continues to develop, Dr. Ballard's original vision will continue to be expanded upon, providing greater and greater opportunities to bring the exploration of the ocean to classrooms and living rooms around the world.

For more information, visit www.isc.gso.uri.edu.

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Phoenix participates in search for Amelia Earhart's plane

In early July, on the 75th anniversary of the disappearance of Amelia Earhart and her navigator Fred Noonan, members of Phoenix International Holdings, Inc. (Phoenix) set sail from Hawaii in support of a search effort led by The International Group for Historic Aircraft Recovery (TIGHAR). The target of the search was Amelia Earhart's Lockheed Electra 10E aircraft. After years of research, TIGHAR theorized that the plane went down near the island of Nikumaroro, an atoll roughly 1,900 mi southwest of Hawaii. Phoenix's role was to search one square mile of the seabed from 50 to 4,000 ft – off the northwest side of the island.

To conduct the underwater search, Phoenix deployed its new BlueFin Robotics built BlueFin-21 autonomous underwater vehicle (AUV) and a leased remotely operated vehicle (ROV) from Submersible Systems, Inc. (SSI). The underwater search team consisted of five Phoenix AUV operators/ROV technicians, two BlueFin AUV technicians, and two SSI ROV technicians. After a 9-day transit aboard the research vessel Ka`imikai-o-Kanaloa (K-O-K), the team arrived at Nikumaroro and commenced undersea search operations.

During 8 days on site, the AUV spent 53 hours searching to a maximim depth of 4,019 ft. Search operations required the AUV to operate 15 m off the bottom while working in and around extreme seafloor terrain that included deep crevasses and sheer cliffs. After each mission, the AUV was recovered aboard the K-O-K and data were reviewed by TIGHAR and Phoenix sonar imagery experts to identify targets for further investigation by the ROV. Despite the challenging bottom conditions, the Phoenix AUV and ROV team overcame adversity and successfully searched over 1.2 square miles of the seafloor – encompassing the entire planned search area.

This extensive underwater search provided valuable AUV sonar imagery and ROV high definition video to support further study by TIGHAR and other forensic imaging experts – perhaps yielding more definitive clues as to the whereabouts of this famous plane.

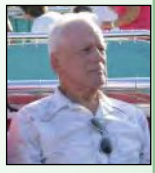
For more information, visit www.tighar.org.

FMC Technologies to acquire Pure Energy Services

FMC Technologies, Inc. (FMC) and Pure Energy Services Ltd. (Pure) announced execution of a definitive acquisition agreement under which FMC will acquire Pure for C$11.00 per share in cash, or approximately C$282 million (US$285 million). Based in Calgary, Canada, Pure is a leading provider of frac flowback services and an established wireline services provider operating in multiple field locations in both Canada and the U.S. Pure employs approximately 1,300 employees. For the 12 months ended 30 June, 2012, Pure generated C$282 million of revenue and C$59 million of EBITDAS, with the majority related to frac flowback services. Under the terms of the acquisition agreement, the acquisition will be accomplished by way of a plan of arrangement (the Arrangement) pursuant to the Business Corporations Act (Alberta). The proposed Arrangement is subject to certain conditions, including the approval by the holders of Pure shares and options representing at least two-thirds of votes cast in person or by proxy at the meeting of Pure shareholders to be held to approve the Arrangement; the Court of Queen's Bench of Alberta; and relevant regulatory authorities. Under the Arrangement, Pure has agreed that it will not solicit, initiate, or participate in any discussions concerning any other acquisition proposals, subject to the ability of Pure to respond to superior proposals in certain circumstances.

Dr. Raymond F. McAllister Ph.D. dies

Respected and admired as an educator, Dr. Raymond F. McAllister Ph.D., 89, died of natural causes September 17th at his home in Lighthouse Point, Florida A pioneering professor emeritus of Ocean Engineering at Florida Atlantic University, he also fought to protect the region's coral reefs more than 40 years ago, long before anyone realized they were in danger. Dr. McAllister was best known by this community for the book he co-authored "Handbook of Ocean and Underwater Engineering." For those of us who knew him personally the mention of Ray McAllister brings a grin to our faces as we remember the legendary stories of his unstoppable personality, dedication to his beliefs and unique teaching skills. He continued to dive long after his legs abandoned him and he will be missed by the Ocean Community.



CSA opens office in Brazil

CSA International, Inc. (CSA) of Stuart, Florida is pleased to announce the opening of its office in Rio de Janeiro, Brazil. In progress since January 2012, CSA Ciências Oceânicas Ltda. has officially opened its doors for business in Rio, having recently completed the legal establishment of the Brazilian company. See the recently unveiled website www.csaco.com.br for more information on our Brazilian office and the services we offer in the South American region.

Ms. Laura Azevedo has been appointed Managing Director of CSA Ciências Oceânicas Ltda. and leads the effort to develop the local staff and resources to offer the various business lines of CSA. Mr. Thomas Lamoure has been appointed Technical Operations Manager and will support the company's liaison with CSA's other offices, focusing on the development of local capabilities and expertise.

CSA Ciências Oceânicas Ltda. will offer CSA's primary consulting services to the Brazilian market, including marine environmental sciences; environmental survey and monitoring; oil spill assessment and monitoring; natural habitat mitigation and restoration resource assessment; risk management; permitting support, including subsea fiber optic system development and consulting; marine mammal services, including provision of Protected Species Observation services and marine sound; and metocean services. As part of the CSA family, CSACO will be supported by the specialized and experienced technicians from CSA as well as local expertise and partnerships with several complementary companies located in Brazil.

For more information, visit www.csaintl.com.

Chikyu sets a new world depth record for scientific ocean drilling

Scientific deep-sea drilling vessel Chikyu sets a new world record by drilling down and obtains rock samples from deeper than 2.11 m below the seafloor off Shimokita Peninsula of Japan in the northwest Pacific Ocean. The Japan Agency for Marine-Earth Science and Technology (JAMSTEC), the implementing organization for scientific expedition aboard the Chikyu, announced this achievement on 6 September 2012.

Chikyu made this achievement during the Deep Coalbed Biosphere expedition, Expedition 337, conducted within the framework of an international marine research program, the Integrated Ocean Drilling Program (IODP). Before Chikyu broke the record, the previous deepest hole in the history of scientific ocean drilling reached 2.111 m into the seafloor, 504B at Costa Rica Rift.

"We have just opened a window to the new era of scientific ocean drilling," Fumio Inagaki, Co-Chief scientist of Expedition 337, says. "The extended record is just a beginning for the Chikyu. This scientific vessel has tremendous potential to explore very deep realms that humans have never studied before. The deep samples are precious, and I am confident that our challenges will extend our systematic understanding of nature of life and earth."

Chikyu is the state-of-the-art scientific research vessel, capable of drilling as much as 10,000 m below sea level. It is designed to reach the deeper part of the Earth such as the mantle, the plate boundary seismogenic zones, and the deep biosphere.

Drilling down to 2,200 m below the seafloor and obtaining high-quality samples from the deeply buried coal formation is the main objective of the expedition. An international science party aboard Chikyu has already achieved this aim working jointly with CDEX and operational team.

Samples collected from the target coal beds have been analyzed in the laboratory aboard Chikyu and will continue to be examined after the expedition. The research will provide new insights into the deep life associated with a hydrocarbon system in the deep marine subsurface.

The expedition that started in late July continues coring operations to obtain even deeper rock samples and formation fluids using a new borehole wire-line instrument *in situ*.

For more information, visit www.iodp.org.

BOEM requests comments on draft form to streamline authorization process for cable projects

The Bureau of Ocean Energy Management (BOEM) announced the publication of a draft form for right-of-way (ROW) grants of submerged lands on the Outer Continental Shelf (OCS) to support renewable energy development. BOEM is requesting feedback on the form, which is intended to streamline the agency's process for authorizing cable projects that support offshore wind development.

An ROW grant is an authorization issued for use of a portion of the OCS for the construction and use of a cable or pipeline for transmitting electricity or other energy product generated or produced from renewable energy. The ability of an ROW grantee to install such a cable or pipeline and operate such activities would be subject to the applicable approvals specified in BOEM's regulations.

For more information, visit www.boem.gov.

SeaRobotics expands executive team

SeaRobotics Corporation is pleased to announce that Jim Browning has joined the company as Vice President Production. Mr. Browning will be responsible for the further development of SeaRobotics' manufacturing capabilities as the company expands to meet the requirements of its expanded product lines. His career in the ocean industry spans more than 25 years, beginning with U.S. Navy projects in the New London Submarine Base. He spent approximately 20 years with Perry Slingsby Systems in Jupiter, Florida.

"We are very fortunate have someone with Jim's extensive experience in production management, quality systems, HSSE processes, and manufacturing management system. There are very few individuals in the ocean industry with the level of capability and experience that Jim brings to our company," stated Don Darling, President of SeaRobotics.

The company has recently announced its program to refine its standard product line of USVs and the commercialization of various development projects, including its Ship Hull Cleaning technology developed for the U.S. Navy.

SeaRobotics specializes in small, smart vessels that are remotely or autonomously operated. Its clients

include major military and commercial organizations, both U.S. and foreign. SeaRobotics' seasoned marine survey software interfaces with most data acquisition hardware, software, and sensing systems to produce multi-spectral, DGPS-stamped data for survey, research, or surveillance efforts. Applications for SeaRobotics vessels range from bathymetric and hydrographic surveys to coastal, harbor, and riverine surveillance. Many SeaRobotics vessels are small, modular, and man-portable, allowing rapid deployment in remote areas or deployment by larger vessels, and its command and control systems are user-friendly and compact, allowing backpack mobilization.

For more information, visit www.searobotics.com.

Greenpeace International executive director and 13 others take action against Gazprom in Russian Arctic

Just days after occupying Gazprom's Prirazlomnaya oil platform in the Pechora Sea, Greenpeace International took up peaceful action to stop the company from putting the final touches on its platform to begin Arctic oil drilling.

Greenpeace International executive director Kumi Naidoo and six other Greenpeace activists headed toward the platform in two high-speed boats to intercept the Anna Akhmatova passenger vessel as it prepared to drop off the workforce to the Prirazlomnaya. Two hours later, another two boats with seven more activists arrived on scene. There were a total of 14 activists in place from 10 different countries, including the United States, and the standoff has been happening for over 8 hours.

Speaking from the action, Naidoo said, "We scaled this oil platform to draw the world's attention to this environmental crime, before it becomes an environmental disaster zone. We're taking peaceful action in the heart of Arctic destruction to stop this platform from wrecking these pristine waters. Nearly two million people have already joined our campaign to protect this unique region, and we will do all we can to keep it off-limits to reckless oil companies looking to profit from its exploitation."

"The Prirazlomnaya is the first permanent oil platform in the offshore Arctic and marks the creeping industrialization of this fragile area. The construction phase on the platform is nearly complete, and Gazprom is anxious to begin drilling and become the first oil company to commercially produce oil from the offshore Arctic."

"Despite extreme operating conditions, Gazprom has only released a summary of its oil spill response plan to the public. Yet even this document shows that the company would be completely unprepared to deal with an accident in the Far North and would rely on

substandard clean-up methods – such as shovels and buckets – that simply do not work in icy conditions.

For more information, visit www.greenpeace.org.

NOAA, partners to document civil war-era warship sunk in Gulf of Mexico battle

A team of archaeologists and technicians assembled by NOAA will create a three-dimensional (3D) sonar map to document the storm-exposed remains of the USS Hatteras, the only Union warship sunk in combat in the Gulf of Mexico during the Civil War.

The Hatteras, an iron-hulled steamship the U.S. Navy converted into a gunboat, was lost in a battle with the famous Confederate commerce raider CSS Alabama on 11 January 1863, about 20 mi off Galveston, Texas. Largely forgotten, the battle was one of the skirmishes that saw the key southern port of Galveston change hands twice and remain one of the last bastions of the Confederacy.

Today, the wreck of the Hatteras is largely intact, resting 57 ft underwater in sand and silt. Recent hurricanes and storms have removed some of the sediment and sand that once encased the vessel like a time capsule. Shifting sands may once again rebury the Hatteras; and so, within a short window of opportunity, the team is assembling to capture all the data it can. Working from a NOAA research vessel and two private craft, the divers plan to deploy high-resolution mapping sonar to create 3D photomosaics of the Hatteras for research, education, and outreach purposes during the 2-day mission.

Funding and support for the underwater archaeology project is being provided by the Edward E. and Marie L. Matthews Foundation, the OceanGate Foundation, and Teledyne BlueView. Participants include NOAA's Office of National Marine Sanctuaries; BOEM; BSEE; the Texas Historical Commission; the U.S. Navy's History and Heritage Command; Tesla Offshore LLC; and private citizens, including noted Houston underwater photographer and journalist Jesse Cancelmo, whose reports of the sand moving off the wreck prompted the project. NOAA, which manages Flower Garden Banks National Marine Sanctuary off the Galveston coast, is providing vessel support.

NOAA plans to present results from the mapping mission in Galveston next January during local events marking the 150th anniversary of the sinking of the Hatteras.

For more information, visit www.noaa.gov.

Japan to deploy a breakwater in the event of a tsunami

Obayashi Corporation, TOA Corporation, and Mitsubishi Heavy Industries Bridge & Steel Structures Engineering Co., Ltd. (MBE), a wholly owned subsidiary of Mitsubishi Heavy Industries, Ltd. (MHI), will begin construction of Vertical Telescopic Breakwater (VTB), a buoyancy-driven vertical piling breakwater, in the harbor at Shimotsu in Wakayama Prefecture. Construction is scheduled to begin in early October 2012.

The breakwater system is designed to swiftly rise from the sea bottom in the event of tsunami and contribute to prevention or mitigation of tsunami impact to harbors and coastal areas. When completed, it will be the first such movable steel pipe breakwater system in the world. The three companies will undertake the construction, which will also serve to verify the system's viability, across a 10 m span near the navigation channel as a part of a larger breakwater system that is slated for completion by the spring of 2020. The three companies plan to complete their portion by February 2013.

The VTB mainly consists of multiple sets of larger- and smaller-diameter steel pipes, set in a row at specified intervals in the sea bottom to form a fence-like wall when activated. In each set of steel pipes, the larger-diameter "lower pipe" set into the sea bottom houses a smaller-diameter "upper pipe" that emerges from the lower pipe and rises to the surface to function as a breakwater in the event of a tsunami or other emergency. The upper pipe is made to rise by buoyancy that is generated by blowing air into it. When the exhaust valve at the top of the upper pipe is opened, the air is expelled and the upper pipe sinks to the sea bottom of its own weight.

As the breakwater system remains in the seabed at ordinary times, it enables breakwaters to be constructed at port entrances and the mouths of rivers, something that is impossible to do with conventional breakwaters because they would block sea traffic. In addition, the new system has minimal impact on tidal currents and ambient scenery. The system's seabed mounting also makes it relatively resistant to earthquakes and corrosion, resulting in significant reductions in maintenance and management efforts. As the raising and lowering of the upper pipes are executed by simple air blowing and venting, reliable operation is feasible even in times of emergency. The time required for the upper pipes to rise to the surface and form a breakwater can be as short as several minutes.

For more information, visit www.mhi.co.jp.

NOAA announces grants to predict effects of ocean acidification on commercial fisheries

As scientists continue to research ways in which the oceans are changing – and what these changes mean for fish populations, three new research projects will receive funding to examine the effects of ocean acidification on fisheries and the coastal economies that depend upon them.

Ocean acidification occurs when the ocean absorbs carbon dioxide from the atmosphere, making it more acidic. Species as diverse as scallops and corals are vulnerable to ocean acidification, which can affect the growth of their shells and skeletons.

The grants, totaling nearly $1.6 million over 3 years, will go to The Woods Hole Oceanographic Institution- $682,000 to understand the connection between fluctuations of carbon dioxide levels and ocean scallop populations, harvest, and economic conditions; The State University of New York at Stony Brook- $533,000 to examine bay scallops and hard clams to determine acidification effects on each species and identify the most vulnerable regions of estuaries; and The University of Washington- $374,000 to study a large climate model with fish populations and economic models in order to predict ocean conditions and economic effects.

These awards are managed by the NOAA's National Centers for Coastal Ocean Science and Ocean Acidification Program. These research awards complement ongoing work within NOAA that monitors acidification and determines its effects on marine populations.

For more information, visit www.noaa.gov.

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Edison Chouest Offshore continues aggressive newbuild campaign

The Edison Chouest Offshore (ECO) family of companies, one of the industry's largest, most diverse and dynamic marine transportation solutions providers, announced additions to an aggressive newbuild campaign first released 1 year ago. ECO, which currently has 25 vessels under construction at shipyards worldwide, announced an additional eight Jones Act-class deepwater offshore service vessels, with delivery to occur within the next 24 months. ECO supports the majority of the U.S. Gulf deepwater operations and an expanding global market with its fleet of over 200 highly specialized new generation offshore service and supply vessels. Thus far in 2012, ECO has delivered 13 new vessels, both domestic and worldwide, with 3 of those in the 300'/5,150 DWT Jones Act class, the first in the previously announced newbuild class of 2011. The 2012 deliveries also include platform supply vessels (PSVs) in Brazil, two well stimulation vessels, fast supply boats, and a Norwegian-built PSV, as well as Aiviq, the 360' ice class anchor handler currently at work in Alaska.

Dockwise ships US Navy minehunters

Dockwise recently transported four U.S. Navy mine-hunting ships from their port in San Diego to the Persian Gulf. The 224 ft. mine-hunting vessels were transported on the 600 ft Dockwise Turn on a transpacific voyage of 42 days. Transporting the U.S. Navy ships helps Dockwise fill cargo space on an otherwise empty ship. Normally, oil equipment and rigs are transported from Asia to the Atlantic but return with no cargo. Dockwise estimates that this one trip for the Navy accounted for 10% of its business in the second quarter.

Jumbo completed shipment of caissons for Gorgon project

Jumbo successfully completed the transport and discharge of 25 MOF caissons for the Gorgon Project. These concrete caissons will form the base of the heavy lift Material Offloading Facility for the Chevron LNG Plant to be constructed on Barrow Island in Australia. The crew of the Jumbo Jubilee accomplished a discharge rate of one caisson per day. Jumbo's transport solution supported the Gorgon project perfectly by reducing critical path activities in the development of the Material Offloading Facility. The Jumbo Jubilee transported the 25 caissons from Port Klang, Malaysia to Barrow Island, Australia in four shipments. The caissons, weighing 600 to 700 tons (D: 12.5 and H: 16.8 meter), were lifted from a barge and placed in the hold of the vessel for transport. Due to the enormous hold capacity of the Jumbo Jubilee and its ability to sail with open hatches, it was possible to transport seven MOF caissons simultaneously, while maintaining a minimum ship draft. At Barrow Island, Jumbo used anchor points and mooring lines to keep the vessel in position while discharging the caissons.

Rolls-Royce to Design and Power Buoy Tender Vessel for India

Rolls-Royce, the global power systems company, has secured an £8 million contract to design and power a highly specialized buoy tender vessel for India. The vessel will be operating in remote waters off the east coast of India and around the Andaman & Nicobar Islands maintaining and replacing navigational aids and buoys. The vessel will be built at the Cochin Shipyard Ltd. in India, and is due for delivery in 2015.

Crowley takes delivery of first high-Bollard-pull ocean class tugboat

Crowley Maritime Corp. took delivery of the Ocean Wave, the first of four high-bollard-pull Ocean Class tugboats under construction at Bollinger Shipyards in Amelia, Louisiana.

The second Ocean Class vessel, Ocean Wind, is expected to be delivered later this year.

Crowley's Ocean Class tugs are modern ocean towing twin-screw vessels with controllable pitch propellers (CPP) in nozzles, high-lift rudders, and more than 150 MT bollard pull. The first two Ocean Class vessels, the Ocean Wave and Ocean Wind, are classed as Dynamic Positioning 1 (DP1) tugboats and are twin-screw, steel-hulled tugs with an overall length of 146 ft, beam of 46 ft, hull depth of 25 ft, and design draft of 21 ft. The second two tugs of the class, Ocean Sky and Ocean Sun, will be classed as DP2 and will be 10 ft longer.

The tugs will be ideally suited to work with Crowley's new 455-series heavy lift deck barges, which measure 400ft by 105 ft and offer increased stability for loads up to 4,200 pounds per square foot. Additionally, the tugs will be outfitted for and capable of rig moves, platform and Floating Production, Storage and Offloading (FPSO) unit tows, emergency response, and firefighting. These Ocean class vessels will also have the capability to support salvage and rescue towing opportunities.

"Taking delivery of this first ocean-class tug is a significant milestone for Crowley and our customers who will benefit from its use on their projects," said Tom Crowley , company chairman, president, and CEO. "These Jensen Maritime-designed towing vessels – three of which are under construction at Bollinger – are a new generation of powerful, high-tech, and environmentally friendly workhorses for Crowley that will further solidify our standing as an industry leader in ocean towing, salvage, and offshore marine support for the upstream energy industry."

For more information, visit www.crowley.com.

Baker Lyman, GL announce strategic alliance

Responding to industry concerns over sufficient TSMS service capacities for the impending Sub-Chapter M implementation, classification giant, Houston headquartered Germanischer Lloyd (USA) and New Orleans based Baker, Lyman & Co, Inc announced a strategic alliance last month.

The announcement followed several months of speculation following the end of the Sub-M NPRM Public Comment period of how USCG and the industry could address what TSAC and AWO have characterized as a serious market shortage of TSMS delivery service capabilities.

These service capabilities include TSMS Assessments/Plan Writing, TSMS Plan Certification, and TSMS Audits/Surveys.

Germanischer Lloyd (USA) and its sister company, Noble Denton, are global forces in the certification/inspection processes within the tug & barge, workboat, and offshore energy markets. Baker Lyman, a leading marine consulting and chart agent, has been a household name in the U.S. domestic inland and offshore industry since 1919.

The strategic alliance creates a TSMS "one-stop shop" for Sub-M impacted operators. Germanischer Lloyd & Baker Lyman will cross market each partners' product and service lines, creating affordable, scalable, and flexible TSMS solutions for any sized fleet.

For more information, visit www.gl-group.com.

Wärtsilä to power four modern diesel-electric tugs for Australian owner

Wärtsilä, the marine industry's leading solutions and services provider, has been contracted to supply the power system for four new diesel-electric powered tugs being built for Svitzer Australia Pty Ltd. The contract again represents confirmation of Wärtsilä's ability to meet the demands for operational economy and environmental sustainability set for modern vessels in different shipping segments. The contract was signed in Q2/2012. The vessels are being built at the ASL shipyard in Singapore and are scheduled to be in operation by early 2014.

Each of the four 80 Ton Bollard Pull (TBP) harbor tugs will be fitted with two 9-cylinder and one 8-cylinder in-line Wärtsilä 20 engines. The use of the Wärtsilä 20 engines as diesel-electric generating sets is a new development in the tugs market.

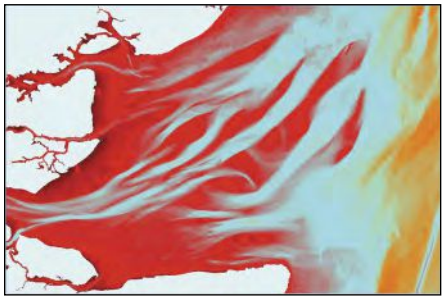
The engines will operate on Marine Gas Oil (MGO). The tugs will be equipped with batteries that allow power from the Wärtsilä generating sets to be stored for later use.

"By selecting Wärtsilä 20 engines for the diesel-electric generating sets, the owner will benefit from their robustness and reliability, which has been proven by the fact that more than 4,000 of the engines have been delivered since this model was introduced to the market in the early 1990s. The Wärtsilä 20 offers low exhaust gas emissions, low operating costs, fuel economy across the entire engine operation range, and high redundancy," says Bresnahan.

Wärtsilä has earlier supplied integrated propulsion solutions for two Svitzer Tier III compliant ECOtugs.

For more information, visit www.wartsila.com.

OceanWise Launches Seabed Digital Elevation Model



Independent marine data management and publishing specialist, OceanWise Ltd, has established off-the-shelf marine mapping datasets that meet the needs of the most demanding applications. These datasets include Raster Charts and the highly acclaimed vector dataset, Marine Themes. Both are available online for immediate download from established digital mapping providers, emapsite.com and FIND Mapping. Offering exceptional value, OceanWise mapping and data management products are being widely used across central and local Government, NGOs, and the commercial sector.

To accompany the above datasets, OceanWise has created Marine Themes DEM, a seabed digital elevation model (DEM) at 1 and 6 arc seconds, utilizing single and multi-beam hydrographic survey data from the UK Hydrographic Office and other agencies. Data derived from Electronic Navigational Charts (ENCs) are used to provide additional coverage.

For more information, visit www.oceanwise.eu.

Damen launches new design: Damen Offshore Carrier 7500

Damen Shipyards presents a new shipping concept to the market – the Damen Offshore Carrier (DOC) 7500 – specifically designed as a smaller heavy transport, offshore installation, and ro-ro platform suitable for multiple markets. The Damen Offshore Carrier aims to provide flexibility and year-round utilization.

Damen developed the new vessel in cooperation with Singapore-based heavy lift transport specialist Hans van Mameren, managing director of Ha-Ce Engineering Pte Ltd.. The DOC has an endurance of 65 days, a large, flat and unobstructed deck of 2,300 m², a deck strength of 20 t/m², and is highly fuel-efficient.

Remko Bouma, Sales Manager of Damen Shipyards Bergum, says, "When we decided to realize a new design together, we wanted to create a vessel that was able to carry modules and cargo on an open deck over medium and long distances, complying the demands of today's market. I think this vessel will be 'the' alternative for the more time-consuming tug and barge transportations."

The Damen Offshore Carrier is able to handle higher sea states, while maintaining course and speed and, by that, being more economical and reliable, he stresses. As well as economical fuel consumption, the vessel can run on HFO380, making it even more cost efficient.

For more information, visit www.damen.nl.

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Ensuring Accuracy and Reliability for Transponders

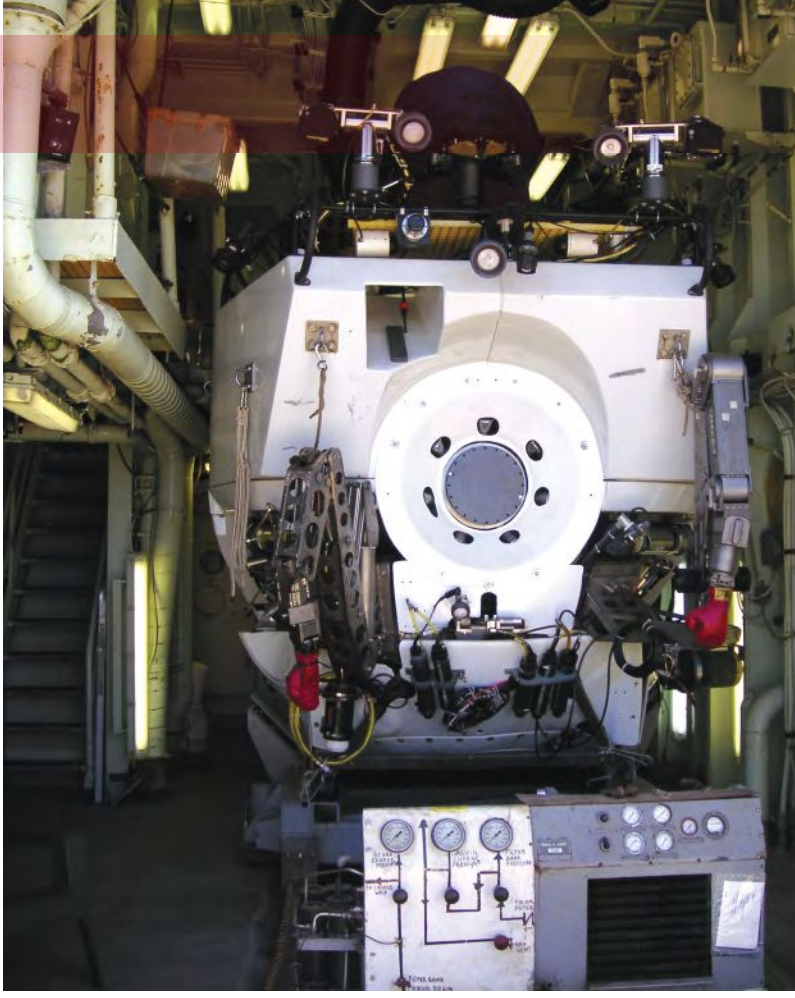
By Kevin Ruelas, CEO
Channel Technologies Group

Underwater acoustic positioning was just in its infancy 60 years ago when the U.S. Navy relied on it to help uncover sunken ships.

The first of these underwater acoustic positioning systems could place personnel in the area of the intended objects but exact positioning was not possible, so a system of "guess and check" was used. Today, these systems have evolved, and they are now used by a variety of industries and revered for their accuracy and reliability. The ability of these systems to routinely and accurately detect objects underwater will play a valuable role in future military and non-military missions.

In the Department of Defense's 30-year plan, submitted to Congress in March, the Pentagon calls for a drastic change in Naval equipment. The plan outlines a decrease in orders for new ships and a total reduction of the number of ships overall. However, the plan also requires that the Navy prioritize the acquisition of more of the advanced, high-end combat ships over routine supply vessels.

Prioritizing advanced combat ships is one of the ways the Navy is shifting its focus to the mission of the future. Engaging in combat missions in blue waters dominated Navy missions in the second half of the 20th century. The mission is changing. Now, operations are moving to littoral waters with unique challenges. Technologies must adapt to the new environment and be accurate, reliable, and affordable.



As a mid-sized company, with our largest customer being the U.S. Navy, we at Channel Technologies Group (CTG) are keenly aware of the new demands and expectations for these advanced technologies.

The products we develop for the rigorous demands of the Navy have benefits for other industries that require the same level of accuracy and durability for their underwater positioning systems. Whether used by a Navy vessel, oil exploration company, or ocean monitoring system, transponders must be able to withstand the harsh undersea environment, including varying temperatures, pressures, and biologics. During these extreme conditions, transponders and positioning systems must continue to operate consistently with repeatable precision.

The key to being able to operate consistently over time and through diverse conditions is quality control and rigorous testing. Beginning in 2010, CTG began a series of investments aimed at ensuring its end-products, including transponders, performed with the highest accuracy. This four-part process included the following:

- Source all raw materials in the United States;
- Eliminate or minimize the use of outside suppliers;
- Design a manufacturing system that creates a repeat able process; and
- Establish rigorous quality control checks throughout each step.

The first of these goals started with the development of the piezo materials. The piezo sensor is the heart of any sonar or underwater navigation system in use today. Piezo ceramics made by CTG's Channel Industries division begin with powder sourced in the United States. This same powder sourcing has been used by CTG for the past 60 years, meaning that the piezo ceramics created today have the same qualities and consistencies as the ones used 60 years ago. The use of American-sourced raw materials is just one way to control the consistency of the piezo materials over time.

Along with manufacturing all of CTG's piezo ceramics in house, quality control required minimizing the amount of outside suppliers being used. Whenever an external supplier is used, the end-manufacturer loses a small amount of control over the final product. Small changes in design or processes can make for small changes in the end-product.

Minimizing the use of outside suppliers required an integration of CTG's three product lines. In 2010, CTG's piezoceramic division, CI; its transducer division, ITC; and its systems division, Sonatech, vertically integrated to become a single company. Customers benefit from all these capabilities and expertise under one roof. Engineers and scientists begin with the design and production of the piezo ceramic and continue with the design and manufacturing of the transducer and then the final transponder or system.

The benefit of this integrated system is creating custom transducers in a repeatable process. The value of any transducer, or navigation system overall, lies in its accuracy. Documenting, controlling, and overseeing the creation of the piezo ceramic, the transducer, and the transponder system ensures the end-product can be repeated without comprising the accuracy and consistency of the final product.

Once the final product is developed, rigorous testing ensures that the accuracy of transponders is the same in the lab as it is in the rugged environment of the ocean floor. With this in mind, CTG conducts a series of lab tests before taking the final product for real-world ocean testing both off-pier and in blue waters.

This rigorous testing is the final step in ensuring transponders are accurate and can maintain that accuracy in the toughest of environments. As the Navy has increased the demands for precise technology, so has industry. Transponders serve a valuable role in mapping the ocean floor for all maritime industries. As technology continues to improve, it is important that accuracy and reliability are maintained.

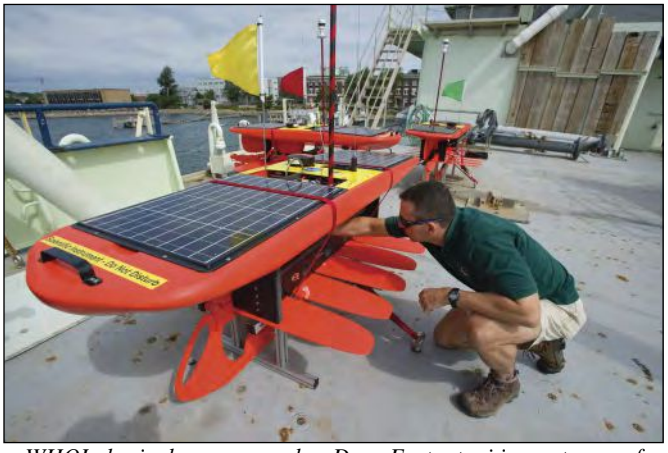
Ocean Science

Arctic Sea ice reaches record low
Arctic Sea ice appears to have broken the 2007 record daily extent and is now the lowest in the satellite era. With 2 to 3 more weeks left in the melt season, sea ice continues to track below 2007 daily extents. Arctic Sea ice extent fell to 4.10 million square kilometers (1.58 million square miles) on 26 August 2012. This was 70,000 square kilometers (27,000 square miles) below the 18 September 2007 daily extent of 4.17 million square kilometers (1.61 million square miles). Including this year, the six lowest ice extents in the satellite record have occurred in the last 6 years (2007 to 2012).

Smart ocean/smart fisheries: Data collection from fishing vessels
Senior fishing industry representatives and scientists focused on the role of the fishing industry in collecting ocean, weather, and climate data and how to scale up these efforts at a World Ocean Council (WOC) panel during the Seafood Summit in Hong Kong. The fishing industry can play a significant role in collecting data that: a) contributes to describing the status, trends, and variability of ocean, weather, and atmosphere conditions, and b) improves the understanding, modeling, and forecasting of ocean ecosystems and resources. The fishing industry panel is part of the WOC "Smart Ocean/Smart Industries" initiative to facilitate, scale up, and coordinate data collection by ocean users (e.g., fisheries, shipping, oil/gas, and offshore renewables). The initiative is working to develop efficient, cost-effective data gathering by ocean industries that builds on existing efforts, creates economies of scale, and is integrated into national and international ocean observing and science programs. Improved and expanded information from industry vessels and platforms will contribute to improved modeling of weather, ocean conditions, and climate change and will support safer, more responsible use of ocean space and resources – with clear benefits for business, society, science, and governments.

Southeast suffered millions in economic losses from overfishing
The Southeast sustained tens of millions of dollars in economic losses during a 5-year period because years of overfishing depleted species led to fewer recreational fishing trips, according to an analysis commissioned by the Pew Environment Group. The study, conducted by the nonprofit consulting firm Ecotrust, examined the impact of overfishing from 2005 to 2009 on nine severely depleted species, including black sea bass and red snapper, in the South Atlantic and Gulf of Mexico, respectively. The biggest loss in direct expenditures—nearly $53 million a year on average—came from fewer fishing trips to catch South Atlantic black sea bass. The figure represents money that was not spent on items such as boat rentals, charter fees, tackle, bait, fuel, and other businesses directly dependent on anglers targeting this species. When looking at the broader economy, including spending at hotels, restaurants, wholesale suppliers, and other downstream businesses, the region had a total estimated loss of $138 million because of fewer trips for black sea bass alone. In the Gulf, where red snapper are at only 17.5% of a safe population level, direct spending losses amounted to an average of $13 million annually because of fewer fishing trips targeting that species. When looking at the broader economy, this loss increased to $33 million. In the South Atlantic from Florida to North Carolina, where red snapper have declined to 12.5% of a safe level, the total economic loss was $42 million on average per year.

NASA/WHOI voyage set to Explore link between salinity and climate



WHOI physical oceanographer Dave Fratantoni inspects one of several "wave gliders" on the deck of R/V Knorr.
(Photo by Tom Kleindinst©Woods Hole Oceanographic Institution)

A NASA-sponsored expedition is set to sail to the North Atlantic's saltiest spot to get a detailed, 3D picture of how salt content fluctuates in the ocean's upper layers and how these variations are related to shifts in rainfall patterns around the planet.

The research voyage is part of a multi-year mission, dubbed the Salinity Processes in the Upper Ocean Regional Study (SPURS), which will deploy multiple instruments in different regions of the ocean. The new data will also help calibrate the salinity measurements that NASA's Aquarius instrument has been collecting from space since August 2011.

SPURS scientists aboard the research vessel Knorr left 6 September 6 from the Woods Hole Oceanographic Institution in Woods Hole, Massachusetts., and headed toward a spot known as the Atlantic surface salinity maximum, located halfway between the Bahamas and the western coast of North Africa. The expedition is also supported by the National Oceanic and Atmospheric Administration and the National Science Foundation.

The researchers will spend about 3 weeks on site deploying instruments and taking salinity, temperature, and other measurements before sailing to the Azores to complete the voyage on 9 October.

They will return with new data to aid in understanding one of the most worrisome effects of climate change -- the acceleration of Earth's water cycle. As global temperatures rise, evaporation increases, altering the frequency, strength, and distribution of rainfall around the planet, with far-reaching implications for life on Earth.

Oceanographers believe the ocean retains a better record of changes in precipitation than land, and translates these changes into variations in the salt concentration of its surface waters. Scientists studying the salinity records of the past 50 years say they already see the footprint of an increase in the speed of the water cycle. The places in the ocean where evaporation has increased and rain has become scarcer have turned saltier over time, while the spots that now receive more rain have become fresher.

For more information, visit www.whoi.edu.

The oceanographic vessel Alpha Crucis is inaugurated

The oceanographic vessel Alpha Crucis was inaugurated on 30 May 2012 at a ceremony held at the Port of Santos. The ship, acquired by FAPESP for the Universidade de São Paulo's Oceanography Institute (IO-USP), will replace the vessel Professor W. Besnard.

The Besnard had been used from 1967 to 2008, when a fire rendered the vessel inoperative for research, drastically limiting oceanographic research in São Paulo State. The acquisition of the Alpha Crucis is part of a project that IO-USP submitted to FAPESP for funding to increase research capacity in the area under the auspices of the Multiuser Equipment Program (EMU).

The São Paulo Governor, Geraldo Alckmin – who was participating in the Accelerate São Paulo State Meeting, where he announced strategic actions for the development of the Santos Basin – and the USP President, João Grandino Rodas, unveiled the inaugural plaque.

Other participants in the ceremony included the FAPESP president, Celso Lafer; vice-president, Moacyr Krieger; scientific director, Carlos Henrique de Brito Cruz; administrative director, Joaquim José de Camargo Engler; and the IO-USP director, Michel Michaelovitch de Mahiques.

Lafer emphasizes that the ship, whose maintenance and management are IO-USP's responsibility, can be used by scientists from other institutions within the guidelines of the EMU program. The ship is expected to foster a quantitative leap in oceanographic research in the country.

For more information, visit agencia.fapesp.br.

Ocean drilling project illuminates 55 million years of the carbon cycle and climate history

Over this time period, when the Earth is known to have transitioned from "hothouse" to "icehouse" conditions, the oceans also experienced a dramatic shift in the carbonate compensation depth, or CCD. Defined as the depth below which carbonate minerals (such as calcite) dissolve completely, the CCD is known to fluctuate over time; it shallows during warm periods and deepens when ice age conditions prevail.

In the 30 August issue of *Nature* paper, U-M oceanographer Ted C. Moore, Jr. and his colleagues present a detailed and quantifiable record of just how much the CCD has shifted during recent geological history.

"These results provide a better understanding of the Earth's carbon

cycle and especially the rather abrupt – geologically speaking – cooling of the climate that occurred 33.7 million years ago," said Moore, an emeritus professor in the Department of Earth and Environmental Sciences.

The study, which relies on seafloor sediment cores collected during a pair of 2009 expeditions on board the JOIDES Resolution, demonstrates that 55 million years ago the CCD of the Pacific Ocean sat at an average of about 2 mi below the sea surface. As the Earth cooled, however, the CCD sank, reaching its deepest point of almost 3 mi approximately 11 million to 13 million years ago. Today, the Pacific's CCD sits just less than 3 mi deep and is thought to be on the rise as a result of modern, human-induced climate change.

The Pacific Ocean has remained the largest ocean on Earth for millions of years. Today, it covers one-third of the planet's surface, and its biologically productive equatorial region plays a very important role in the global carbon cycle and long-term climate patterns. Over 4 months, the drilling vessel JOIDES Resolution – operated by the U.S. Implementing Organization on behalf of the National Science Foundation and the Integrated Ocean Drilling Program – drilled nearly 4 mi of core samples at eight locations across the center of the Pacific basin.

For more information, please visit www.iodp.org.

Darwin discovered to be right: Eastern Pacific Barrier is virtually impassable by coral species

A coral species that is found in abundance from Indonesia eastward to Fiji, Samoa, and the Line Islands rarely crosses the Eastern Pacific Barrier toward the coast of the Americas, according to a team of researchers led by Iliana Baums, an assistant professor of biology at Penn State University. Darwin hypothesized in 1880 that most species could not disperse across the marine barrier, and Baums's study is the first comprehensive test of that hypothesis using coral. The results of the scientific paper, which will be published in the journal *Molecular Ecology*, has important implications for climate-change research, species-preservation efforts, and the economic stability of the eastern Pacific region, including the Galapagos, Costa Rica, Panama, and Ecuador.

The Eastern Pacific Barrier (EPB) – an uninterrupted 4,000 mi stretch of water with depths of up to 7 mi – separates the central from the eastern Pacific Ocean. In his writings, Darwin had termed this barrier "impassable" and, since Darwin's time, scientists have confirmed that many species of marine animals cannot cross this oceanic divide. However, until now, researchers had not performed a comprehensive analysis of the impact of the barrier on coral species. "The adult colonies reproduce by making small coral larvae that stay in the water column for some time, where currents can take them to faraway places," Baums said. "But the EPB is a formidable barrier because the time it would take to cross it probably exceeds the life span of a larva."

For more information, visit science.psu.edu.

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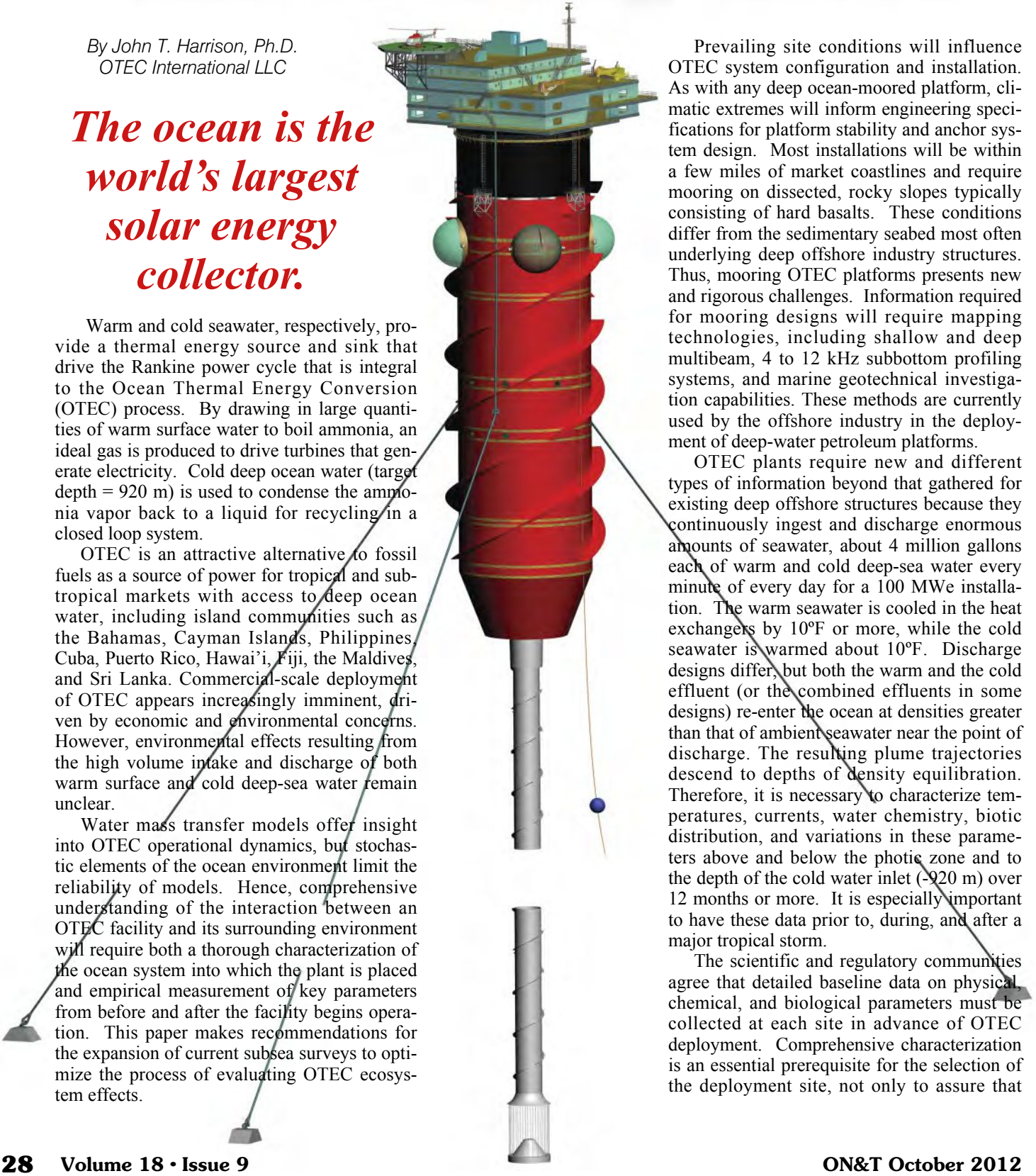
Information Needs in Support of Ocean Thermal Energy Conversion

By John T. Harrison, Ph.D.
OTEC International LLC

The ocean is the world's largest solar energy collector.



Warm and cold seawater, respectively, provide a thermal energy source and sink that drive the Rankine power cycle that is integral to the Ocean Thermal Energy Conversion (OTEC) process. By drawing in large quantities of warm surface water to boil ammonia, an ideal gas is produced to drive turbines that generate electricity. Cold deep ocean water (target depth = 920 m) is used to condense the ammonia vapor back to a liquid for recycling in a closed loop system.

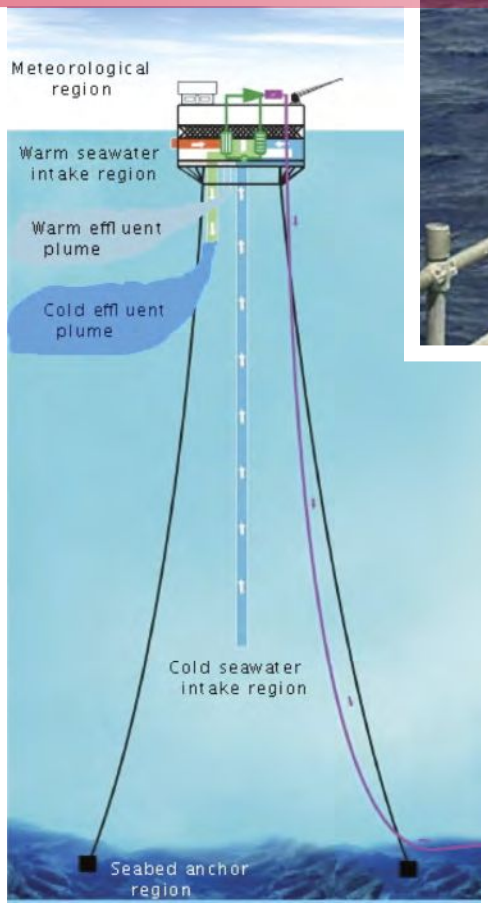
OTEC is an attractive alternative to fossil fuels as a source of power for tropical and subtropical markets with access to deep ocean water, including island communities such as the Bahamas, Cayman Islands, Philippines, Cuba, Puerto Rico, Hawai'i, Fiji, the Maldives, and Sri Lanka. Commercial-scale deployment of OTEC appears increasingly imminent, driven by economic and environmental concerns. However, environmental effects resulting from the high volume intake and discharge of both warm surface and cold deep-sea water remain unclear.

Water mass transfer models offer insight into OTEC operational dynamics, but stochastic elements of the ocean environment limit the reliability of models. Hence, comprehensive understanding of the interaction between an OTEC facility and its surrounding environment will require both a thorough characterization of the ocean system into which the plant is placed and empirical measurement of key parameters from before and after the facility begins operation. This paper makes recommendations for the expansion of current subsea surveys to optimize the process of evaluating OTEC ecosystem effects.

Prevailing site conditions will influence OTEC system configuration and installation. As with any deep ocean-moored platform, climatic extremes will inform engineering specifications for platform stability and anchor system design. Most installations will be within a few miles of market coastlines and require mooring on dissected, rocky slopes typically consisting of hard basalts. These conditions differ from the sedimentary seabed most often underlying deep offshore industry structures. Thus, mooring OTEC platforms presents new and rigorous challenges. Information required for mooring designs will require mapping technologies, including shallow and deep multibeam, 4 to 12 kHz subbottom profiling systems, and marine geotechnical investigation capabilities. These methods are currently used by the offshore industry in the deployment of deep-water petroleum platforms.

OTEC plants require new and different types of information beyond that gathered for existing deep offshore structures because they continuously ingest and discharge enormous amounts of seawater, about 4 million gallons each of warm and cold deep-sea water every minute of every day for a 100 MWe installation. The warm seawater is cooled in the heat exchangers by 10ºF or more, while the cold seawater is warmed about 10ºF. Discharge designs differ, but both the warm and the cold effluent (or the combined effluents in some designs) re-enter the ocean at densities greater than that of ambient seawater near the point of discharge. The resulting plume trajectories descend to depths of density equilibration. Therefore, it is necessary to characterize temperatures, currents, water chemistry, biotic distribution, and variations in these parameters above and below the photic zone and to the depth of the cold water inlet (-920 m) over 12 months or more. It is especially important to have these data prior to, during, and after a major tropical storm.

The scientific and regulatory communities agree that detailed baseline data on physical, chemical, and biological parameters must be collected at each site in advance of OTEC deployment. Comprehensive characterization is an essential prerequisite for the selection of the deployment site, not only to assure that



OTEC Environmental Regions

environmental effects of operations are minimal, but also to optimize physical criteria for site durability and efficient electrical energy output.

Prior data collection efforts in support of intended OTEC deployment in Hawai'i have been expanded by the Hawai'i Ocean Time-Series (HOT) study of the University of Hawai'i. The table shows the parameter array sampled in the course of a HOT oceanographic survey; this approach has been refined over decades to compile a detailed ocean ecosystem profile that is efficient yet comprehensive. The ecosystem description it provides forms a sufficiently detailed characterization to allow future comparative evaluations to identify subtle but significant changes. However, it continues to be a university research level of technology readiness rather than a protocol that is industrialized for global development.

Hydrography (CTD Profiling)	Temperature, Salinity, Oxygen, Potential Density, Chloropigment (by flash fluorescence)
Biogeochemistry (Discrete Water Column Measurements)	Salinity, Dissolved Oxygen, Dissolved Inorganic Carbon and Titration Alkalinity, pH, pCO_2, Inorganic nutrients ([Nitrate + Nitrite], Soluble Reactive Phosphorus, Silicate), Low-level Nitrate, Low-level Phosphate, Dissolved Organic Matter, Particulate C, N, and P, Biogenic Silica, Pigments (Standard Fluorometric and HPLC, as well as Chl a, b & c and Phycoerythrin by TD-700), and ATP
Biogeochemical Rate Measurements	^{13}C Primary production, Particle flux (Particulate C, N, P & Si)
Optical Measurements	Solar Irradiance, Upwelling Radiance and Downwelling Irradiance (3 methods), Inherent Optical Properties (Absorption and Beam attenuation), Fast Repetition Rate Fluorometry, Laser In-Situ Scattering and Transmissometry
Microbial Community Structure	Flow Cytometry, Epi-Fluorescence Microscopy
Zooplankton Community Structure	Oblique tows, 1-m^2 net, 202µm mesh, surface to 175m depth
Acoustic Doppler Current Profile	Velocity profile- upper 300m
XBT	Temperature - Depth profile to 700m
Trace Element & Heavy Metal Measurements	Fe, Mb, Co, Mn, Zn, Si, Ni, Hg, Cd, & As
Biostimulation Measurements	Ecosystem response to deep ocean water titration

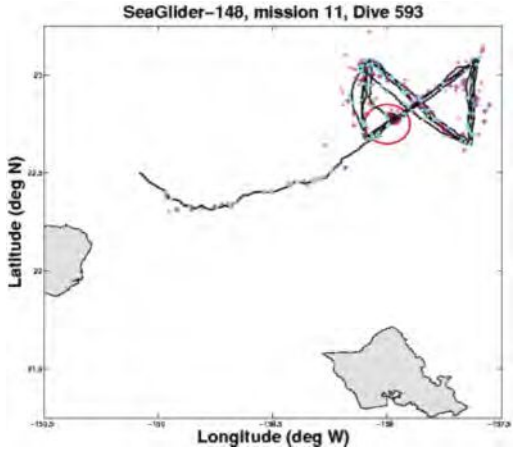
HOT Experimental Methods and Sampling Parameters

Seagliders ready for deployment off of Oahu, Hawai'i

Assessing the variability of key parameters over time poses challenges. However, using new and emerging technologies may offer opportunities to reduce development and deployment costs. One such technology, applicable to OTEC site characterization, is the use of autonomous survey vehicles. Dr. David Karl, Director of the Center for Microbial Oceanography: Research and Education (C-MORE) at the University of Hawai'i, is using Seagliders in conjunction with his open-ocean research programs to collect continuous data over prolonged periods. The vehicles are capable of dives to 1,000 m, and they follow a course and depth track programmed remotely, surfacing at scheduled intervals to transmit collected oceanographic data back to the laboratory by satellite.

A single glider mission may span up to 3 months, traversing thousands of miles, and the vehicle might make as many as four excursions through its depth range per day, depending on the programmed flight path. Present sensor capabilities include temperature and conductivity as a function of depth, dissolved oxygen concentration, ocean current variation, and fluorometric-optical measurements of backscatter for assessment of the biomass of multiple trophic levels. While the present data capabilities of the Seagliders are impressive, the concept appears poised for expansion, as more focused needs, such as those of the emerging OTEC industry, provide the impetus for further development.

Commercial OTEC operations are unique in the field of deep-ocean industry structures. Their limited footprint, large mooring spread, and high-volume seawater transport characteristics create a novel realm of information requirements prior to deployment. In addition to meteorological and substratum survey needs, OTEC installations must establish a comprehensive baseline of physical, chemical, and biological conditions throughout the water column.



Dive track of a Seaglider at the HOT Station Aloha

Awareness of this information is crucial, not only to the evaluation of integrated environmental effects, but also in order to reliably site the facility and assure efficient generation capacity and delivery of base load power to onshore utility companies and their customers. Evolution of OTEC from a pioneering venture to a mature industry, therefore, presents an expansive opportunity for commercialization of the technology and capability to meet the multifaceted physical, biological, and chemical information needs that are central to the successful future of this unique ocean energy technology.

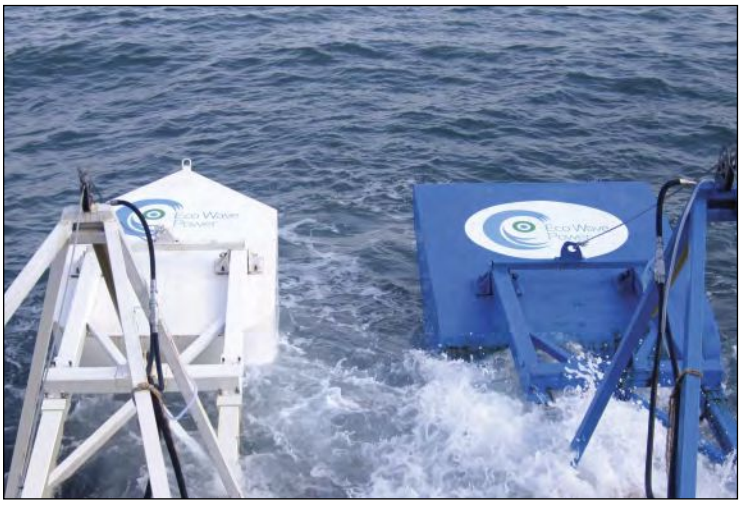
For more information, visit www.oteci.com.

Province seeking tidal energy partner
Nova Scotia is strengthening its commitment to be a world leader in tidal-power development with another invitation to test technology in the Bay of Fundy. The province is seeking proposals for a fourth developer to join the tidal test program at the Fundy Ocean Research Centre for Energy (FORCE) in the Minas Channel. Energy Minister Charlie Parker made the announcement at the Ocean Renewable Energy Group's 2012 annual conference in Halifax. The request for proposals is open to developers interested in testing a single device, or array of devices, up to 5 MW. The successful proponent will join Alstom, Atlantis, and Minas Basin Pulp and Power. Sub-sea cables will transmit power from the four test sites to the province's electricity grid.

Ocean Power Technologies awarded FERC license for Oregon wave power station
Ocean Power Technologies, Inc. (OPT or the Company) announced that its wholly-owned Oregon subsidiary, Reedsport OPT Wave Park, LLC, has received approval from the U.S. Federal Energy Regulatory Commission (FERC) for the full build-out of its planned 1.5 MW, grid-connected wave power station off Reedsport, Oregon. This is the first FERC license for a wave power station issued in the United States and provides an important regulatory approval for the deployment of up to 10 OPT devices generating enough electricity for approximately 1,000 homes. Construction of the initial PowerBuoy® is nearing completion, and it is expected to be ready for deployment about 2.5 mi off the Reedsport coast later this year. OPT has received funding for this first system from the U.S. Department of Energy, with the support of the Oregon Congressional delegation, and from PNGC Power, an Oregon-based electric power cooperative. Specifically, FERC has granted a 35-year license for grid-connected, wave energy production. This follows an extensive process of environment assessment, notifications to the public, assessment of Federal and State regulations, and consideration of a broad array of comments, recommendations, and terms and conditions.

Offshore wind energy could power entire U.S. East Coast
Stanford scientists deliver the first-ever quantitative analysis of offshore wind energy on the U.S. East Coast. They conclude there is enough wind energy to fulfill one-third of the U.S. energy demand. The report should act as a guide for placing wind farms in the most rewarding locations, said Mark Z. Jacobson, a professor of civil and environmental engineering at Stanford who directed the research. The scientists paid special attention to the Maine-to-Virginia corridor; the historical lack of strong hurricanes in the region makes it a favorable site for offshore wind turbines. They found that turbines placed there could satisfy the peak-time power needs of these states for three seasons of the year (summer is the exception).

Eco Wave Power closer to commercial scale power plant



Having designed, manufactured, and tested a mid-scale model of wave energy generating unit, Eco Wave Power has successfully proven the concept of producing cheaper electricity from the ocean waves energy. Based on a number of their patented inventions, like "Power Wing" and the "Wave Clapper," their electricity generation unit can transform ocean wave energy into electric current more effectively than competitors' units.

Among many advantages of system, its durability truly stands out– it employs three different storm protection mechanisms, corrosion protection, a shock-wave protection mechanism, and a very effective energy control system. The medium-scale power station was tested on two different breakwaters, which emphasized the compatibility of the ocean wave energy station to different ocean structures. By now, it has successfully withstood two major storms.

Earlier this year, Eco Wave Power received a European Frost & Sullivan Award for New Product Innovation (for developing and implementing a complete solution for effective harvesting ocean waves' energy). Since Eco Wave Power wave energy company aims to efficiently produce energy at a very affordable price level, such renewable energy generation instantly became an object of interest for many ports worldwide.

For more information please visit www.EcoWavePower.com.

AXYS Ocean Sentinel to support wave renewable energy assessment for the NNMREC

AXYS Technologies Inc. (AXYS) recently delivered an Ocean Sentinel buoy and TRIAXYS™ buoy to the Northwest National Marine Renewable Energy Center, (NNMREC), at Oregon State University. This equipment is part of a mobile wave energy test facility that will be used by academic researchers and device developers to test wave energy technologies that will measure wave resources and assist in the study of the energy output and other environmental issues.

"The Ocean Sentinel will provide a standardized, accurate system to compare various wave energy technologies, including systems that may be better for one type of wave situation or another," said Sean Moran, ocean test facilities manager with NNMREC.

"We have to find out more about which technologies work best, in what conditions, and what environmental impacts there

may be," Moran said. "We're not assuming anything. We're first trying to answer the question, 'Is this a good idea or not?' And if some technology doesn't work as well, we want to find that out quickly, and cheaply, and the Ocean Sentinel will help us do that."

The delivery of the Ocean Sentinel represents a milestone achievement by AXYS in the development of an advanced power and control monitoring buoy. AXYS engineers worked with NNMREC staff to develop this custom buoy system that interfaces with numerous custom control and monitoring devices as well as basic meteorological and oceanographic parameters. They system also provides real-time communications that monitors all aspects of the system performance.

For more information, visit www.axystechnologies.com.

Oceanflow wins funding for twin-turbine Evopod

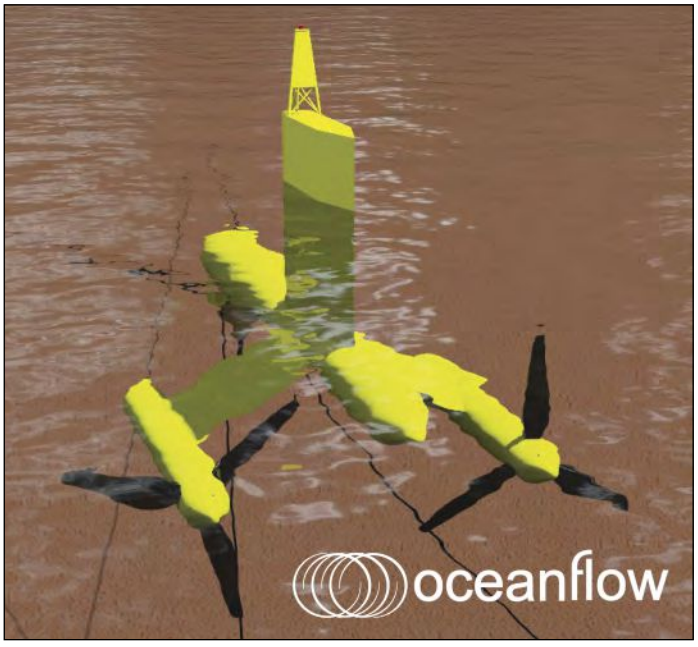
Oceanflow Development Limited has been successful in winning WATERS-2 (Wave and Tidal Energy R&D Support) funding from Scottish Enterprise for the development of a twin-turbine variant of its floating, tethered Evopod technology.

This latest award follows WATERS-1 funding in 2010 to demonstrate Oceanflow's mono-turbine device, a quarter-scale version of which is currently being constructed by Renfrew-based fabricators Steel Engineering. It will be the first grid-connected version of Evopod and will be deployed later in the year in Sanda Sound, South Kintyre.

Graeme Mackie said, "This funding support from Scottish Enterprise will help us to take a further step along the staged demonstration of our Evopod semi-submerged turbine technology. It enables us to track the outputs and economics of power generation from a twin-turbine Evopod in the harsh but energetic waters around the Scottish coastline where it has been specifically developed for deployment."

"The beauty of Evopod is that it is easier to install and maintain than devices positioned on the seabed. This means that it is cheaper to install and to operate and any problems can be quickly and easily addressed."

For more information, visit www.oceanflowenergy.com.



America's first ocean energy delivered to the grid

Bangor Hydro Electric Company verified that electricity is being delivered to their power grid from Ocean Renewable Power Company's (ORPC's) Cobscook Bay Tidal Energy Project. This is the first power from any ocean energy project, including offshore wind, wave, and tidal, to be delivered to an electric utility grid in the U.S. Also, it is the only ocean energy project, other than one using a dam, that delivers power to a utility grid anywhere in North, Central, and South America.

This first TidGen™ device has a peak output of 180kW and will generate electricity annually to power 25 to 30 homes. Two additional TidGen™ devices will be installed at ORPC's Cobscook Bay Project site in the fall of 2013 and, together, the three-device power system will generate enough energy to power 75 to 100 homes.

For more information, visit www.orpc.co.

The future looks green for Brazil's renewable energy industry

Brazil will continue to prove its commitment to renewable energy in the future by promoting investment across its alternative power sectors, states the latest study by business intelligence providers GBI Research.

The new report says that the increasing demand for electricity in this rapidly expanding South American economy is driving up the country's cumulative installed capacity – but Brazil will continue to rely on eco-friendly power generation to support expansion.

Brazil's total cumulative installed capacity in 2011 was 120,553 MW, with a massive 80% represented by renewable energy (if large hydro is included). Approximately 70% of this was accounted for by hydropower, while other alternative power sources-biomass, wind, solar photovoltaic (PV), and small hydro- made up 10% in total.

Excluding the substantial large hydropower sector, Brazil's renewable installed capacity is expected to leap from 13,260 MW in 2012 to 38,015 MW by the end of the decade, climbing at a Compound Annual Growth Rate (CAGR) of 14%.

Proving one of the fastest growing energy sources in Brazil's energy mix is wind. Although contributing a relatively meager 2,769 MW to Brazil's total installed capacity in 2012, the government's plans to take advantage of the untapped offshore market could see the this portion reach 19,420 MW by 2020.

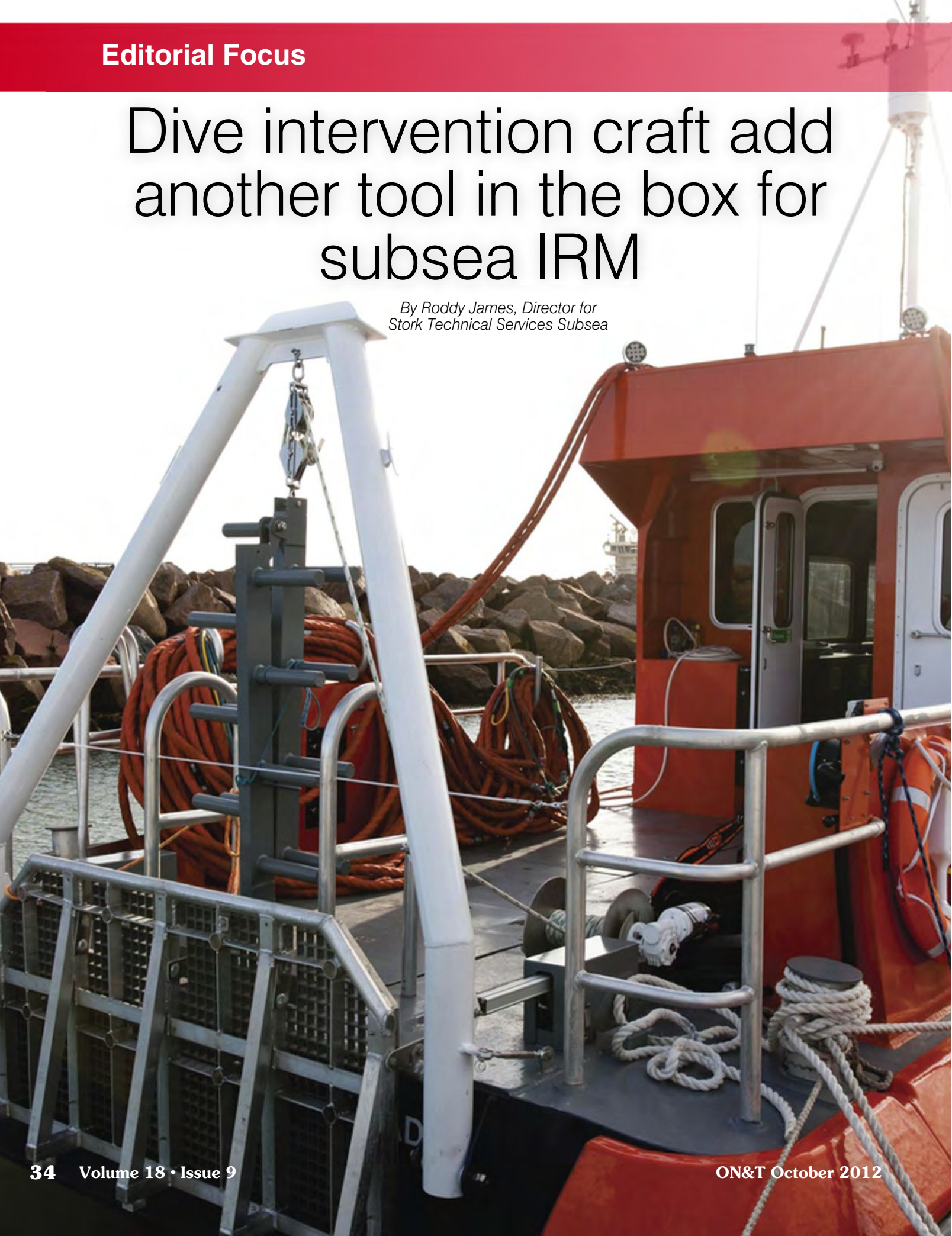
Although it only operates onshore wind farms at present, Brazil aims to capitalize on the south's strong offshore gales, boosting both wind power's installed capacity and its popularity with investors.

GBI Research predicts the county's solar PV market to display the most explosive growth in Brazil's renewables industry, albeit from a much smaller foundation. Growing at a massive CAGR of 59%, the solar PV sector is forecast to climb exponentially from an installed capacity of 31 MW in 2012 to 1,276 MW in a period of just 8 years.

For more information, visit www.gbiresearch.com.

Dive intervention craft add another tool in the box for subsea IRM

By Roddy James, Director for Stork Technical Services Subsea



Introduction

Subsea inspection, repair, and maintenance (IRM) is a rapidly growing industry. In 2009, Douglas-Westwood estimated global demand for subsea IRM expenditure at $4.5 billion, with this set to reach almost $7 billion in 2014. Dive support vessels (DSVs) have traditionally been used to carry out air and nitrox diving IRM; however, this incurs a significant cost and can prove impractical when accessing areas close to an asset and for shallow-water workscopes.

Recognizing this issue, Stork Technical Services Subsea has developed a fleet of bespoke dive intervention craft as an alternative means for delivering safe, flexible, and cost-effective air and nitrox diving. The craft allow divers to get closer to the worksite than would be possible with a DSV and provide far easier access to hard-to-reach areas of a platform, such as under a helideck.

The craft were successfully deployed on the subsea IRM of a floating production unit for a major operator in the North Sea. Stork delivered air and nitrox diving utilizing the craft in conjunction with a DSV and recorded more than 572 dives without a lost time incident.

New technology

The 15-m dive intervention craft are powered by twin cumming 610-bhp diesel engines, with twin ultra dynamics water jets, and are equipped with a range of advanced technology. Features such as a bespoke diver recovery system and software-based dive management systems have been specifically designed to provide a safe operating environment for the divers and crew onboard.

The craft offer a stand-alone, shallow-water diving solution up to depths of 50 m and are certified to MCA Category 1, allowing operations to be carried out at ranges up to 150 nmi offshore. It can also be launched by a bespoke davit system from a DSV, such as Stork Subsea's chartered Olympic Triton vessel, to allow continuous on-site diving, which provides significant efficiency and logistical benefits to customers.

The craft provide a flexible alternative to DSVs for IRM activities, which often have restricted access to areas around rigs and FPSOs. It is also ideal for harbor inspection and repair workscopes where access from the quayside is restricted.

A Stork Subsea diver working from a dive intervention craft

Stork Subsea's dive intervention craft have been developed with a range of advanced technology

In recent years, Stork Subsea has deployed the craft on a range of IRM projects across the UKCS, West Africa, and Mediterranean and established an excellent safety record.

Intervention craft in action

Stork Technical Services Subsea was contracted by a major North Sea operator to deliver surface-supplied nitox dive intervention craft and vessel--based diving to support non-invasive in-water inspection and construction on a FPU (floating production unit).

The object of the inspection program was to assure the continuing structural integrity of the hull's structural components and inspect the asset, as advised by Lloyds class requirements. Working at depths between of 0 and 26 msw, a total of 68 offshore personnel recorded 572 dives and more than 1,300 hours subsea. This contributed to the project achieving an excellent safety performance of more than 125,000 manhours without a lost time incident.

The combination of the intervention craft and DSV diving allowed Stork Subsea to deliver its integrated IRM diving services in a safe manner, and the project was completed on time and within budget.

Michael Bower, project manager for Stork Technical Services Subsea, said, "The FPU inspection project team demonstrated an outstanding commitment to achieving the highest safety standards in a hazardous environment. With the integration of people, equipment, such as our intervention craft and DSV, and materials into the correct environment, the team delivered the safest possible conditions in a specific work area."

Conclusion

While there will always be a requirement for using DSVs for subsea IRM activity, utilizing dive intervention craft for shallow-water air and nitrox diving is a field-proven alternative that delivers significant safety, efficiency, and cost benefits. With subsea IRM activity continuing to rise, utilizing a dive intervention craft is another "tool in the toolbox" for air and nitrox diving contractors.

UNITAS Atlantic phase kickoff in Key West
Naval forces from Brazil, Canada, Colombia, Dominican Republic, Mexico, the United Kingdom, and the U.S. kicked off the Atlantic Phase of UNITAS, an annual multi-national exercise, in Key West on 17 September hosted by Commander, U.S. Fourth Fleet. Thirteen warships are conducting operations in the Western Caribbean. UNITAS is designed to train participating forces in a variety of maritime scenarios to test command and control of forces at sea, while operating as a multinational force to provide the maximum opportunity to improve inter-operability. Observers from France, Jamaica, Panama, and Peru are also participating this year. UNITAS develops and sustains relationships to improve the capacity of partners' maritime forces. This annual exercise fosters friendly, mutual cooperation and understanding between participating navies.

IMCMEX 12, largest mine countermeasure exercise in Middle East, begins
Navies from six continents and more than 30 nations kick off the most widely attended international exercise ever held in the region. International Mine Countermeasures Exercise (IMCMEX) 12 is the first of what is intended to be a recurring partnership event. The wholly defensive exercise consists of two distinct phases. The first phase is a symposium where senior leaders from participating countries will exchange ideas and view the latest mine hunting, sweeping, and neutralization technologies provided by a panel of industry representatives and presenters. In the second phase, ships, crews, and observers get underway to train together to prepare for tactical execution. Ships will conduct at-sea maneuvers in three separate geographic areas, which will include mine hunting operations; helicopter mine countermeasure operations; international explosive ordnance disposal mine hunting and diving operations; and small boat operations focused toward underwater improvised explosive devices. The exercise will finish with leaders, liaison officers, and observers gathering to discuss lessons learned to further foster interoperability among participants.

JHSV 1 completes acceptance trials
First-in-class Joint High Speed Vessel USNS Spearhead (JHSV 1), the high-speed catamaran transport ship under construction at Austal USA in Mobile, Alabama, successfully completed Acceptance Trials (AT) on 17 August 2012, in the Gulf of Mexico. To achieve this milestone, the Navy conducted comprehensive tests that demonstrated the successful performance of the ship's major systems and equipment to include the propulsion plant, ship handling, and auxiliary systems. These trials are the last significant milestone before delivery of the ship to the Navy, which is expected over the coming months. The ship was presented to the Navy's Board of Inspection and Survey (INSURV) with high levels of completion, according to the Navy. Brian Leathers, Austal USA's Interim President and Chief Financial Officer commented, "First-in-class ships are always a challenge, but we are honored to have been able to present a complete, functional vessel to INSURV and are looking forward to the delivery of this first-in-class ship to the Navy soon. Austal is proud to have played such an integral role in U.S. Naval history by being selected to produce this new class of vessels to support America's national security needs." USNS Spearhead (JHSV 1) will soon be followed by Choctaw County (JHSV 2), which will be christened on 15 September. Two more JHSVs are under construction at Austal's Mobile, Alabama shipyard. "Austal is eager to get these vessels out into the fleet doing the job they were built to do." Leathers said. "They will be a great addition to the mobility of the Navy Marine Corps team as we pivot to the Pacific Basin."

US And China team up for counter-piracy exercise

Guided-missile destroyer USS Winston S. Churchill (DDG 81) and other U.S. Navy assets participated in a counter-piracy exercise with elements of the Chinese People's Liberation Army (Navy) [PLA(N)] near the Horn of Africa.

The exercise, the first bilateral counter-piracy exercise ever conducted between the U.S. and China, paired Winston S. Churchill with PLA(N) frigate Yi Yang (FF 548) to conduct a combined visit, board, search, and seizure (VBSS) boarding.

The focus was on bilateral inter-operability in detecting, boarding, and searching suspected vessels as well as the ability of both Chinese and American naval assets to respond to pirated vessels.

VBSS teams from both ships performed the boarding on Winston S. Churchill, which was simulating a pirated vessel. Executing the boarding side-by-side as a combined U.S.-Chinese team, the team successfully searched the vessel and provided assistance to the role-playing mariners.

Participants felt that the training was meaningful, providing a unique opportunity to operate alongside one another.

"It was exciting to interact with the Chinese sailors and cooperate in a critical environment," said Lt. j.g. Edward R. Kellum, boarding officer for Winston S. Churchill's VBSS team. "Anytime we work with a foreign military, it adds a different perspective to how we operate. However, to collaborate with the Chinese in an anti-piracy framework is a rare opportunity and a real achievement for maritime security."

Following the exercise, leaders from both navies discussed the elements of the boarding in order to learn how to better operate together in the future.

U.S and Chinese leaders expressed how important and beneficial the training was, both in terms of building cooperative ties and development of techniques to counter piracy.

"We're appreciative of the opportunity to train with other nations to establish ties that will allow us to work together to face the piracy threat," said Stone. "As fellow mariners, we have great admiration for our Chinese counterparts who are sailing alongside us and other coalition partners to keep the sea lanes safe."

Winston S. Churchill is currently deployed to the U.S. 5th Fleet area of responsibility, conducting maritime security operations, theater security cooperation efforts, and support missions for Operation Enduring Freedom.

For more information, visit www.navy.mil

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Amphibious transport dock Anchorage (LPD 23) delivered

Huntington Ingalls Industries announced that its Ingalls Shipbuilding division has delivered the amphibious transport dock Anchorage (LPD 23) to the U.S. Navy. It is the seventh ship of the San Antonio (LPD 17) class built at Ingalls.

The ship recently completed U.S. Navy acceptance trials, with shipbuilders successfully accomplishing more than 200 tests on the ship during the sea trial period.

Ingalls has now delivered seven ships in the class and has four more in various stages of development or construction. LPDs are built to be survivable and flexible. The complex, survivable ships enable the services to carry out their missions without constraints or additional assets.

The 11 ships of the LPD 17 class are a key element of the Navy's ability to project power ashore. Collectively, they functionally replace more than 41 ships (the LPD 4, LSD 36, LKA 113, and LST 1179 classes of amphibious ships),

providing the Navy and Marine Corps with modern, sea-based platforms that are networked, survivable, and built to operate with 21st century platforms, such as the MV-22 Osprey.

The LPD 17-class ships are 684 ft long and 105 ft wide and displace approximately 25,000 tons. Their principal mission is to deploy the combat and support elements of Marine Expeditionary Units and Brigades. The ships can carry up to 800 troops and have the capability of transporting and debarking air cushion (LCAC) or conventional landing crafts, augmented by helicopters or vertical take-off and landing aircraft such as the MV-22. The ships will support amphibious assault, special operations, or expeditionary warfare missions through the first half of the 21st century.

For more information, visit www.huntingtoningalls.com.

USNS Choctaw County (JHSV 2) christened

On 15 September, Austal christened USNS Choctaw County (JHSV 2) at its state-of-the-art shipyard in Mobile, Alabama. USNS Choctaw County is the second of nine Joint High Speed Vessels (JHSV) Austal has under contract with the U.S. Navy as part of an overall 10-ship contract worth over $1.6 billion.

The ship was named Choctaw County to honor the contributions of the men and women of rural America. Three counties in America, located in Mississippi, Alabama, and Oklahoma, share the name. Twenty-nine women from the 1966 graduating class of Ackerman High School in Ackerman, Mississippi, served as the ship's sponsors, with 18 participating in the ceremony. With the support of her classmates, Theresa Gilliam Pitts, a retired teacher, broke the traditional bottle of champagne across the bow to formally christen the ship.

The 103 m (338 ft) long aluminum catamarans are designed to be fast, flexible and manoeuverable even in shallow waters, making them ideal for transporting troops and equipment quickly within a theater of operations. The ship has the ability to support a variety of operations, supporting the warfighter through traditional logistics missions, humanitarian support projects, disaster response, or by supporting maritime law enforcement activities.

The JHSVs are capable of transporting 600 short tons of military troops, vehicles, supplies, and equipment 1,200 nmi at an average speed of 35 kts and can operate in shallow-draft, austere ports, and waterways, providing U.S. forces added mobility and flexibility. The JHSVs' aviation flight decks can support day and night flight operations. Each JHSV also has sleeping accommodations for up to 146 personnel and airline-style seating for up to 312.

For more information, visit www.austal.com.

Ocean Power Technologies to work with Homeland Security

Ocean Power Technologies, Inc. (OPT) has announced that it has entered into a Cooperative Research and Development Agreement (CRADA) with the U.S. Department of Homeland Security (DHS) Science & Technology Directorate (S&T) to perform a new round of in-ocean tests on its Autonomous PowerBuoy® to further demonstrate its use for ocean surveillance.

Specifically, the DHS S&T Borders and Maritime Security Division will collaborate with OPT to demonstrate the effectiveness of its long-duration maritime vessel detection platform. This will involve the redeployment of an APB-350 Autonomous PowerBuoy off the coast of New Jersey, where previous work through the U.S. Navy's Littoral Expeditionary Autonomous PowerBuoy ("LEAP") program last year produced extremely positive results, including higher-than-predicted power harvesting capability and survivability during Hurricane Irene and its 50 ft high waves.

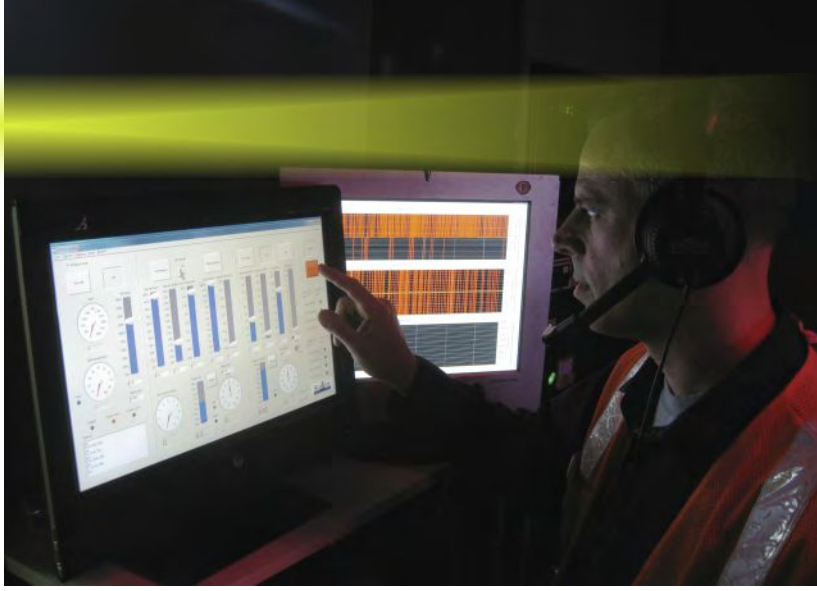
For more information, visit www.oceanpowertechnologies.com.

COMPANY SPOTLIGHT

SeaView Systems

www.seaviewsystems.com

by: Matthew Cook, SeaView Systems, Inc.



SeaView Systems, Inc. is an underwater technology and custom systems development services provider. Based outside of Ann Arbor, Michigan, SeaView has operated worldwide for over 10 years.

Starting in 1993, SeaView's founder, Matthew Cook, cut his teeth in the underwater technology industry after training in Systems Engineering in the Royal Australian Navy and as a navigator in marine seismic survey. Working offshore in the oil and gas industry for the next decade, Cook learned the value of careful project planning and a methodical and safe approach to operations. During his time working offshore, it became apparent to Cook that new technologies were emerging that, in some cases, made the more traditional and expensive work-class ROVs redundant and wasteful. With the notion that more could be done with less, Cook set out to form a company that used sound engineering and operations to leverage emerging technologies to provide services that once were firmly in the realm of the work-class ROV.

For the first few years, Cook was a sole owner/operator and contracted help as required; but, by 2006, it was apparent that the workload was too much for one person so Cook called on his good friend and cousin Geoff Cook from Sydney, Australia to come to the U.S. and lend him a hand. Geoff Cook has always been game for something new, so he sold his own successful electrical contracting business in Sydney and came to SeaView as a licensed journeyman electrician and experienced businessman in the capacity of Operations Manager.

"What we didn't realize was how wide and varied the range of projects would be," says Geoff Cook. "Originally, we focused on performing inshore pipeline and tunnel inspection services, which required that we build our own vehicles and tooling to perform, but quickly found that there was as much demand for our custom tooling and systems development capabilities as there were the services themselves." Working both inshore and offshore, our work has taken SeaView all over North America, and into South America, Europe, Africa, and Australia.

Projects we have tackled include navigating an ROV in a flooded uranium mine using a Doppler-aided inertial navigation system. This involved flying the ROV virtually through a computer-generated model of the tunnel while the actual ROV flew through the tunnel in real space 400 m below us. Offshore, we supported a scientific expedition in performing primary research in water depths of up to 1,000 m in the Pribilof and Zemchug Canyons in the Bering Sea. Back onshore, we built robotic core drills, torque tools, and other tooling to support an Atmospheric Diving Suit (ADS) in mounting a 2,000 lb stainless steel plate using 32 rock bolts in a potable water aqueduct feeding New York City. The list is long and varied, but the constant thread has been a focus on quality technical services.

Over the years, Seaview has grown to six employees. To supplement our capability, we have called on the engineering traditions of SE Michigan to surround ourselves with a tight network of local vendors who share our passion for developing high-end custom tooling. These skills that are an extension of our own and very much part of our team include mechanical designing, machining, fabricating/tig welding, water jet cutting, laser cutting, precision grinding, and anodizing.

On track to achieve ISO 9000 certification by the end of the year and ISO 14001 compliance, SeaView Systems offers clients quality underwater technology services and custom systems development with a proven track record of coming in on time and on budget with high quality results.

For more information, visit www.seaviewsystems.com.

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OFFSHORE INDUSTRY

0Oil and gas capital expenditures break $1 tillion barrier: GlobalData

Increased activity in the exploration and production sector will be the primary driver in pushing oil and gas capital expenditure to an enormous $1.039 trillion for 2012, according to a recent GlobalData report.

The new report predicts that the total oil and gas spending will increase by 13.4% this year over the 2011 total of $916 billion as oil companies intensify upstream operations across locations as diverse as offshore Brazil, the Gulf of Mexico, and the Arctic Circle.

Investor confidence in new upstream projects is being driven by an increasing number of oil and gas discoveries (242 last year alone), combined with consistently high oil prices and the arrival of new technologies that are giving the major firms access to deep offshore reserves that were previously technically and financially unviable, the report said.

North America is expected to witness the highest expenditures globally, with $254.3 billion, representing a share of 24.5% of the 2012 global total. Compared to a global average spending growth rate of 13.4%, North America is expected to witness capital expenditure growth of 15.7%. The increase of unconventional oil and gas activities, especially the continuing exploitation of shale oil and gas sites and the development of Canadian oil sands are the major drivers for these investments.

GlobalData predicts Asia-Pacific to follow closely, with $253.1 billion in spending, while the Middle East and Africa are forecast to spend $229.6 billion.

Some production still shut-in two weeks after Isaac made landfall

Just 4.16% of oil and 4.73% of natural gas production in the U.S. Gulf of Mexico remained shut-in 2 weeks after Hurricane Isaac made landfall 29 August in Plaquemines Parish, Louisiana, as a slow-moving Category 1 hurricane.

Industry had shut in 1.3 million b/d, or 94.7%, of oil production from the Gulf and 3.2 bcfd, or 71.64%, of gas production just before the hurricane made landfall.

Isaac veered west of New Orleans 7 years to the day after Hurricane Katrina and subsequent flooding devastated the region. Some 505 production platforms, or 84.7%, of the manned platforms in the Gulf, had been evacuated. By 11 September, just two production platforms, equivalent to 0.3% of the 596 manned platforms in the Gulf, remained evacuated, the government reported.

Hurricane Isaac ready to make landfall.

Oil and gas companies reported that Isaac caused little damage to offshore and onshore energy infrastructure.

Demand for oil and gas storage on rise at major global supply hubs

As a result of increased logistics activity in the oil and gas sector due to increasing international and domestic trades, the demand for oil and gas storage capacity is witnessing a rise at the major global supply hubs, according to GBI Research. The trend is expected to continue, with the major terminal operators worldwide as the key beneficiaries.

However, the supply chain operators, which are relatively having less proximity from the main storage hubs, are not expected to benefit substantially from the current scenario. The considerable rise in storage activity is being largely contributed by the increase in downstream activity, with hydrocarbon fractions (refined products) contributing to a significant share. Asia Pacific and the Middle East regions are expected to continue to witness rise in new refining capacities.

Global crude oil storage capacity is expected to grow steadily over the period 2011 to 2015, GBI said.

Japan has the largest oil storage capacity, followed by the United States. However, due to the recession, Japan is anticipated to experience limited growth in the oil storage industry until 2015.

Technology may replace roughnecks, deckhands, pipehandlers with robots

Robotic Drilling Systems is designing a series of robots to take over the repeatable tasks now done by deckhands, roughnecks, and pipehandlers on drilling rigs. Its blue, 10-ft-tall robot deckhand has a jointed arm that can extend about 10 ft, with 15 or so interchangeable hands of assorted sizes, according to Bloomberg.

The robot is anchored in place to give it better leverage as it lifts drill bits that weigh more than a ton and maneuvers them into place. The company is also collaborating with researchers at Stanford University on a three-fingered robot hand embedded with sensors that give it a touch delicate enough to pick up an egg without crushing it.

Apache, National Oilwell Varco, and Statoil also are among the companies working on technology that will take humans out of the most repetitive, dangerous, and time-consuming parts of oil field work.

Statoil has projected that automation may cut the number of workers needed on an offshore rig in half and help complete jobs 25% faster.

Some companies are working on technology that will make drill bits more intelligent and able to respond instantly to conditions they encounter, such as extreme temperatures or high pressures.

National Oilwell Varco, the largest U.S. maker of oilfield equipment, and Schlumberger Ltd., the world's largest oilfield services provider, have developed drill pipe wired with high-speed data lines to allow the bit to feed information to workers at the surface.

Apache, the third-largest U.S. independent oil and natural gas producer by market value, is said to be writing software that will essentially allow the drill bit to think for itself, communicating directly with equipment at the surface that controls speed and direction.

Conditions are said to be right for more oilfield services deals

Conditions are ripe for large oilfield service and equipment companies to continue to snap up smaller companies and assets, Barclays analysts say in a new report. Such firms, which include Halliburton, Schlumberger, and National Oilwell Varco, "have substantial capacity to add leverage, particularly considering the improving market outlook," the analysts write.

M&A activity in the space has picked up pace lately, with 96 deals year-to-date. The action's been led, as it often is, by Houston's National Oilwell Varco. The equipment maker has grown through acquisitions into the space's dominant player with a $33 billion market capitalization. So far this year, it has committed about $4.5 billion to four deals, including last month's $2.55 billion all-cash takeout of fellow manufacturer Robbins & Myers.

But Barclays says not to rule out other major oil-patch equipment makers from making a splash.

"New regulations encouraging high-specification equipment, operator demand for high-caliber technologies and equipment capable of increasing efficiencies and reducing unplanned downtime, and the ongoing build-out in offshore markets all bode well for continued growth in the capital equipment space, in our opinion," the analysts write.

In addition to National Oilwell Varco, Barclays sees "plenty of room" for other big equipment makers Cameron International and FMC Technologies to make debt-based acquisitions, they say. Meanwhile, oil and gas property sales could push past $60 billion in 2012, says EnerVest executive Phil DeLozier.

Tax measure to help mature oil and gas fields in UK North Sea

Chancellor George Osborne has announced a tax measure to support investment in older North Sea oil and gas fields. The allowance for "brown field" areas will shield some income from the supplementary charge on their profits.

The chancellor said the measure would give companies the incentive to "get the most out of" older fields. Industry body Oil and Gas UK told BBC Scotland that the tax breaks could generate a further U.S. $3.2 billion of investment.

The Treasury said it was expected that the long-term tax revenues generated by the change would significantly outweigh the initial cost of the allowance.

The brown field allowance will shield up to $240 million of income in qualifying brown field projects, or $800.6 million for

Forties Alpha rig in U.K. North Sea

projects in fields paying Petroleum Revenue Tax, from the 32% supplementary charge rate. The level of relief available to an individual project will depend on its size and unit costs.

Speaking about the new allowance, the chancellor said, "Today's tax allowance is more good news for the North Sea, good news for jobs, and good news for the broader economy."

"It will give companies the incentive to get the most out of older fields, creating jobs and delivering more revenue for taxpayers," he added. "This government has signaled its absolute determination to get more investment in the North Sea, a huge national asset."

Statoil delays Arctic drilling because of Shell Oil's regulatory problems

Norway's Statoil said it is delaying plans to explore in Alaska's Chukchi Sea from 2014 to at least 2015 because of concerns about regulatory challenges faced by Shell Oil Co., which has invested 6 years and more than $4 billion to launch drilling offshore Alaska.

The decision by Statoil came in August, before Federal regulators gave Shell partial clearance to drill in the Chukchi Sea, but that development doesn't change things, Jim Schwartz, a Houston, Texas-based spokesman for Statoil, told the Anchorage Daily News.

"The bottom line is, in light of the significant uncertainty regarding Alaska offshore exploration, we've decided to take what we believe is a prudent step of observing the outcome of Shell's efforts before finalizing our own exploration decision timeframe," Schwartz said.

Though Shell was allowed to begin drilling, it was still awaiting Federal certification of its spill containment vessel before its wells could penetrate oil-bearing formations.

The spill response barge was undergoing trials and inspections in Bellingham, Washington. However, even if regulators were to give the ship final approval, it will take 2 weeks to sail to the wellsite, leaving little time to finish the well this year. Under terms of its drilling permit, Shell had to cease drilling in the Chukchi Sea by September 24 to allow time to drill a relief well if needed before ice sets in for the winter. Shell had asked for an extension because its projections show a later ice season this year.

Floating production vessel order backlog at all-time high: IMA

The order backlog for floating production vessels is at an all-time high, said International Maritime Associates Inc. (IMA). The new market study counts 74 floaters on order. Of that total, the company added, 49 are FPSOs, 6 are production semi-submersibles, 3 are TLPs, 4 are spars, 3 are FLNG vessels, and 9 are floating storage and regasification units.

Further, the report said there are 233 projects in planning that might be able to use some form of floating production system. However, some of them will use alternative approaches, such as tiebacks.

A shortage of deepwater drilling rigs has slowed drilling, but that will pass, said Jim McCaul, head of IMA.

"The inventory of available deepwater rigs has grown significantly over the past 12 months – and the 52 drillships and 17 drill semis now on order will add 18% to deepwater drill capability over the next 2 years," he said.

ATP blames offshore moratorium on Chapter 11 bankruptcy filing

Houston-based ATP Oil & Gas Corp. has filed for Chapter 11 bankruptcy, citing debt it said it incurred because of the 5-month federal moratorium on U.S. offshore drilling after the deadly 2010 Gulf of Mexico oil spill.

"ATP expects its oil and gas operations to continue in the ordinary course throughout the reorganization process and sees the reorganization as a helpful step toward deleveraging the company to position it for future development of its assets," the company said in a news release on its filing in the U.S. Bankruptcy Court in Houston.

ATP said it has obtained a commitment for $618 million in debtor-in-possession financing – $250 million in additional funds and the rest for first lienholders. That financing, along with revenue, will finance operating expenses during the Chapter 11 reorganization, the offshore oil and gas company said. In the filing, ATP listed assets of $3.6 billion and debts of $3.5 billion.

It said the moratorium from May to October of 2010 kept it from bringing six development wells into production.

Sparrows lands landmark global agreement with Transocean

Sparrows, a leader in offshore lifting and mechanical handling services, has entered into a first-of-its-kind global "Master Services Agreement – Worldwide Operations Offshore" with major contract drilling company Transocean.

The Aberdeen-headquartered business has developed a strategic approach to the management and servicing of Transocean's offshore cranes on all of its mobile offshore drilling units outside of Norway. The crane inspection contract commences this month and covers condition evaluation of and potential remedial work for 432 deck cranes.

Sparrows has developed a comprehensive crane condition evaluation service that meets Transocean's global needs. Under the agreement, Sparrows will perform the planned 360-day annual crane condition evaluation on 121 of Transocean's mobile offshore drilling units across six continents.

"This is a major milestone agreement for us and for Transocean with whom we have been working for some time," said Mark Beveridge, Sparrows' drilling business unit leader.

He added, "Regular planned crane inspection is the only way to assess integrity and ensure the equipment is fit-for-purpose, safe, reliable, and compliant. Thorough assessments eliminate potential failure, which can lead to costly breakdowns and down-time, or, more importantly, injury to personnel. Regular monitoring also helps when making major decisions about crane replacement, heavy lifts, or modifications, and up-grades.

A Sparrows technician inspects the boom point sheave assembly of an offshore pedestal crane

Beveridge said that working closely with Transocean, Sparrows designed a regime that provides a common global standard, delivered at a local level. "The success of securing of this agreement will inevitably pave the way for similar work with other drilling companies," he added.

The contract will be managed globally from Aberdeen by the Sparrows drilling business unit, which provides a focused delivery team to coordinate activities around the world, ensuring consistency and quality of service. The regional Sparrow's teams then deal with each individual rig's management at a local level.

Established in 1973, Sparrows employs 1,600 in 19 locations. Providing oilfield engineering services, Sparrows specializes in offshore lifting, crane engineering and services, mechanical handling, pipe and cable lay systems, fluid power engineering, equipment rentals, and competence training.

UK oil, gas industry sees increase in offshore workforce: report

The UK oil and gas industry has seen an increase in the number of persons working offshore since 2006, a report says. The workers between the ages of 23 and 28 are 2.5 times more than the workers between the ages of 60 and 65, which indicates that the offshore industry is attracting new entrants.

Findings from the Oil & Gas UK's 2012 Demographics Report state that the average age of the workforce remained the same at over 41 years. The report also reveals that the offshore female workforce is just 3.7% of the total, with 30% of those working in catering.

A total of 52,300 people traveled offshore in 2011, which is a 5% rise compared to 2006. The proportion of core offshore workers – those working over 100 nights a year offshore – has increased to 23,758, which comprises 45% of total workforce.

Oil & Gas UK employment and skills issues manager Dr. Alix Thom said the oil and gas sector is a major driver for economic growth in the UK.

"There are many positives such as the increase we're seeing in the number of workers traveling offshore and the big increase in the number of younger workers," Thom added.

"These lead us to expect that in the next few years, more people will join the UK oil and gas industry and gain experience than those who leave through retirement or relocation. Oil & Gas UK is working closely with its members and with OPITO to develop a collaborative strategy to address the skills demand and grow the talent pool further."

BP to invest $11B in natural gas in Egypt's Mediterranean Sea

BP will invest $11 billion in a project to produce natural gas from a deepwater deposit in Egypt's Mediterranean basin, the country's State Information Service (SIS) reported.

BP is currently digging at a depth of 7,700 m in the Mediterranean Sea to extract 1 bsf of natural gas per day, or about 20% of the north African country's energy output, said oil minister Osama Kamal, according to the SIS website.

The project is expected to be completed in 4 to 5 years and Egypt, which has Africa's third-largest gas reserves, will get the extracted natural gas for 40% of its prices, he said.

BP Chief Executive Officer Robert Dudley said the project is expected to produce 40% of Egypt's natural gas output. The firm started digging the well 18 August and would start exploration work next year, he added.

U.S. crude oil production to rise 74% by 2022: Bentek Energy

Crude oil production in the U.S. is projected to grow by 74%, or more than 4.9 mmb/d during the next 10 years to an average of 11.6 mm/d by 2022, according to Bentek Energy, the energy data analytics unit of Platts, a leading global energy, petrochemicals, and metals information provider.

"Not only will the projected record growth in oil production affect North America, it will have dramatic implications for global crude oil markets," said Jodi Quinnell, Bentek oil analysis manager. "We foresee a massive displacement of traditional waterborne oil imports to the United States by 2022, taking them from 45% of U.S. total crude supply to no more than 5%."

Bentek analysts say the projected rise in U.S. petroleum production -- largely driven by shale oil activity of the Eagle Ford and Bakken plays in mid-western U.S. and parts of Canada -- will be accompanied by lower U.S. and Canadian oil prices relative to international oil benchmarks.

For more information on crude oil, visit www.platts.com.

Baker Hughes wins Statoil service contract
U.S.-based oilfield services supplier Baker Hughes was awarded a $510.13 million contract by Statoil to provide integrated drilling services for 25 oil fields in the Norwegian continental shelf. Under the agreement, Baker Hughes will provide directional drilling, measurement-while-drilling, logging-while-drilling, mud logging and onshore support, and drilling engineering services. Drilling services will be performed on the installations Brage, Dagny, Eirin, Grane, Heidrun TLP, Heidrun SS, Kristin Kvitebjørn, Njord, Norne, Morvin Oseberg B/C/Sør, Oseberg Øst, Sleipner, Skuld, Snøhvit, Tyrihans, Troll, Volve, Vega, Veslefrikk, Aasta Hansteen, and Åsgard. The contract was expected to begin in third quarter of 2012 and will have two, 2-year operational extensions.

Dril-Quip awarded $650M Petrobras contract
Dril-Quip, Inc. said subsidiary Dril-Quip do Brasil LTDA was awarded a 4-year contract by Petrobras, Brazil's national oil company, for the supply of subsea wellhead systems and associated tools to be used in the drilling of deepwater wells offshore Brazil. Based on current exchange rates and after Brazilian taxes, the contract is valued at $650 million, if all of the equipment under the contract is ordered. Amounts will be included in Dril-Quip's backlog as purchase orders are received under the contract. Dril-Quip expects to begin delivering products under the contract in the second half of 2013.

Chevron taps Subsea 7 for Lianzi field work
Chevron Overseas Congo Ltd. has awarded to Subsea 7 S.A. an engineering, procurement, installation, and commissioning subsea umbilical, riser, and flowline contract for the Lianzi field offshore Congo-Angola. The project includes a 12-in. wet insulated production flowline with direct electrical heating. When installed, Subsea 7 said this will be the deepest water to use electrically heated pipe. The project will use local personnel and resources in Congo and Angola. A significant part of the design and fabrication will be done in Luanda, with additional fabrication work at Lobito by Subsea 7's Angolan joint venture. All flow-lines will be spooled to the rigid reel-lay ship the Seven Oceans at Subsea 7's Luanda base in Angola. The offshore phase is scheduled for the second half of 2014.

Aker to provide equipment for six drillships
Aker Solutions has received a contract from Jurong Shipyard to provide drilling equipment packages for six drillships being built in Singapore. Under the terms of the contract, the company will provide complete topside and subsea equipment, including drilling riser and balance of plant packages. Delivery of the equipment will be made between 2015 and 2019 from its sites in Norway, Germany, and Brazil, with the first delivery to start in the second half of 2013. The drillships will be capable of operating in water depths of 10,000 ft and drilling to depths of 40,000 ft.

BP unloads U.S. Gulf properties for $5.5B

BP has agreed to sell its interests in several "non-strategic" oil and gas fields in the deepwater Gulf of Mexico to E&P independent Plains Exploration and Production Co. for a total of $5.55 billion, as part of a previously announced plan to divest the assets and position its Gulf portfolio for long-term growth.

BP said it's selling its interests in three of its operated assets: the Marlin hub, comprised of the Marlin, Dorado, and King fields (100%); Horn Mountain (100%); and Holstein (50%). The deal also includes BP's stake in two non-operated assets: Ram Powell (31%) and Diana Hoover (33.33%). BP announced its intention to sell these non-strategic assets in May 2012.

BP's Thunder Horse platform

The divestment is in line with BP's global strategy of playing to its strengths, including the development of giant fields and deepwater exploration, the company said, adding that it also reflects a greater focus in the Gulf of Mexico on producing more high-margin barrels from fewer, larger assets.

BP said it will concentrate future activity and investment in the Gulf on growth opportunities around its four major operated production hubs – Thunder Horse, Atlantis, Mad Dog, and Na Kika – and three non-operated production hubs – Mars, Ursa, and Great White, as well as on significant exploration and appraisal opportunities in the Paleogene and elsewhere.

"While these assets no longer fit our business strategy, the Gulf of Mexico remains a key part of BP's global exploration and production portfolio, and we intend to continue investing at least $4 billion there annually over the next decade," said Bob Dudley, BP group chief executive.

Bob Dudley

BP and Plains anticipate their deal closing by the end of 2012.

BP expects to divest assets with a total value of $38 billion between 2010 and 2013 as it focuses its business around the world on its strengths and opportunities for growth. With the latest agreement, BP has now entered into agreements to sell assets with a value of over $32 billion since the beginning of 2010.

BP has been exploring in the deepwater Gulf for more than a quarter of a century and is the leading acreage holder, holding more than 700 leases, with a strong position in the emerging Paleogene play, including appraisal projects such as Kaskida and Tiber. BP acquired 43 new leases in the deepwater Gulf in the June 2012 lease sale.

Plains also acquired Shell's interest in Holstein for $560 million, putting the total purchase price for Plains at $6.1 billion. The acquisition amount is larger than Houston-based Plains' market value.

Production from the deepwater fields is equivalent to 67,000 b/d of oil and is expected to increase as more wells come online, James C. Flores, Plains chairman and chief executive officer, said on a conference call. The acquisition is Plains' biggest since it bought Pogo Producing Co., adding onshore U.S. fields for $5.84 billion of cash, stock, and debt in 2007.

Gulf of Mexico

BP-operated Atlantis production platform

BP drilling first Atlantis wells since Gulf of Mexico moratorium

BP is drilling the first producing wells at the region's Atlantis field since a moratorium on deepwater operations was lifted almost 2 years ago.

The Atlantis and Mad Dog hubs are working again after months of repairs and maintenance, partner BHP Billiton Ltd. said in a conference presentation published on its website.

BP, the owner of the Macondo well that was the source of the worst oil spill in U.S. history, has lost a third of its market value since the disaster. BP's output in the Gulf of Mexico, some of the most profitable in its portfolio, has dropped since President Barack Obama banned deepwater drilling for months after the spill and BP instituted stricter safety standards.

Chief executive officer Bob Dudley has said he wants to focus more on the Atlantis, Mad Dog, Thunder Horse, and Na Kika fields in the Gulf. The company has six rigs working in the region and plans to have a record eight by the end of the year.

The Atlantis field, which is drilled using a mobile unit, has a capacity of 200,000 b/d of oil and 180 mmcf/d of gas. Mad Dog, where the company operates a platform, can produce 100,000 b/d of oil and 60 mmcf/d of gas.

UK-based Leni to sell exploration leases in GoM to Byron Energy

UK-based Leni Gas and Oil has announced the sale of its interests in two exploration leases in the U.S. Gulf of Mexico to Byron Energy for $400,000.

"LGO exercised its option under the Strategic Scouting Agreement with Byron in 2010 to participate in the Leases," the company said.

The sale of its 20% interest in South Marsh Island-6 and Ship Shoal-180 is expected to be completed upon acceptance of the assignment of the leases by the U.S. Bureau of Ocean Management.

Ecopetrol encounters oil and gas pay at Parmer prospect No.1

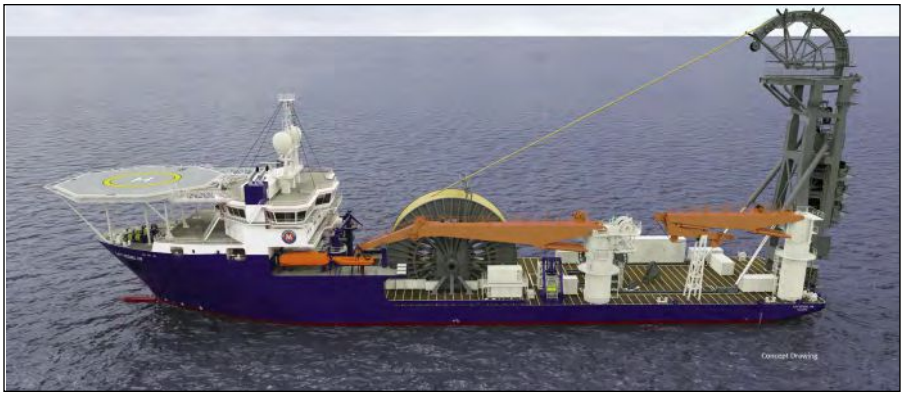
Ecopetrol affiliate Ecopetrol America said it has encountered oil and gas pay at Parmer prospect No. 1, located in the deepwater Gulf of Mexico. Located on Green Canyon (GC) 867, the prospect featuring Parmer leases GC 823 and GC 867 has been drilled to a depth of 18,900 ft at a water depth of approximately 4,200 ft. The two Parmer leases each cover an area of 5,760 acres and are located about 143 mi from Louisiana. Drilling allowed for several pressure readings and the collection of several fluid samples from Miocene sands. The data indicate a column of roughly 240 ft of net condensate-rich gas pay, as prospect as one of 40 ft of net oil pay. This is Ecopetrol's second deepwater discovery in the Gulf of Mexico. U.S.-based Apache is the operator of the prospect.

McDermott to build another high-capacity reeled pipelay vessel

McDermott International, Inc. said it will build another high-capacity reeled pipelay vessel with top-tier payload capacity, tentatively named Lay Vessel 108 (LV108). The vessel will be a sister ship to the recently completed subsea construction vessel, the Lay Vessel North Ocean 105 (LV105), and is to be built to similar specifications at Metalships and Docks S.A.U. shipyard in Vigo, Spain.

"Market analysis indicates that the subsea and deepwater construction market is expected to continue to grow, and there is demand for more tonnage in both the rigid reel lay and flexible lay markets. The LV108 is expected to meet this need," said Stephen M. Johnson, McDermott's chief executive officer.

LV108 is designed for advanced deepwater operations with a high-capacity tower for rigid and flexible pipelay and state-of-the-art marine construction equipment that will enable installation of a variety of products to a depth of 10,000 ft, including rigid-reeled pipelines, subsea components and hardware, and deepwater moorings for floating facilities as well as flexible products (cables and umbilicals). The principal characteristics of the vessel, such as payload, tension capacity, and product size, will mirror those of the LV105, but McDermott anticipates enhanced functionality of the LV108 equipment design compared to the LV105.



McDermott's Lay Vessel 108 will be built at the Vigo, Spain, shipyard

Delivery of LV108 is anticipated to be around third quarter 2014 for outfitting of the custom-designed lay system, built by a specialist fabricator in Europe.

The vertical reel will have a nominal payload of 2,500 t plus, subject to vessel loading conditions, and a lay tower operational between 90 and 40 degrees. The nominal tension capacity is expected to be 400 t, and the range of pipe the vessel can install is between 4 to 16 in.

This 427-ft dynamically positioned vessel will be equipped with a 400 t heave compensated crane. It will have a transit speed of 15 kts and will operate across a range of water depths.

Diamond to rebuild cold-stacked semi rig for deepwater drilling

Jurong Shipyard has secured a $370 million contract from drilling contractor Diamond Offshore to build a moored semi-submersible drilling rig for delivery in second quarter of 2014.

The Ocean Apex will be designed for 6,000 ft water depths, with a maximum hook load of 2 million pounds, 15,000 psi five-ram BOP, and a crew capacity of 140.

"We will construct the Ocean Apex utilizing an existing hull from a Diamond Offshore cold stacked unit," said Larry Dickerson, chief executive officer of Diamond Offshore. "Upon delivery, we will have a rig that exceeds the specifications of a fourth-generation newbuild unit. However, it will have been constructed in approximately half the time and for a significantly lower cost."

Topaz Energy and Marine wins Qatar, Caspian vessel charters

Topaz Energy and Marine has won two long-term charters for 100 t DP-2 anchor handling tug supply (AHTS) vessels in the Middle East and Caspian region. The total value of the contracts exceeds $65 million.

Topaz Rayyan will be deployed offshore Qatar on a 7-year charter for an unnamed international oil company (IOC). The vessel was built in 2006 and was formerly owned by Sanko Steamship Co. in Japan.

Caspian Reliance will serve in the Caspian Sea. This is a new vessel previously owned by Boluda.

Both vessels will undergo a $2 million upgrade to meet client-specific requirements. Advanced DP-2 is increasingly required by IOCs to allow vessels to remain accurately in position for long durations, Topaz pointed out.

Earlier this year, Saudi Aramco awarded Topaz Marine Saudi Arabia, a joint venture with GENTAS, a 3-year, $88 million charter for six AHTS vessels.

Crowley purchases two new Jones Act tankers from Aker Shipyard

Crowley Maritime Corp.'s petroleum and chemical transportation group has purchased two new Jones Act tankers, the Pennsylvania and the Florida, from Aker Philadelphia Shipyard ASA. The tankers, scheduled for delivery in September 2012 and March 2013, mark Crowley's re-entry into the Jones Act tanker market since its last tanker was retired in 2011.

The addition of these new tankers also positions Crowley to now offer an even more diverse fleet of petroleum and chemical transportation vessels to its customers. The tankers will be capable of carrying nearly 330,000 barrels of a wide variety of petroleum products and chemicals. Once delivered, the vessels will operate in the U.S. coastwise trade.

Crowley's Jones Act tanker Pennsylvania

The U.S.-flagged vessels are the 13th and 14th in the Veteran Class built at Aker. This proven design provides Crowley customers with ABS-classed vessels that have been thoroughly tested and refined for performance and reliability. With a length of 183.2 m, a breadth of 32.2 m, and a depth of 18.8 m, the tankers come in at 45,800 dt with a draft of 12.2 m.

Powered by the first Tier II large-bore engines, MAN-B&W 6S50MCs, the speed of the Pennsylvania and the Florida is expected to average 14.5 kts plus. In addition to being double hulled with segregated ballast systems, safety features also include water and CO_2 firefighting systems as well as a foam water spray system.

Ultra-deepwater drillship Amaralina Star arrives in Brazil

QGOG Constellation said the ultra-deepwater drillship Amaralina Star arrived in Brazil on 25 August. It will be operated by its subsidiary, Queiroz Galvão Óleo e Gás (QGOG). The unit was built to operate in water depths of up to 10,000 ft and to drill wells depths of up to 40,000 ft. It will be able to operate in the Brazilian pre-salt area.

The Amaralina Star incorporates the highest technological standards and will contribute to expanding and diversifying QGOG's expertise in ultra-deepwater drilling. QGOG said it differentiates itself through deploying cutting-edge technology and a specialized and well-trained workforce.

"Operating the Amaralina Star, a state-of-the-art ultra-deepwater rig, is a key milestone for the company, as it will be the first drillship we will operate, expanding our know-how in the area of offshore operations,"said QGOG president Leduvy Gouvea.

The Amaralina Star was built by the Samsung Heavy Industries shipyard, located in South Korea. The shipyard is also currently building the Laguna Star drillship, which belongs to QGOG Constellation and will be operated by QGOG. The two units have been chartered to Petrobras under a 6-year contract, with options to renew for 6 additional years. Drilling services will be provided by QGOG.

Chouest to construct eight more vessels over the next 2 years

Shipbuilding giant Edison Chouest Offshore will build an additional eight vessels over the next 2 years, the company said. The 300 ft Jones-class deepwater offshore service vessels will be built at the company's Larose, Houma, Gulfport, Mississippi and Tampa, Florida shipyards. The new orders could provide jobs and an economic boost to local areas that rely on the shipyards for business, according to the company.

Foss to build three Arctic class tugs to serve oil, gas industry

Foss Maritime Co., responding to new oil and gas industry opportunities, said it will build the first three tugs in an innovative Arctic class of tugs, a fleet expansion that broadens its capacity to take on large projects in extreme environments. Construction on the first tug will begin in early 2013 at Foss' Rainier, Oregon shipyard, the company said.

"These vessels will be built using the latest advances in technology and equipment. We want to increase efficiency, improve safety and performance, and reduce environmental impact," said Gary Faber, Foss' president and chief operating officer.

Faber said the new tugs will specifically position the company to compete for opportunities in the oil and gas industry. Currently, Foss has five assets committed to an Arctic offshore exploration project in the Chukchi and Beaufort seas.

Several oil and gas customers are expected to perform similar projects in the region during the coming years, and Foss said it will be positioned to provide services and support with tugs, landing craft, crew boats, and barges.

The three new tugs will be designed to achieve in excess of 100 metric tons of bollard pull. The vessels will be used primarily to tow barges with oilfield modules, rig topsides, and project cargoes throughout the world, Foss said.

PetroSA, Anadarko sign oil, gas exploration deal for South Africa

South African state-owned oil company PetroSA and U.S.-based Anadarko Petroleum Corp. have signed a deal for oil and gas exploration in blocks off the coast of South Africa. Under the farm-in deal, whose value was not disclosed, Anadarko will hold an 80% stake in Block 5/6 and Block 7 and will serve as operator, and PetroSA will hold the rest.

Anadarko said it was interested in South Africa because it was looking for frontier acreage and a country where there was potential to grow a business, if the exploration work proved successful. Anadarko did not elaborate on how much the company was planning to invest in the first, 3-year-long phase of the exploration work.

Explorers in South Africa's offshore areas have had limited success, despite more promising finds along the coast of neighboring Namibia and Mozambique. But South Africa is seen to hold good potential for shale gas and coal bed methane exploration onshore.

Ukraine brings in foreign trio for deepwater prospect in Black Sea

Four companies have been awarded E&P rights for Ukraine's deepwater Scythian oil and gas field in the Black Sea.

ExxonMobil, Shell, OMV Petrom, and Ukrainian-state company Nadra will work on solutions for the 6,447-sq mi field, said to be geologically similar to the adjacent deepwater Romanian sector where ExxonMobil and OMV Petrom have discovered gas.

According to reports, the ExxonMobil-led group will pay at least $300 million for the right to sign a 50-year production agreement with the Ukrainian government. The bid also stipulates investment of $400 million during the initial exploration phase.

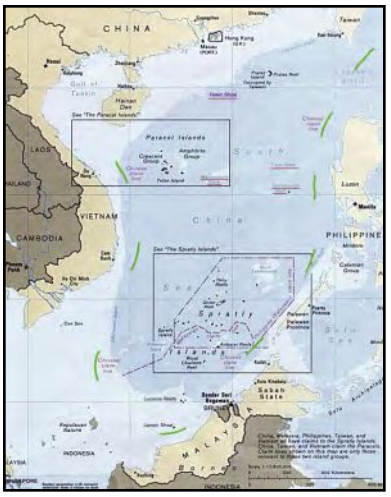
Production at Scythian could start within 6 to 8 years.

Petrobras finishes drilling second well in Barra off State of Sergipe

Petrobras has finished drilling the first appraisal well in the Appraisal Plan Area following the Barra discovery in the deep waters of the Sergipe-Alagoas Basin. Known informally as Barra 1, the 3-SES-165 well is located around 100 km from the municipality of Aracaju, off the coast of the State of Sergipe, at a water depth of 2,433 m and approximately 10 km southeast of the wild cat, 1-SES-158 (Barra).

The objectives of drilling Barral were to verify the southeastern extension of the gas accumulation discovered by the wildcat well in the sandstones of the upper section of Calumbi Formation and to investigate the continuity in the same direction of oil-saturated sandy reservoirs in the lower section of Calumbi Formation, found by well1-SES-158.

Both objectives have been achieved, allowing the Barra accumulation to be delimited, as projected, and confirming the southeastern continuity of oil saturated reservoirs in the lower section. These reservoirs are located between 5,460 and 5,500 m, where there were light oil saturates with an API of 38 degrees found. Petrobras is the operator of the BM-SEAL-11 concession (60%) in partnership with IBV Brasil (40%). The consortium is to continue operations in the area to confirm the extension of the new discovery and characterize the conditions of the reservoirs found.



China seeking foreign partners to help explore another 26 blocks

State-owned China National Offshore Oil Co. is looking for foreign partners to help it explore another 26 blocks, including 22 in the South China Sea. CNOOC announced the new initiative on its website, noting that the 26 blocks cover 28,476 sq mi, at water depths between 1,640ft and 9,842ft.

It is giving foreign companies until November 30 to review data. Companies wanting to participate would then submit a partnership plan.

The latest tender came two months after CNOOC invited international firms to bid for nine blocks in the western part of the South China Sea, a move Vietnam charged was illegal as the blocks encroached on its territorial waters. China disputed Vietnam's assertion. None of the new blocks appear to be in disputed areas.

The South China Sea stretches from China to Indonesia and is believed to hold vast reserves of oil and gas. China claims most of the body water. Vietnam, the Philippines, Malaysia, Brunei and Taiwan also claim portions.

Lundin Petroleum says Geitungen offshore Norway is a discovery

Lundin Petroleum said that exploration well 16/2-12 in PL265 has found oil in the Geitungen structure located north of the Johan Sverdrup discovery in the Norwegian North Sea.

Well 16/2-12 has proved a gross oil column of 35 m in high-quality sandstone of Jurassic age. Oil was also proven in the basement rock. Data acquisition in the well, including coring, wireline logging, and fluid sampling, indicates that the Geitungen structure is in communication with the Johan Sverdrup discovery made by Lundin Norway in 2010.

Preliminary calculations of the size of the Geitungen discovery made by operator Statoil, are between 140 and 270 million barrels of gross recoverable oil.

The well was drilled to a total depth of 2,045 m below mean sea level and was drilled with the rig Ocean Vanguard. The rig will now drill an appraisal well on the Johan Sverdrup discovery in PL265. Lundin Petroleum holds 10% interest in PL265. Partners are Statoil Petroleum AS (operator) with a 40% interest, Petoro (30%), and Det norske oljeselskap ASA (20%).

BP discloses Taurt North, Seth South discoveries in Nile Delta

BP Egypt disclosed the Taurt North and Seth South gas discoveries in the North El Burg Offshore Concession, Nile Delta. These are the fourth and fifth discoveries made by BP in the concession, following Satis-1 and Satis-3 Oligocene deep discoveries and Salmon-1 shallow Pleistocene discovery.

The two wells were drilled by IEOC on behalf of concession operator BP, using Scarabeo IV rig in water depths of 110 m and 78 m, respectively. The wireline logs, fluid samples, and pressure data confirmed the presence of gas in one Pleistocene interval in Taurt North and two Plio-Pleistocene intervals in Seth South. Options to tie both discoveries to nearby existing infrastructure are being studied.

The parties to the North El Burg Offshore Concession agreement are BP (operator, 50%) and IEOC (50%). The concession lies between the Ras El Barr BP-operated development concession and Offshore Baltim development concession operated by IEOC.

OYO to provide Statoil with seismic monitoring for Norweigian fields

OYO Geospace has accepted a non-binding letter of intent with Statoil to provide 600 km of seabed seismic reservoir monitoring system for the Snorre and Grane fields on the Norwegian continental shelf.

Under the letter of intent, Statoil is contractually obligated to pay OYO Geospace $2.5 million for certain pre-award work related to a potential final contract. The final contract, if it is awarded in October 2012 contingent on partner approval, as the letter of intent anticipates, would result in total revenue of approximately $160 million over a 3-year period.

The letter of intent can be canceled by Statoil at any time prior to the execution of definitive contract documentation.

Eni to fund seismic programs for three licenses offshore Russia

Eni has agreed to fully finance geological studies covering three licenses offshore Russia. This follows the signing of an agreement under which Rosneft will take a 66.67% stake and Eni Energy Russia 33.33% in the Fedynsky and Central Barents blocks in the Barents Sea and the Western Chernomorsky block in the Black Sea.

Expenses for geological exploration outside of the license obligations will be met by the companies according to the equity split. Additionally, Eni will pay the majority of historical costs on completed geological programs on the three blocks.

Eni will recover its investment via cash flow once production starts at any of the blocks. However, Rosneft will not be obliged to return that sum if production does not go ahead.

Transition zone seismic acquired by RWE offshore Turkmenistan

RWE Dea has completed what it claims was the first 3D seismic survey off the coast of Turkmenistan. The 154-sq mi transition seismic program, acquired over Block 23, moved out from the onshore region to shallow water and involved a 400-strong team mobilized on special vessels and land vehicles.

Measurement cables with receivers were laid from the mainland up to 10 km into the shallow-water region. As seismic sources, airgun arrays were deployed in the water, with the vibroseis method adopted for the onshore section. In addition to recording of 3D data, certain 2D seismic measurements were taken. The program was preceded by an extensive environmental survey.

ONGC finds major oil field during development drilling offshore India

ONGC said it made a major oil discovery offshore western India. The company found the new reserves during development drilling on the D1 field, which it now believes may be the third largest field in the Western Offshore basin after Mumbai High and Heera. Previously, D1 was known to have initial oil in-place of about 600 mmbbl. The latest result suggests more than 1 Bbbl. D1 is primarily an oil-producing field, about 124 mi west of Mumbai, in a water depth of 279 to 295 ft. It extends over four blocks – D1-4, D1-12, D1-14, and D1-2/5. ONGC said the discovery has uncovered an additional oil-bearing zone of about 466 ft. On completion of the D1 field development, production is expected to rise to 60,000 b/d.

HB Rentals designs custom sleeper for offshore Brazil

Offshore accommodation specialist HB Rentals, a Superior Energy Services company based in Broussard, Louisiana, has built an ABS-approved eight-man sleeper for use offshore Brazil.

A custom design, the sleeper will be installed as permanent quarters on a mobile offshore drilling unit (MODU) in Brazil. The sleeper is A60 fire-rated and designed to comply with the Ministry of Health's NR-30 requirement for Brazilian standards as well as ABS rules and regulations for MODUs.

The building was under construction in Broussard, Louisiana, and was to be shipped to Rio de Janeiro upon completion this summer.

"At HB Rentals, we pride ourselves on providing our clients with innovative solutions to meet their requests," said Glenn Aguilar, HB Renals' vice president of corporate sales and marketing. "In this case, we were able to design a high-quality building that met the client's needs.

Eight-man sleeper headed for Brazil

UK sanctions development plan for Fionn tieback in North Sea

Britain's Department of Energy and Climate Change has approved the development plan for the Valiant Petroleum-operated Fionn field in the UK North Sea. Located in Block 211/22a South East Area, Fionn is adjacent to the Causeway field, where first oil is expected this month, according to partner Antrim Energy.

Fionn's suspended well 211/22a-6, drilled in 2007, will be re-used as a producer. The well tested oil from the Ness and Etive formations at 5,500 b/d. It will be completed with dual electrical submersible pumps. First oil is anticipated in mid-2013, at an initial rate of 4,500 b/d.

Well productivity and reservoir pressure data will be monitored and reserves estimates reviewed periodically. Should pressure support be needed, water injection could be introduced via another Fionn suspended well.

Fionn's production will be combined with output from Causeway and transported for processing to the TAQA-operated Cormorant North platform. Flowlines were installed at the same time as Causeway's as a pre-investment.

Valiant has agreed to finance Antrim's working interest share of Fionn pre-investment costs. Additionally, Antrim has the option for 3 months following first oil production from Causeway either to opt out of the Fionn development, or confirm its participation by paying its 35.5% share of the pre-investment costs plus interest in respect to financing.

2H Offshore completes design of CoSMOS facilities platform

2H Offshore, an Acteon company, has completed a contract for the detailed design of a CoSMOS minimum facilities wellhead platform for Paris-based, independent oil and gas company Perenco. The new platform, known as DIF1, has been installed in Dissoni field, offshore Cameroon in 7 m of water. Due to start production later this year, it will form part of a network of platforms in the area with interconnected flowlines and power distribution.

The 10-m by 15-m DIF1 platform is a cost-effective alternative to a jacket structure and offers installation flexibility, as it is suitable for installation from a barge or jack-up rig. Leading all aspects of the design, 2H Offshore undertook in-house development of the structural design and novel aspects of the installation procedure while managing DPS (Bristol) Ltd. for the design of the process piping and instrumentation.

"This is a milestone for 2H Offshore that demonstrates how our conductor engineering expertise can help our clients take a fresh look at smaller and marginal field developments," said John McGrail, director of 2H Offshore. "The CoSMOS system is ideal for operators looking for an economic means to develop small fields, and we have already developed a range of solutions to suit a variety of well counts and water depths to 100 m."

Development drilling underway at Okoro East field offshore Nigeria

Afren and partner Amni International Petroleum Development started early development drilling at the shallow-water Okoro East field offshore Nigeria.

The Okoro-14 development well is being drilled from the Okoro main field wellhead platform, with the aim of establishing initial production from Okoro East, 1.2 mi east of the Okoro main field, via the Okoro FPSO. The partners plan to use this production information to finalize full-field development options, with potentially up to eight more production wells under a full-field development scenario.

A side track was also drilled in the existing Okoro-5 production well on the Okoro main field, designed to access additional oil volumes in a previously unswept area of the reservoir. The side track, drilled to 9,800 ft measured depth, encountered oil pay in the target reservoir, and a 2,500 ft lateral drainage section within the pay zone was brought onstream on 22 July at a stabilized rate of 2,000 b/d.

Elsewhere, processing was completed on a 134-sq. mi Ocean Bottom Cable 3D seismic survey acquired over the Ebok-Okwok-OML 115 area late last year, and results have been integrated into the existing data set.

More rigs coming for Caspian Sea development project: Dragon

Dragon Oil is adding intervals on the Dzheitune (Lam) 13/171 well in the Turkmen sector of the Caspian Sea and was expected to complete the Dzheitune (Lam) C/175 development well during the past few weeks. After the leased platform-based rig undergoes planned maintenance, it should spud the next well on the Dzheitune (Lam) 28 platform. Toward year-end, the company expects to take delivery of its newbuild Caspian Driller jack-up, and it should be ready for drilling in the first quarter of 2013. Dragon is tendering for another jack-up and for two land rigs for deployment on the new Dzhygalybeg (Zhdanov) A and B platforms. Last year, the company completed a preliminary water injection study using a dynamic simulation model for the Dzheitune (Lam) 75 area.

RWE announces first gas from Clipper South offshore North Sea

RWE Dea UK has first gas delivery from the Clipper South field in southern North Sea. The first well came onstream at 1.2 MMcm/d, and production is expected to peak at 2.8 MMcm/d early next year.

The gas is in a tight Permian-age Rotliegend reservoir that contains approximately 473 bcf of gas in place.

The Clipper South Gas field is in UK continental shelf blocks 48/19 and 48/20, 62 mi east of the Lincolnshire coast. Gas from the Clipper South platform is transported about 9 mi to the Lincolnshire Offshore Gas Gathering System (LOGGS) and then about 100 km to the onshore Theddlethorpe Gas Terminal in Lincolnshire, where the gas enters the UK grid.

The Clipper South platform is a single wellhead steel structure weighing approximately 3,307 t with accommodation for 40 persons. The accommodation and platform layout facilitates well intervention operations without a drilling rig.

Once steady production is established, it is planned to operate the field unmanned with control of the wells from the LOGGS platform. The licensees are RWE Dea UK SNS Ltd (operator, 50%), Bayerngas Europe Ltd. (25%), and Fairfield Acer Ltd. (24%).

Statoil says extra wells to extend Gullfaks South production profile

Statoil and partner Petoro plan to further develop Gullfaks South in the Norwegian North Sea to boost recovery by 65 MMboe.

The $1.4 billion program involves adding two new subsea templates and six extra wells (four oil producers and two gas injectors). These will be drilled by the semi-submersibles Deepsea Atlantic and Songa Dee. Start-up is scheduled for 2014.

"By using the fast-track concept, with standardized solutions and consistent teams in one project, we will improve recovery in an effective manner," said Halfdan Knudsen, Statoil's vice president for fast-track projects on the Norwegian continental shelf.

Production in parts of Gullfaks South was shut down in 2008 to maintain pressure in the reservoir at an acceptable level for future drilling operations. This year, some wells are being reopened and new wells will be drilled from existing seabed templates on Gullfaks South. This will be the second fast-track tieback development to Gullfaks for processing, where there is spare capacity. The project should extend the productive lifespan of Gullfaks A beyond 2030.

Reserves report indicates oil potential in Falkland prospects

Desire Petroleum issued results of a reserves report on its Elaine and Isobel prospects in the offshore North Falkland basin. The competent person's report by Senergy (GB) covers interpretation of merged 3D seismic data acquired during 2010-2011 over the two structures in the PL004a license where Desire has a 92.5% interest.

Gross un-risked prospective recoverable oil is estimated at 337 MMbbl, comparable to the Rockhopper-operated Sea Lion discovery, with a geological chance of success (COS) of 30%.

The Elaine and Isobel fans are developed in the southeast area of the basin within the basal part of the F sequence and appear to be similar to the Sea Lion fans to the north.

RathGibson provides umbilical tubing that withstands

RathGibson, a manufacturer of welded; welded and drawn; and seamless stainless steel, nickel, and specialty alloy tubing, produces umbilical tubing with enhanced tensile strength and corrosion resistance for a wide range of operating temperatures and pressures.

The increasing water depths and higher working pressures make subsea an extremely harsh environment. RathGibson offers laser-welded Lean Duplex 19D, a cost-efficient alternative for subsea umbilical applications. Zinc cladding is added for improved external protection against corrosive-inducing, temperature-fluctuating subsea conditions.

RathGibson's zinc-clad Lean Duplex 19D tubing undergoes extensive quality testing, including x-ray, eddy current, ultrasonic, and final acceptance testing (FAT) to meet and exceed ASTM-A789 and ASTM-A790 specifications. Since 2001, RathGibson has placed over 4,500 mi of its zinc-clad lean duplex welded tubing in dynamic and static subsea umbilical applications.

The company's umbilical tubing is currently installed in waters up to 7,600 ft in depth and lengths up to 32.5 mi. It complements the offshore product portfolio provided by ITS parent company, The PCC Energy Group, a member of the Precision Castparts Corp. For additional information, visit the company website at www.RathGibson.com.

AnTech Ltd. expands Wellhead Outlet range

AnTech Ltd., a directional drilling and design engineering services company, said that in an effort to meet demand for new systems to continuously monitor pressure and temperature in permanent completions, it has expanded its already extensive Wellhead Outlet range.

A Wellhead Outlet connects the downhole cable to the surface telemetry system and is attached to the wellhead to provide a safe connection between the cables and seal against downhole pressure. The configuration ensures that the integrity of the wellhead is maintained, even if the downhole cable is flooded.

To provide round-the-clock monitoring of downhole conditions, every electrical Wellhead Outlet from AnTech is ATEX- and IECEx-certified and designed to ensure that both the integrity of the well and the electrical connections are maintained. In keeping with the industry's increased use of fiber optics, AnTech introduced its first fiber optic option in 2011. The company is now finalizing its new fiber optic wellhead outlets that are designed to meet higher wellsite ratings and criteria, such as 15 kpsi pressure and, in some cases, up to 204°C. They are suitable for multiple fibers in single mode and multi-mode. More information can be found on the company website at www.antech.co.uk.

McCrometer's V-Cone Flow Meter obtains certification

McCrometer said that its advanced differential pressure V-Cone® Flow Meter, offering a proven track record for precision flow measurement in rugged environments, has obtained GOST-R Certification and now officially meets Russian national technical standards. GOST-R certification is a strict approval process to ensure the accuracy of reporting and metrology. It assures McCrometer customers in the Russian market that the V-Cone® will accurately and reliably report fluid flows. Typical applications include oil-gas custody transfer, energy consumption and efficiency, and more. Designed for accurate and reliable fluid measurement in rugged, space-challenged environments, the V-Cone® Flow Meter supports a wide range of oil-gas production and other process industry applications. The V-Cone®'s highly compact, no-moving parts design simplifies installation, virtually eliminates maintenance and recalibration, while offering a long life and low life-cycle costs. Visit the company website at www.mccrometer.com.

Roxtec BG™ cable entry seals provide solutions

The innovative Roxtec BG™ product range is already a success in several industries. As a leading sealing supplier to offshore companies, Roxtec is now developing a bonding and grounding concept for very harsh environments.

Roxtec BG™ solutions combine the simplicity and flexibility of the Roxtec multi-cable transit sealing system with the ability to bond and ground metal-clad or armored cables. The new system also provides protection against weather, explosion, rodents, and fire. It is fire-rated for bulkheads, walls, decks, and floor entries, and IP 66/67 and NEMA 1, 2, 3, 3R, 4, 4X, 5, 12, and 13 rated for electrical enclosures.

Like other Roxtec seals, the Roxtec BG™ solutions can be used in many different industries.

Roxtec BG™ solutions are designed to increase the cable density capacity while decreasing the footprint. They are up to 70% more area-efficient than traditional cable glands. A single "window" cut-out in a cabinet can accommodate up to 32 cables – and replace 32 individual knock-outs and 32 cable glands. Users can, thereby, use smaller, lighter cabinets and significantly reduce costs and project risks.

For more information, visit the company website at www.roxtec.com/de/.

Hydratight launches user-friendly, smaller pocket-sized BoltScope Pro

Hydratight has launched a smaller, user-friendly version of its highly regarded BoltScope ll bolt load monitoring device. The new pocket-sized BoltScope Pro brings higher levels of accuracy to the bolting professional.

BoltScope Pro is the first cost-effective ultrasonic monitoring device to measure bolt load, elongation, stress, and percentage of strain at nanosecond intervals and resolutions down to a thousandth of a inch, the company said.

Loaded and unloaded bolt readings can be compared instantly on its easy-to-read screen. The device can also be configured for linear regression or vector readings to assist load measurement optimization.

BoltScope Pro can store 8,000 readings in multiple groups for detailed comparisons. Readings can be stored offline for joint integrity reporting.

New features include an auto-set facility, which automatically optimizes signal detection and adjusts the display accordingly, visual waveform matching so readings can be repeated with great accuracy, and a high-low alarm, which can work with the data port and an external pump shut-off device to limit errors. BoltScope Pro has a tough aluminum body with sealed end-caps for long service in the very toughest conditions. It is battery powered, with up to 150 hrs of battery life.

For more information, visit the company website at www.hydratight.com/en.

Systems deliver greater accuracy in drillstring pressure tests: Churchhill

Churchill Drilling Tools has successfully deployed its mechanical extrusion (MX) and smart dart (SD) systems in drillstring pressure testing. The MX enables the application of rigid SDs for multi-cycle control. Churchill claims the combination provides robustness and resilience to high-pressure-high-temperature environments and improved reliability and performance compared with conventional ball activation.

The company's PTS MX system can be used to test a drillstring up to a specific pre-set pressure with the capability to regain circulation between each test. This allows multiple tests to be performed at various pressures in a single run.

PTS MX can be run in any length of pipe, Churchill adds, at any angle or temperature and with any type of circulation fluid. The subs' fully tapered internals provide unrestricted circulation and feature a full through-bore prior to the first cycle. The SD is dropped and pumped into place with the load transmitted through pins in the dart into the PTS MX sub; the pins determine shear out pressure.

Pressure can be maintained at the required test level as long as necessary. When testing is complete, a small increase in pressure is applied to shear out the dart into the catcher below. Multiple test cycles can be performed, with full circulation restored between each test, and the shear out point can be accurately modified by altering the dart's pins before it is dropped.

High-quality alloys with a service life of 100 years can help to maintain the life of subsea piping

James Alloys slashs delivery times on specialist metals

A niche supplier to the oil and gas industry is offering dramatically reduced waiting times on its range of metal products essential to subsea pipe laying and construction.

James Alloys Ltd., which provides high-value metal products for distribution throughout the world, can now supply stainless steel, nickel alloy, and titanium banding and clips in less than 2 months.

One such product is of particular interest to the subsea industry. Nickel chromium alloy 625, containing Molybdenum, can be used in high-load marine, subsea, and chemical environments. It comes with toughened anti-corrosion properties that are particularly resistant to crevice corrosion and has a 100-year service life.

An outstanding strength-to-weight ratio is provided by the titanium alloy, which has exceptional resistance to corrosion from salt water, acid, alkalis, and harsh industrial chemicals.

Before reaching an agreement with a major European mill, the Manchester-based company followed an industry standard delivery time of 6 months on banding, clips, installation, and tooling supplies.

"There is an increasing demand from the oil and gas industry for high specification banding systems provided in as short a timescale as possible," said Mark Catlow, managing director. "Over the past 12 months, we have seen a dramatic surge in orders from the Middle East, and we are now experiencing a similar increase from operators in the North Sea. This can lead to increased waiting times on orders and, ultimately, delays to projects. The ability to supply the same high-quality products in a shorter timeframe will give companies a competitive edge in terms of fulfilling customer requirements more quickly." For further details visit www.jamesalloy.com.

Lilaas unveils new electronically controlled LO1 lever range

Lilaas, a manufacturer of control levers and joysticks for the maritime and offshore industries, is launching its new electronically controlled LO1 lever range. The LO1 range marks a major technological step forward for the company and for the industry itself. The range incorporates advanced software solutions and a digital display screen and brings together the functionality of multiple joysticks or levers into a single unit.

In addition, a wide range of different functions, including tension and force feedback, can be programmed to meet individual customer requirements.

"All-electric levers like the LO1 series are the future," said Lilaas sales and marketing manager Terje Akerholt. "Everything a customer needs can be pre-installed within the lever structure, and only a very shallow cut-out beneath the lever is required. This is putting us right

at the cutting edge as far as control technology development is concerned."

Lilaas has paid particular attention to the design of the new lever and is emphasizing its aesthetic appearance in an industry where conventional levers have all looked the same until now. Optional color and engraved switch text in the event of backlight failure are particular features of the new design.

The built-in TFT LCD display shows the position of the lever and feeds back information from the ship's systems that are being controlled. It is a key feature of the design. The display screen also allows settings to be easily configured by the user to suit individual preferences much more easily than in the past.

According to Lilaas, the fact that the display is an integral part of the lever's structure makes the LO1 class levers easier to use, as all the information required by the operator is available in one place. The levers have also been designed to ensure a high degree of redundancy in the event of technical problems and feature capacity touch switches, with up to four for azimuth or single controllers and up to eight covering a double controller.

For more information, visit the company website at www.lilaas.no.

Total joins others in Intersect reservoir simulator development

Total is joining Schlumberger and Chevron Corp. to further develop the Intersect reservoir simulator. It will now combine Chevron's reservoir simulation capabilities and reservoir management experience with Schlumberger's software development capability and Total's engineering resources.

Intersect can simulate large, complex reservoirs using high-resolution models to test a number of scenarios in order to improve development plans and maximize recovery.

"Intersect's success reflects Chevron's belief that technology and partnership can transform energy challenges into opportunities," said Paul Siegele, president of Chevron Energy Technology Co.

Cooper XB13 flashing beacon for offshore drilling rigs introduced

In loud offshore environments, visual indicators are needed for effective emergency communication. According to the UK Offshore Operation Association, "Visual warnings in the form of high-intensity flashing beacons should be provided in areas subject to high ambient noise to supplement the acoustic alarm signals."

Telcom & Data, a leader in offshore technology, recommends Cooper's XB13 flashing beacon.

The XB13 flashing beacon is constructed to meet rigorous offshore requirements. Tough corrosion-resistant GRP material makes the beacon impervious to the harshest outdoor conditions. The device is fully weatherproof and can operate in temperatures between -40°F to 131°F. Various colors are available, making the product adaptable for different signaling purposes, according to the company.

PREMIERING

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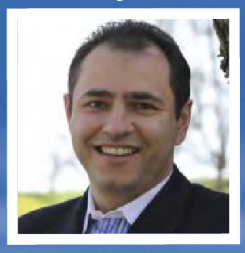
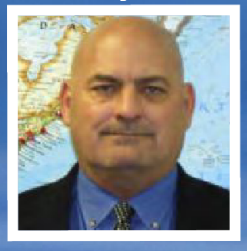
Keynote Speakers

Tuesday, Nov. 6



Greg Kusinski
Director
DEEPSTAR

Tuesday, Nov. 6

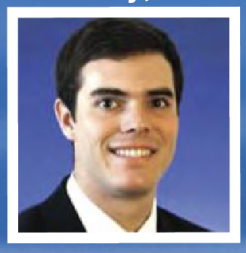


Mike Brown
President
ADCI

Wednesday, Nov. 7

Kaj-Ove Skartun
Subsea IMR
STATOIL

Thursday, Nov. 8



Grant Niccum
Manager AUV
Research/Technology
Chevron ETC Survey

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Monday, November 5

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OFFSHORE SURVEYING

1:00-3:00 p.m.
Moderated by Johan Stam, authoritative industry leader and author of the 3-volume "Handbook of Offshore Surveying"

UNDERWATER STRUCTURE VISUALIZATION, RIG MOVES, DIRECTING DIVERS TO CONSTRUCTION SUPPORT; SCANNING DONAR DOES IT ALL

1:00-3:00 p.m.
Moderated by Mark Atherton, authoritative industry leader and author of "Echoes & Images"

Thursday, Nov. 8

AUV Panel Session

Moderated by Donna Kocak, Harris, Corp (Maritime Robotics & Autonomous Systems) this high-level panel of AUV manufacturers and operators will assemble to discuss the next generation of Autonomous Underwater Vehicles (AUVs) for oil & gas applications

9 Reasons to Register Today!

1. **KEYNOTE EACH DAY** – Each day will begin with an industry expert Keynote from DeepStar, Chevron, Statoil, ADCI and other invited industry leaders.
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4. **PANEL SESSION** – Don't miss this high-level panel of AUV manufacturers and operators assembled to discuss the next generation of AUVs for Oil & Gas Applications.
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6. **VIP INVITATIONS** – In addition, Subsea Survey IRM offers Oil & Gas operators an invitation for free full conference passes to the technical sessions, exhibits, luncheons, workshops and networking events. Operators wishing to attend may contact Dan White for an invitation. dwhite@tscpublishing.com
7. **SPECIAL EMPHASIS** – On Underwater Vehicles for survey and inspection work, including ROVs, AUVs, Gliders and towed vehicles.
8. **PROCEEDINGS** – Registered full conference attendees will receive a free copy of the proceedings on DVD.
9. **NETWORKING** – In addition to the technical program, there are 3 1/2 hours of breaks each day and a networking events resulting in over 10 hours of networking time during conference hours.

For General Information Contact: Mj McDuffee; 772-219-3027 • mj@subseasurvey.com
For Exhibits & Sponsorship Contact: Amy Dukes; 713-557-8057 • adukes@tscpublishing.com

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Preliminary Technical Program

Tuesday

Keynote Speakers: **Greg Kusinski**, Director of DeepStar, Chevron Energy Technology Company
Mike Brown, President, Association of Diving Contractors International

TRACK 1

The Convergence of Positioning and Imagery
Keith Vickery, Zupt, LLC

Robotic Manipulators
Peter MacInnes, FMC Technologies Schilling Robotics

Operational Oceanography: Presal36, an Operational High Resolution Ocean Current Model
Jacques Scheollkopf, Advanced Subsea SAS

Marlin™ Leads the Way with AUV Integrity Management Inspections
Lou Dennis, Lockheed Martin

Minimizing Offshore Exploration Risks by Evaluating the Charge of Subsea Structures
Rick Schrynemeeckers, W.L. Gore & Associates, Inc.

TRACK 2

AUV Characteristics for Deepwater IRM Applications
Carl Barrett, 3U Tech

Digital Video Technology and the Applications to Subsea Pipeline and Structural Inspection Surveys
Anne Murray, Forum Subsea Technologies, Visualsoft

Viewtooth Underwater Wireless Video Camera
Emma Godsman, WFS Technologies, Ltd.

Site Investigation for Decommissioning, Andy Barwise, Gardline Geosciences

Reliable Subsea Leak Detector
Tomas Fritsvold, R2Sonic

Wednesday

Keynote Speaker: **Kaj-Ove Skartun**, Subsea IMR, Statoil

TRACK 1

How Increased MBES Resolution Integrated with a New Generation of Compact Parametric High Resolution Sediment Profiler Increases the Data Quality and Productivity of Pipeline Surveys
Jens R. Steenstrup, R2Sonic, LLC

Autonomous MiniROV Control
Chris Gibson, VideoRay; Ioseba Tena, SeeByte

New Cutting Technology/Latest Advancements in Conductor Removal and Pile and Jacket Cutting
Nislen German, Beeren Berg

Saab Seaeye Sabertooth, a Seafloor Resident Hybrid AUV/ROV System
Chris Roper, Saab Seaeye

Advancements in Underwater Oil Detection and Recovery Techniques
Jim Elliott, T&T Marine Salvage, Inc.

New Technologies for Positioning Locating Subsea Cables, Scott Hiller, TerraSond Ltd.

TRACK 2

Ultrasonic Instruments and 3D & 2D Software to Help Reach Energy Reserves Presently Unreachable
George Sfeir, Technical Industries, Inc.

3D High Resolution Survey
Peter Sack, Soundoceanics

IMR: Large Floating Structure Fully Robotized UWILD and Mooring/Riser Inspection Services
Jacques Schollkopf, Advanced Subsea SAS

Life Extension in the Splash Zone
Christian Hagen, LBO, Inc.

New Hybrid LASER Systems for Long Range, High Resolution Undersea Inspection and High Bandwidth Communications
Fraser Dalgleish, Florida Atlantic University

Deepwater Multibeam Pipeline Surveys – Thermal Expansion in Operation
Ryan Watson, Atkins; Yetzirah Urthaler, BP; Jonathan Davis, BP

Thursday

Panel Session: **AUVs for Oil & Gas Applications**
Keynote Speaker: **Grant Niccum**, Manager AUV Strategic Research / Technology Development Program, Chevron Energy Technology Company
Moderator: **Donna Kocak,** Advanced Programs Engineer, Harris Corp.

Speakers are subject to change until the Final Program has been released.
For questions, please contact Ladd Borne at 772-285-8308 or ladd@subseasurvey.com

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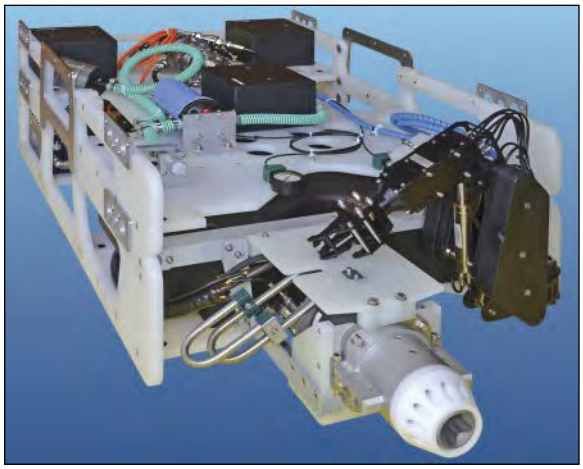
New superskid not just for Christmas

A new concept in skid design from Saab Seaeye adds a powerful tooling capability to their technologically advanced Cougar XTi ROV.

It means that for Christmas tree installation and other work tasks, a small electric ROV can be deployed in the support role rather than a large hydraulic work-class vehicle.

The innovation behind the work skids concept is an electro-hydraulic modular power package that allows a "mix and match" combination of powerful tooling to be used.



Cougar XTi skid built for Aker Solutions with class 1-4 torque tool and single five-function manipulator with camera to deploy hot stab lance

Skids fitted with an ensemble of work-scope tooling, such as a class 1-4 torque tool, 350bar sea water hot stab, manipulators, and high-pressure water jet and rotary brush for complementary cleaning work, now make it possible for a small ROV to undertake the tasks normally performed by an hydraulic work-class vehicle – but at a much lower cost.

And the recently launched Cougar XTi ROV has the pioneering architecture to absorb the work skid's advanced technology ready for a range of demanding roles.

This is clearly illustrated in the support of Christmas tree installation and commissioning, where significant savings in vehicle utilization can clearly be found.

Fitted with its new skid system, the Cougar XTi can readily fulfil the scope of work typically undertaken by the hydraulic work-class vehicle that usually supports the primary work-class ROV and commissioning module combination during the Christmas tree installation.

After giving observation support to the interconnection procedure, the Cougar can undertake the other tasks of the support work-class vehicle in the commissioning process, such as cleaning, operating valves, and hot-stab work.

While undertaking this work, the operator has the added reassurance of a system that keeps the pilot in touch with the health of the ROV and warns of potential problems through a simplified Man Machine Interface (MMI).

Smart fault diagnostics give the pilot a clear interpretation of any problem and the remedial action to be taken, including the ability to remotely isolate the failed component and keep the ROV working.

Each onboard device – thrusters, lights, tools, etc. – is managed through an intelligent three-mode distributed plug-and-go control system. The first mode controls the device; the second provides the diagnostics; and the third is used for configuration.

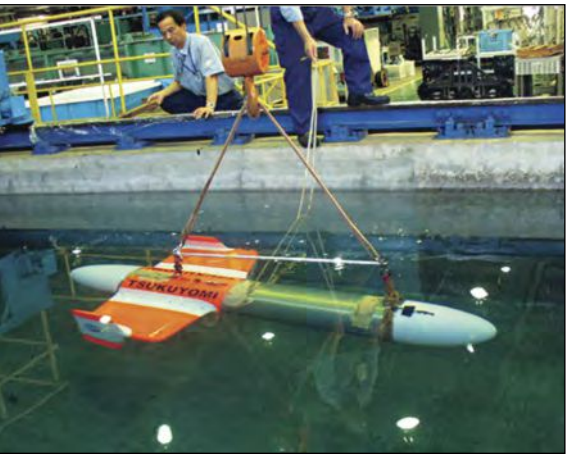
Rated at 3,000 m and with six powerful thrusters, the Cougar XTi is highly manoeuvrable and with its new thinner umbilical – down from a typical 32 mm to 20 mm – so drag through the water is reduced, particularly in strong currents.

The thinner umbilical has also reduced the size of the drum and shrunk the launch and recovery system into a more compact solution.

A new autopilot system gives the operator more precise positioning of the vehicle by automatically holding depth and heading in much tighter parameters than ever before.

Saab Seaeye say the system will take on many work tasks normally undertaken by hydraulic vehicles, with considerable savings to operators.

For more information, visit www.seaeye.com.



Virtual mooring glider

Approximately 3,500 Argo floats have been deployed into the ocean across the world, and they are collecting data every day. Argo floats, however, cannot focus the observation on a specific area since they drift. Consequently, the development of the underwater glider for virtual mooring began.

The vehicle, which carries a buoyancy engine, can dive up to the depth of 3,000 m, and measure the salinity, temperature, pressure, and other profiles while descending to the seafloor and ascending to the sea surface repeatedly at fixed intervals. At the sea surface, it transmits the observed data via the satellite system to a land-based facility and locates itself using GPS.

The ultimate goal is to develop a vehicle that can stay in a specific area for fixed-point observation while keeping the body in balance under water and controlling its own direction by moving the on-board ballast weight.

For more information, visit www.jamstec.go.jp.

Fugro awarded contract to survey coastline of Lake Michigan and the Barents Sea

Fugro, under a contract with the U.S. Army Corps of Engineers (USACE) in support of their National Coastal Mapping Program (NCMP), was awarded a task order to survey the coastline of Lake Michigan.

This multi-sensor project will cover a 1,500 m wide corridor, extending 500 m inshore to 1,000 m offshore, along the coastline of Lake Michigan. The project involves the utilization of one aircraft to simultaneously collect data with four sensors: aerial RGB imagery, hyperspectral imagery, topographic LIDAR, and bathymetric LIDAR over land and water.

Data acquisition will be coordinated to ensure sufficient overlap in both the land and water, enabling the creation of a seamless dataset in a common frame of reference. These data products provide the second cycle of the NCMP, which provides recurring datasets for stakeholders who are interested in continuing coastal monitoring, pre- and post-storm coastal effects, habitat assessment, and coastal development.

In other news, Fugro was also awarded a EUR 2.7 million hydrographic survey contract by the Norwegian Hydrographic Service (NHS). This survey, planned for 2013, is part of the ongoing MAREANO project and will encompass an area over 11,000 km^2 in the Barents Sea.

The area is located offshore the northern-most part of Norway, close to the Russian border, in water depths between 150 and 300 m. The awarded survey is adjacent to an area surveyed by Fugro in 2011 and 2012. NHS has the option to extend the project area, which would then require the deployment of additional tonnage. Data processing will take place onboard the vessels and at Fugro OSAE's processing center in Bremen, Germany.

MAREANO is Norway's program to fill knowledge gaps related to seabed conditions and biodiversity along the northern Norwegian coast. The goal is to contribute to a better knowledge base for Resource Management, in particular for fishing and oil and gas exploitation. The acquisition of detailed and accurate bathymetry is an important first step in the collection of benthic data.

For more information, visit www.fugro.com.

Forum places Mohawk™ in Titanic Museum

Forum Subsea Technologies, a business line of Forum Energy Technologies, Inc. (NYSE:FET), is pleased to announce the placement on permanent display of a Sub-Atlantic Mohawk™ observation class remotely operated vehicle (ROV) at the Titanic Belfast Museum to help tell the story of the RMS Titanic. The newly opened Titanic Belfast Museum, the world's largest Titanic visitor attraction, is located in the heart of Belfast.

Saturday, 1 September 2012 marks the anniversary of the discovery of the wreck of RMS Titanic. On this date in 1985, Robert Ballard, Jean-Louis Michel, and their French-American team finally located the wreckage of one of the most famous and tragic ships in history. The discovery was made possible by the development of ARGO-Jason, a remotely operated system, to locate and videotape underwater objects. The ARGO-Jason was primitive by today's standards and was towed on a sled underwater by a ship.

For more information, visit www.f-e-t.com.

Fugro is participating in the search for the lost Franklin Ships in the Canadian Arctic

Fugro, under contract with the Canadian Hydrographic Service (CHS), has been awarded a new task order to conduct hydrographic surveys utilizing Airborne LiDAR Bathymetry (ALB) as part of the Canadian government's Arctic Charting and Mapping Pilot Project. The project includes seabed mapping to aid in the search for Franklin Ships Erebus and Terror. The ALB surveys are being conducted in conjunction and coordination with CHS' vessel-based surveys from CCGS Sir Wilfrid Laurier. The task order, which has been issued under a 3-year contract that Fugro holds with CHS, also supports their charting programs in the Canadian Arctic.

Fugro's ALB system is capable of efficiently collecting data from various airborne platforms over a variety of marine and land environments such as inter-tidal zones and coastal regions. In addition to collecting simultaneous elevation/depth information over land and water, it is also capable of acquiring aerial imagery using its integrated, high-resolution digital camera for both quality control and the production of orthorectified photo mosaic products. The ALB system achieves a highly efficient coverage rate of up to 70 km^2/hr at IHO Order 1 positioning and depth accuracies. In addition to traditional bathymetry information, it also derives seafloor reflectance information from the LiDAR return signals, which can be used to produce high-quality seabed imagery that shows changes in homogeneous bottom type and can be used to accurately classify the seafloor environment for activities such as geologic and habitat mapping.

Fugro provides ALB products and services worldwide to public and private sector clientele as a rapid and cost-effective solution to nearshore hydrographic survey needs where scale of the project, time constraints, and user safety are of primary concern.

For more information, visit www.fugro.com.

DeepOcean Performing FEED Study for INTECSEA Canada

DeepOcean is working to deliver a conceptual study for INTECSEA Canada (INTECSEA), with the support of SMD, as part of a programme to develop a trenching system for subsea pipelines, flowlines and umbilicals in ice scour environments.

INTECSEA, on behalf of Petroleum Research Newfoundland & Labrador (PRNL), is managing a multi-phased Joint Industry Project (JIP) to investigate and develop a proven, commercially-ready, pipeline trenching system for the burial of pipelines, flowlines and umbilicals in various soil and Arctic conditions to protect against the effects of ice scouring of the seafloor.

DeepOcean will undertake a four month study for Phase I of the four-phase JIP, to define its proposed technology solution for Arctic trenching and establish how it will fulfil specified functional requirements. The trenching system must meet a number of stringent criteria including use in harsh marine conditions, operation in water depths beyond the majority of current trenching requirements, trenching in difficult and highly variable soil conditions, and to trench depths greater than current industry norms. DeepOcean has estab-

lished a project team in the area and will perform this work in collaboration with Canadian partners in St. John's Newfoundland.

With a number of industry-leading marine trenching systems within its fleet, combined with 20 years of practical experience, DeepOcean believes the knowledge and experience within the company will be extremely beneficial towards the development of an Arctic trenching system.

For more information, visit www.deepoceangroup.com.

Liquid Robotics Wave Glider battled Hurricane Isaac

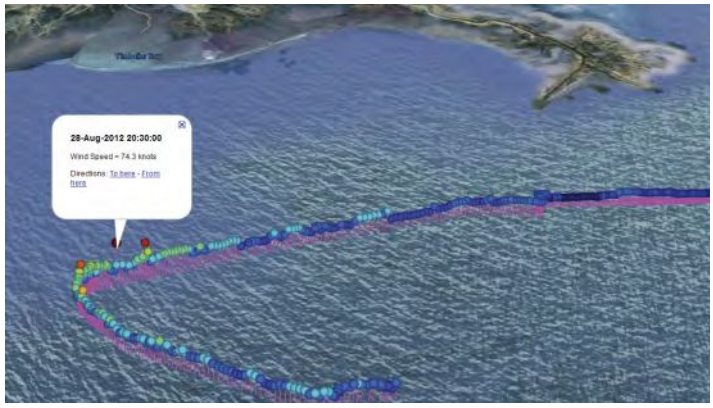
Liquid Robotics®, an ocean data service provider and developer of the Wave Glider®, the first wave-powered autonomous marine robot, reports that one of its Wave Gliders located in the Gulf of Mexico collecting ocean chemistry data stared down Hurricane Isaac. Located in Isaac's path, G2, a Wave Glider performing scientific missions, was moving out of the projected path when Isaac changed course and headed directly for the rugged robot.

As the eye passed 60 mi east of the Wave Glider, its pilots watched as all the other vessels in its area raced out of the Gulf of Mexico. Heavily outfitted with sensors to measure water temperature, wind speeds, barometric pressure, and air temperature, G2 remained in the area and lived up to its name, providing new insights into the hurricane. Time-lapsed maps showed a dramatic drop in water temperature, suggesting that Isaac was vacuuming the heat from the Gulf. Sustained winds of 40 kts with gusts up to 74 kts and barometric pressure falling to 988.3 mbar demonstrate the storm's intensity.

"I grew up in Louisiana, so I have many friends and family affected by Isaac. I have first-hand experience with the serious impact of powerful storms like this since I lost family members to storms like Camille," said Bill Vass, CEO of Liquid Robotics. "Our thoughts go out to all those who have been affected by Hurricane Isaac. We are proud to see our Wave Glider not only survive the Category I hurricane, but also continue to communicate valuable real-time weather data as it battled 74 kt winds. Hopefully, autonomous platforms like the Wave Glider will make it possible to better predict the severity and risk to everyone in the Gulf Coast area in the future."

Meanwhile east of Isaac, off the coast of Puerto Rico, another Liquid Robotics Wave Glider, Alex, was launched to support a new joint project to measure hurricane intensity. Working in coordination with the NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML), this brave marine robot is patrolling for the next hurricane and for a chance to be the first to measure the conditions both above and below the surface of the ocean that are needed to predict hurricane strengthening. Funded by Liquid Robotics, this project promises to provide data never before available to scientists for better hurricane prediction.

For more information, visit www.liquidr.com.



Ernst Jacob upgrades communication across its tanker fleet

German tanker owner and manager Ernst Jacob has chosen Marlink to enhance connectivity across a fleet of 15 tankers it operates for several major oil companies. Marlink will support Ernst Jacob to increase operational efficiency with reliable global connectivity provided by WaveCall standardized VSAT with SAILOR 500 FleetBroadband for back-up, all securely managed through the Vizada XChange platform either onboard or from shore. Ernst Jacob is an environmentally responsible tanker operator committed to providing safe and environmentally friendly service of consistent quality to the satisfaction of its clients and principals. As part of this, efficient communication between its ships and shore organization is vital in order to guarantee the complete integration that drives operational improvements and supports the company's environmental agenda. Marlink's bundled solution of WaveCall and FleetBroadband will replace previous and unsupported generation communication technology. Moving from older services to the latest and most innovative solutions is a significant upgrade to Ernst Jacob's communication capabilities. The upgrade will enable more efficient operations by providing a link that keeps Ernst Jacob vessels always connected, regardless of the carrier being used. WaveCall connectivity and voice services feature a real-time communication dashboard that provides Ernst Jacob with a powerful management tool onboard. The company will primarily use the connectivity for operational purposes, including management of onboard IT networks remotely from shore and automated content delivery, such as reporting and forms. Communication and connectivity for crew will also be made available on the new system. The Vizada XChange solution extends full control of voice and data communications. It integrates the VSAT and FleetBroadband services, providing seamless connectivity to ensure that Ernst Jacob vessels benefit from reliable voice calling and Internet wherever they are sailing.

Anchor handling tug fleet signs up for XpressLink™

Transport and heavy lifting maritime services company Harms Bergung is to equip its anchor handling tug fleet with Inmarsat XpressLink™. The agreement was brokered by German maritime communications specialist DH-INTERCOM, one of the first Inmarsat-approved XpressLink™ distributors and a Gold accredited Inmarsat service provider. Hamburg-based Harms Bergung will gain a fully-integrated hybrid Ku-band and L-band solution for a fixed monthly cost. XpressLink™ supports always-on data speeds of 768kbps and, when the VSAT service is active, a committed information rate of 192 kbps. The company also has the option of a free upgrade to Global Xpress®, Inmarsat's next-generation global satellite network which will effectively double the available bandwidth, from 2014. This is the second XpressLink™ win for DH-INTERCOM in Germany.

KVH introduces TracPhone V7-IP for mini-VSAT Broadband service

In its latest initiative to advance the quality, speed, and affordability of broadband data connectivity at sea, KVH Industries, Inc. introduces a revolutionary new onboard terminal for its industry-leading mini-VSAT Broadband(sm) service, the TracPhone® V7-IP. Representing a new generation of enterprise-grade onboard satellite communications equipment, the TracPhone V7-IP features a robust, three-axis, gyro-stabilized antenna and a completely integrated belowdecks unit that includes an ArcLight® spread spectrum modem and KVH's breakthrough new IP-enabled antenna control unit – the CommBox-ACU – which includes a built-in CommBox™ Ship/Shore Network Manager, Voice over IP (VoIP) adapter, Ethernet switch, and WiFi adapter.

For the mariner, KVH's new TracPhone V7-IP costs less, is significantly easier to install, and will provide greater reliability than competing solutions that combine discrete components from a number of different manufacturers. The TracPhone V7-IP's completely integrated design vastly reduces the complexity inherent in competing maritime VSAT systems, which typically require a local technician to configure a full rack of hardware from a half-dozen different third-party manufacturers of modems, antennas, controllers, switches, adapters, and servers. The new system also makes the advanced features of KVH's best-of-breed network management solution, the CommBox Ship/Shore Network Manager, available to every TracPhone V7-IP customer, without investing in additional hardware.

For the vessel owner's IT manager, the TracPhone V7-IP provides extensive functionality to help manage onboard networks remotely. The system itself is very easy for the crew to operate thanks to an outstanding web browser-based user interface that even includes an iPhone® app. The CommBox-ACU provides a full suite of onboard services optimized for satellite communications, including crystal clear VoIP calling, Internet café, crew calling, managed e-mail, secure file delivery, and remote network access. The end-to-end design of the TracPhone V7-IP enables the system software to be updated

over-the-air using either the mini-VSAT Broadband service or cellular service thanks to a GPRS modem built into the system's antenna. This remote access enables technicians working in KVH's GlobalCare support center to remotely diagnose and troubleshoot any issues through industry-leading 24/7/365 support.

The mini-VSAT Broadband service for the TracPhone V7-IP is delivered by an interlaced network of 14 modern Ku-band satellite transponders providing seamless worldwide coverage north of the equator and around all major continents, including most major shipping routes south of the equator. For true global coverage, KVH's mini-VSAT Broadband network now includes three global C-band transponders that overlay its Ku-band service, both of which can be received by the new dual-mode TracPhone V11 onboard terminal introduced earlier this year. By leveraging abundant new commercial satellite services covering the ocean regions, KVH is able to offer significantly more affordable connectivity than legacy L-band services like Inmarsat FleetBroadband. As demand for the service grows, KVH can easily add new capacity to its network, exactly where it is needed, to ensure outstanding performance for customers concentrated in specific regions.

For more information, visit www.kvh.com.

MTN expands TV network to maritime customers

MTN Satellite Communications (MTN) announced that MTN Worldwide TV is now available to commercial shipping, ferry, oil & gas, and yacht customers that want access to licensed content including news, entertainment, and sports for their crew, guests, and owners.

MTN Worldwide TV is the first fully-digital, multi-channel television service for the maritime industry. Leveraging MTN's global infrastructure, the service utilizes overlapping satellite beams that integrate seamlessly with a vessel's existing Television Receive-Only (TVRO) antenna and onboard video distribution system. MTN ensures viewers at sea receive reliable, uninterrupted service – regardless of location–by managing the satellite network and content. In addition, MTN Worldwide TV is available in all ocean regions and is a great core TV service to supplement any existing programming that might be lost when the vessel is at sea.

MTN Worldwide TV has delivered premium content to the cruise industry for the past 4 years and currently supports 78 vessels across 20 cruise lines. MTN has built the most comprehensive solution for broadcast television and continually exceeds the needs of customers.

MTN Worldwide TV delivers programming from eight major U.S. and international television networks, including BBC World News, CNBC, Fox News, MSNBC, Sky News, Sky Sports News, Sport 24, and E! Entertainment Television and has included special event programming such as the Olympics, Premier League Soccer, and onboard events like private broadcasts, training, etc.

For more information, visit www.mtnsat.com.

Telemar appointed by Rickmers Group for Fleet Broadband extension

The Telemar Group, through its German subsidiary Telemar GmbH, is to provide broadband satellite communication for Rickmers fleet.

The contract covers Fleet Broadband satellite airtime through Telemar's partner Vizada until the end of 2014 and beyond.

The extension of the already established Entry Allowance SCAP package up to 3GB plus is the next logical step within the scope of the ABB project and the implementation of new ship

management software with document management and extended crew mailing/web-surfing facilities. The first batch of about 20 vessels of Rickmers fleet to be equipped with 3-GB package is made of new ships joining the Rickmers fleet.

The Telemar distinctive "all-in-one" approach will deliver an integrated project architecture, being future proof for all broadband state-of-the-art options as well as embracing trials of innovative operational and crew welfare own solutions, such as the Seamore smartphones and tablets solution. With the Telemar-Vizada co-developed Seamore solution, among other valuable operational applications, every seafarer using personal smartphones or tablets could enjoy cost-effective voice and data without GSM connection costs.

For more information, visit www.telemargroup.com.

Telemar signs with Inmarsat for Global Xpress

Inmarsat has signed Telemar Group as one of the first Value Added Resellers of Global Xpress for the maritime market.

Scheduled for service introduction in 2014, Global Xpress will offer the shipping industry unprecedented data speeds and global coverage. The Global Xpress maritime solution will combine the new super-fast Ka-band satellite network with the existing FleetBroadband service for the utmost reliability, all backed by Inmarsat quality standards, performance, and global reach.

Telemar operates in all major shipping ports and is directly present through 12 subsidiaries in 10 markets worldwide, including Germany, Italy, UK, USA, Sweden, Finland, Norway, China, Hong Kong, and the new market in Singapore where Telemar has been closing large ,integrated projects with top ship owners and managers.

For more information, visit www.telemargroup.com or www.inmarsat.com.

MTN and WMS partner to introduce first maritime voice application

MTN Satellite Communications (MTN) and Wireless Maritime Services (WMS) announced the availability of the Connect at Sea voice application, enabling passengers and crew to make cost-effective phone calls and send text messages from their personal Apple iOS or Android devices while at sea.

The unique features of Connect at Sea allow passengers and crew to make and receive calls from loved ones and friends or work from anywhere around the world. In addition, intra-ship calling enables passengers to connect with their friends and family onboard to make plans or keep track of one another. Crew can leverage this feature as well to call other vessels.

Communication at sea is a complex matter, and MTN and WMS have jointly developed a unique solution that not only offers a clear connection, but a service that works with a vessel's Wi-Fi

infrastructure and data/voice prioritization strategy for the maritime industry.

Unlike other voice applications, Connect at Sea is built for the maritime industry and delivers high voice quality while keeping bandwidth usage low. In addition, customers do not have to purchase an Internet plan to use the application and can download it from iTunes or the Android store. Passengers can now keep in touch with friends and loved ones on their ship via cost-effective calling or texting as well as calling shore side. In addition, the application adds to any crew welfare initiative by offering a cost-effective way for families to communicate with their loved ones who are at sea for months at a time.

The Connect at Sea voice application is a valuable addition to MTN and WMS' suite of products, which provides cruise passengers and customers with a complete communications package, including voice, Internet, television, and content.

For more information, visit www.mtnsat.com or www.wmsatsea.com.

MTN, Jetstream partner to deliver HD content to yachts at sea

MTN Satellite Communications (MTN) and Jetstream® announced the immediate availability of Jetstream HD, a high-definition, streaming content solution powered by MTN's Very Small Aperture Terminal (VSAT) connection. Through this exclusive partnership, MTN's yacht customers can view content in high definition on their televisions and mobile devices, getting an "on land" experience while at sea.

Jetstream HD allows yacht owners and guests to access television channels in high definition anywhere in the world. Customers log into the Jetstream platform through any device – computer, smartphone or tablet – with an Internet connection or through the Jetset, a box that delivers the Jetstream directly into the television, giving full control through any touch panel. Customers experience full functionality of their satellite receiver right at their fingertips. Jetstream HD provides access to satellite receivers from international providers, including Kartina (Russian), Orbit (Arabic), and Direct TV (USA).

Jetstream®is a media delivery and communications company based in the port of Monaco. The company's mission is to deliver cutting-edge technologies to the super yacht industry from the center of the yachting world. The Jetstream® is the yachting industry's first specifically designed video streaming service that provides yacht owners the opportunity to watch all of their private content anywhere in the world. Jetstream® uses its own arrays of antennae situated around the globe; this dedicated wide area network infrastructure ensures reliable, high-quality video delivery to mobile users.

For more information, visit www.mtnsat.com or www.jetstream.mc.

Subsea Cables

SSE doubles PLDT bandwidth

Philippines Long Distance Telephone (PLDT) has announced that it has more than doubled its international bandwidth capacity and raises the resiliency of its overseas links with the recent completion of the $400 million Asia Submarine-Cable Express (ASE) optical fiber cable system. A project undertaken by PLDT in partnership with leading telecom firms in Asia, the 7,200-km submarine cable network uses 40 Gbps technology that is upgradeable to 100 Gbps, with a minimum design capacity of 15 TB. PLDT's share in the investment is $55 million. With its landing station at Daet, Camarines Norte, ASE provides the first and only direct cable connection from the Philippines to Japan that avoids the earthquake-prone seas south of Taiwan other cable systems pass through. A magnitude 7.1 earthquake off the southwest coast of Taiwan in December 2006 damaged several undersea cables, disrupting telecoms services in several Asian countries, including the Philippines. The ASE system initially links Japan, Philippines, Hong Kong, Malaysia, and Singapore. In the next phases, it can be expanded to other economically vibrant Asian countries, such as China, Vietnam, and Indonesia. The ASE can also be connected to other major cable systems to Europe, the Middle East, other parts of Asia, and the United States. Among the members of the ASE consortium are NTTCom of Japan, StarHub of Singapore, and TM of Malaysia. The submarine cable system was supplied by NEC Corp. and Fujitsu Ltd. The start of cable laying work for ASE was marked by a ceremony in November last year in the landing station in Daet. This is PLDT's third landing station, after those in Nasugbu, Batangas for the Asia Pacific Cable Network 2 (APCN2) and Southeast Asia-Middle East-West Europe 3 (SMW3) and in Bauang, La Union for Asia-America Gateway (AAG).

Telekom Malaysia activates new Pacific cable

Telekom Malaysia Berhad's (TM's) latest international submarine fiber optic cable system, Cahaya Malaysia, which links Malaysia to Japan, began carrying Internet traffic on 20 August 2012. Cahaya Malaysia, which began construction in January 2011, is TM's wholly owned 2-fiber-pair system within the 6-fiber-pair Asia Submarine cable Express (ASE) system linking Malaysia to Japan, Hong Kong, the Philippines, and Singapore. Cahaya Malaysia will enhance TM's reliable global network services by boosting the capacity and strengthening the company's ability to provide Malaysia with better regional reach and seamless interconnections. This cable system will provide an alternative, diverse routing within the Asia-Pacific region to avoid areas prone to seismic activities that are hazardous to undersea cables. This cable system also has the potential to provide an alternative route as well as restoration paths to existing cable systems in the region as it is designed to provide seamless interconnection to existing transpacific cable systems linking Asia-Pacific to North America such as Unity, Trans Pacific Express (TPE), Tata Global Network (TGN), PC-1, and the Japan-US Cable Network (JUSCN). The landing station of Cahaya Malaysia is located in Mersing, which also lands other major cables systems–the Asia America Gateway (AAG) and the South East Asia-Middle East-Western Europe-3 (SEA-ME-WE-3). TM owns and leases capacity on more than 10 submarine cable systems, which span more than 60,000 fiber-route miles around the globe, including several submarine cable routes that the company uses to carry traffic between the Asia-Pacific region and North America.

EMAS AMC wins cable installation contract

EMAS AMC, the subsea division of EMAS, a leading global offshore contractor and provider of integrated offshore solutions to the oil and gas (O&G) industry, has been awarded a contract by ABB, pursuant to an arrangement of strategic cooperation for subsea installation, for the installation of subsea power cables. This is part of ABB's second contract with Statoil to supply subsea HVDC Light transmission systems to the Troll A platform in the North Sea.

The Troll A concrete deepwater structure is the world's largest natural gas production platform at 473 m tall and weighing 1.2 million tons. It is also the tallest structure ever to be moved by mankind. The platform can produce as much as 120 million cubic meters of natural gas per day and contains approximately 40% of the natural gas reserves on the Norwegian Continental Shelf.

The scope of work for EMAS AMC is to install one HVAC subsea cable and two circuits of HVDC subsea cables from Troll A to the land station, Kollsnes. The platform has received power from shore since 2005. The increase in power provided by the new cables will provide power to run two compressor drive systems, which will improve production capacity and extend the lifespan of the platform.

Cable installation operations will be performed during Q2 2014 using EMAS AMC's Lewek Connector (formerly named AMC Connector), currently the world's largest cable installation vessel in terms of size and payload capacity.

EMAS AMC currently has a long-term agreement with ABB for the Lewek Connector in connection with the installation of power cables and related services.

The Lewek Connector is a newly-built, ultra-deepwater, multipurpose, flex-lay subsea construction and umbilical installation vessel. The vessel has a unique pay load capacity of 9,000 tons. The Lewek Connector also has bundle-lay capability, which allows for the laying of several cables simultaneously.

For more information, visit www.emas.com.

New venture announced in wake of Pacific Fibre cancellation

On the heels of the announcement of the cancellation of the Pacific Fibre submarine fiber optic cable project that would have linked Australia and New Zealand to the United States, a new venture has been announced along a

similar route.

Hawaiki Submarine Cable has announced that it plans to build a cable that will link Sydney, Australia and Auckland, New Zealand to Hawaii; it also includes branching units to connect a number of Pacific Island countries along the way.

The new venture is led by CEO Remi Galasso. Its management team includes Virginie Frouin as CTO, Ludovic Hutier as sales director, Mike Renner as financial advisor, and Anael Greiveldinger as technical project manager.

Hawaiki states its goal is to to significantly contribute to the development of New Zealand and the Pacific Islands' business by providing future-proof capacity and connectivity. This includes:

• Increase international broadband availability;

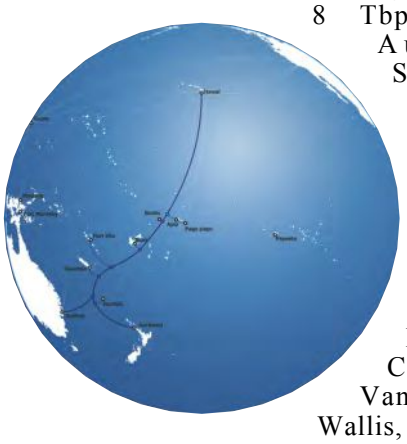
• Stimulate economic growth by eliminating the double tyranny of distance and over-priced international bandwidth;

• Introduce true competition in New Zealand and in the connected Pacific Islands; and

• Drop the cost of Internet access for the end-users.

The Hawaiki Cable represents a solution to improve trans-Tasman connectivity between Auckland and Sydney, transpacific connectivity between Auckland, Sydney, and Hawaii, and Pacific Island connectivity to Auckland, Sydney and Hawaii.

The Hawaiki cable is a repeatered two-fiber-pair submarine cable system with a design capacity of 8 Tbps linking Auckland, Sydney, and Hawaii. OADM branching unit will enable the connection of Norfolk Island, New Caledonia, Vanuatu, Fiji, Wallis, Samoa and American Samoa, to the Hawaiki backbone.



For more information, visit www.hawaikicable.co.nz.

LANautilus upgrades with Ciena's coherent 40G technology

Ciena® Corporation announced that Latin American Nautilus (LANautilus), Telecom Italia Sparkle Group Operations in the Americas, has upgraded its submarine network with Ciena®'s market-leading coherent 40 G optical networking solutions. The newly enhanced network will enable LANautilus to increase its total network capacity, effectively quadrupling the amount of information transmitted per wavelength and allowing faster support to service provider and enterprise customers in the Caribbean and South and Central America, all the while using its existing fiber infrastructure to support growing bandwidth requirements.

LANautilus is part of the Telecom Italia Sparkle Group and operates as a wholesale telecommunications service provider that delivers managed bandwidth, Internet/IP transit, and co-location services to carrier and enterprise customers across its 30,000-km fiber optic ring. Its submarine system integrates cable stations in South, Central, and North America with Telecom Italia's Sparkle Global Backbone.

LANautilus will be able to provide its customers with 40-G services along a 16,000-km stretch of its network, connecting customers in Brazil, Argentina, Chile, Peru, Panama, Venezuela, and St. Croix, U.S. Virgin Islands through Ciena®'s 6500 Packet-Optical Platform equipped with WaveLogic™ coherent optical line interfaces.

Ciena®'s OneControl Unified Management System will deliver seamless end-to-end management across the 6500 and Common Photonic Layer (CPL) platforms providing LANautilus with all the tools needed for efficient multi-layer service activation, assurance, SLA monitoring, and accurate management of the dynamic nature of an intelligent network.

Ciena®'s WaveLogic™ coherent receiver technology enables unobtrusive 40-G/100-G upgrades to existing submarine networks with only the addition of new terminal equipment, significantly extending the life of existing cable plants and further lengthening its lifespan.

Subsea Telecom

Ciena® is the pioneer and market leader of coherent optical technology, with more than 16,000 coherent 40-G/100-G line interfaces shipped to more than 100 customers across the globe, with more than 15 million coherent kilometers deployed.

Ciena®'s technology powers many of the world's largest, most mission-critical, most performance-demanding networks, representing thousands of nodes and hundreds of thousands of circuits.

In addition, Ciena®'s intelligent software capabilities substantially lower network OPEX with auto-discovery, low-touch service creation, and zero-touch restoration. It also cuts CAPEX by eliminating the need for reserved restoration bandwidth.

For more information, visit www.ciena.com or www.lanautilus.com.

PIPE selects Infinera for 100-G upgrade

TPG Telecom Limited's wholly-owned subsidiary, PIPE Networks Pty Limited, and Infinera announced the selection of the Infinera DTN-X platform for PIPE's submarine cable system, PPC-1.

PIPE is deploying FlexCoherent super-channels on PPC-1 with the Infinera DTN-X platform, offering international and Australian carriers increased speed and highly resilien services. This marks the first deployment of optical super-channels in the Asia-Pacific region.

In addition to the submarine deployment, the Infinera DTN-X platform was also selected for the company's terrestrial network, delivering 500 Gbps FlexCoherent super-channels to multiple, strategic data centers located in Sydney. The platform supports 8 Tbps on a single fiber, which will significantly increase the capacity, scalability, and resiliency of PIPE's extensive metro fiber network in Sydney.

The use of the DTN-X platform on PPC-1 opens PIPE up to significantly increased capacity on PPC-1, delivering in excess of 3 Tbps. It will also allow PIPE to deploy Infinera's 100- Gbps coherent wavelengths using high-capacity super-channel transmission for the first time in the Asia-Pacific region.

After a detailed multi-vendor evaluation process, PIPE selected the Infinera DTN-X platform for the scalability, efficiency, and simplicity it brings to its network. The Infinera DTN-X platform helps PIPE address the increasing demand for submarine and terrestrial bandwidth.

FlexCoherent super-channels enable PIPE to optimize transmission performance across a range of applications using multiple software-programmable modulation formats, scaling network

capacity for their customers without scaling operational expense.

For more information, visit www.pipenetworks.com or www.infinera.com.

Tamares deploys Xtera solution in Mediterranean

The Tamares Telecom network providing seamless connectivity from Israel to international communication hubs in Europe is now fully operational. For this innovative project, Xtera supplied its advanced, multi-purpose and field-proven Nu-Wave Optima™ platform deployed in a Submarine Line Terminal Equipment (SLTE) configuration with 70 x 100-G capacity per fiber pair. Xtera partnered with IT International Telecom (IT), a subsea network integrator, to provide Tamares Telecom with a turn-key solution, including supply and installation of both transmission equipment and cable.

Tamares Telecom is a communications service provider that operates and markets communication services, paving the way for faster and more reliable Internet access. The new fiber optic network, including a new submarine cable connecting Israel to Marseille and from Marseille to Frankfurt and London, is designed to provide a secure, high-speed connection for data traffic moving east and west for international carriers.

Xtera's Nu-Wave Optima™ platform is a unique modular optical transport system designed to lower the total cost of ownership by using a common, integrated set of modules for long-haul, unrepeatered, and regional repeatered submarine applications.

Being the first and only 100-G equipment in the field since the second half of 2011 with soft-decision Forward Error Correction (FEC), Xtera's Nu-Wave Optima™ offers the industry's most advanced 100-G solution that is available for multiple optical networking applications. For terrestrial backbone networks, the Nu-Wave Optima™ equipment delivers an unrivalled line capacity of 15 Tbps more than 3,000 km. For unrepeatered applications, a capacity of 34 x 100 G was recently transmitted over a cable attenuation exceeding 74 dB.

For more information, visit www.xtera.com or www.tamarestelecom.com.

JDR to deliver submarine cables to Meerwind

JDR has been selected by WindMW GmbH as a partner for the Meerwind Sud/Ost Offshore Windfarm. The project will use 80 wind turbines to generate 288 MW of electricity and will be located approximately 23 km north of the island of Helgoland, with completion planned for 2013.

This is JDR's first wind energy project in Germany. The company is looking to grow in the offshore wind industry and has invested £30M in manufacturing facilities in Hartlepool, UK.

JDR is a leading provider of specialist, high-performance subsea cables and umbilical systems for the offshore oil, gas, and renewables market. WindMW GmbH is responsible for the planning, construction, and operation of the offshore wind farms Meerwind Süd and Meerwind Ost.

For more information, visit www.jdrcables.com.

Reef Subsea expands capabilities

Reef Subsea Power & Umbilical, based in the Northeast of England with offices in Aberdeen, has recently placed the order for the new plough with subsea equipment manufacturer Soil Machine Dynamics Ltd (SMD) to be delivered in late 2012. This acquisition will position Reef Subsea at the forefront of trenching technology to assist its clients in the oil and gas, renewables, power, and telecommunications sectors.


Picture of the Heavy Duty Cable Plough – courtesy of SMD

The plough will accommodate cables and subsea umbilicals up to 200-mm outer diameter and 3-m bending radius. It will also have strong tow force, with power to pull up to 150 tons. It will be equipped with subsea loading and unloading capabilities and will have a unique feature allowing it to cut a trench at shallow trench depths (~1 to 1.5 m) or at deep trench depths (2.4 m) with minimal risk to the product compared to a conventional plough. It is well suited to consolidated soils, including stiff clays.

In addition, Reef Subsea Power & Umbilical had already placed an order in 2011 for a Q1000 Jet Trencher, which is due to be delivered at the end of September. The trencher optimizes trenching performance for a large variety of products and sizes and will result in trench depths up to 3 m. It will be configured to operate in water depths of up to 2,000 m, in unconsolidated soils and clays up to 125 kPa. The trencher will be equipped with high-function jetting power as well as two high-pressure, high-flow pumps with complete control over water flow and dedicated Launch and Recovery Systems (LARS).

Reef Subsea Power & Umbilical specializes in subsea installation, burial, and trenching services. The company has recently been involved in two of the world's largest wind farm developments offshore the UK, Thanet and Greater Gabbard. In July of this year, the company was awarded a £40 million contract with Gwynt y Mor Offshore Wind Farm Limited to install and bury all the inter-array cables for the farm, which is expected to be the largest in Europe.

For more information, visit www.reefsubsea.com.

Power Cables

Prysmian acquires Global Marine Energy

The Prysmian Group has signed an agreement to acquire 100% of Global Marine Systems Energy Limited (GME) from Global Marine Systems Ltd (GMSL) for a purchase price of approximately €53 million.

GME is a British company active in the installation of submarine power cables and systems. With estimated turnover of approximately €75 million in 2012, GME has a new cable-laying ship among its strategic assets and offers high value-added services for the installation of submarine power connections, ranging from project management to cable laying, jointing, and protection. GME has particular expertise in offshore wind farm connections and is currently involved in several major projects under construction in the North Sea.

With an order book of about €1.7 billion, Prysmian is world leader in the submarine cables and systems sector. It is involved in several major projects under construction, both interconnections between grids and connections for offshore wind farms, which now represent a substantial and steadily growing part of the market. The Group is able to offer packages that include special cables for wind turbine operation, cables for inter-array connections between turbines, and cable systems to connect with the main onshore grids.

The expansion of installation capability follows on from the Group's enlargement of its submarine cable production capacity, meaning that it can now count on three dedicated production facilities in Italy, Finland, and Norway. Prysmian has recently invested approximately €40 million to start submarine cable production at the Pikkala facility in Finland; it has enhanced production capacity at the Drammen plant in Norway specialized in inter-array cables; and it has continued to invest in its flagship plant in Arco Felice, Italy (about €30 million in 2012).

The closing of the acquisition is subject to certain conditions precedent, including the obtaining of clearance from the relevant anti-trust authorities.

For more information, visit www.prysmian.com.

McDermott awarded two projects for Saudi Aramco

McDermott International, Inc. announced that one of its subsidiaries has been awarded two projects for Saudi Aramco in the Arabian Gulf in the Karan, Safaniya, and Zuluf fields. The values of these contracts are included in McDermott's second quarter 2012 backlog.

The first project, Karan-45, comprises fabrication of a new wellhead platform, auxiliary platform, jacket, and link bridge, with subsea installation of a 20-in. flowline and a 15-kV composite power and fiber optic cable.

Project management, engineering, and procurement will be undertaken at McDermott's engineering office in Al-Khobar, Saudi Arabia. Fabrication will commence shortly at the company's Jebel Ali facility in the United Arab Emirates, and the offshore scope will be undertaken by vessels from McDermott's global fleet. The project is scheduled for completion in the first quarter 2014.

The second project, issued under the existing Long-Term Agreement, includes the procurement of flexible flowlines and the fabrication, transportation, and installation of pipelines and subsea tie-ins. Procurement and fabrication will be carried out at the company's Jebel Ali facility; installation, using vessels from McDermott's fleet, is scheduled for completion by the end of the first quarter of 2013.

For more information, visit www.mcdermott.com.

NSW to supply cabling for Humber Gateway

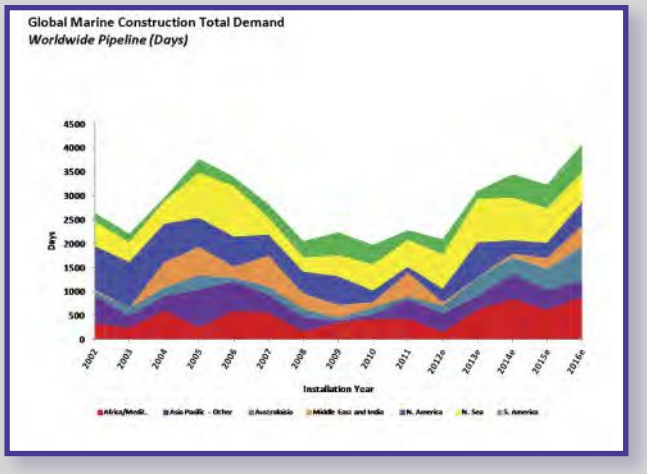
Norddeutsche Seekabelwerke GmbH (NSW), a subsidiary of General Cable Corporation, has been awarded a contract by E.ON to supply 82 km of medium-voltage submarine array cables for its Humber Gateway offshore wind farm. Delivery of cables is scheduled for 2013.

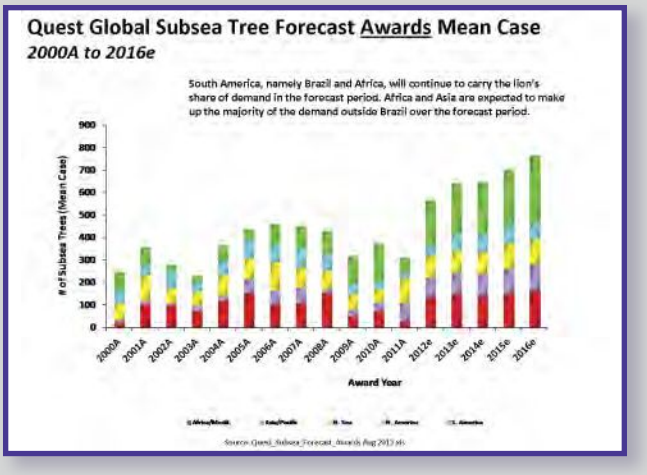
The Humber Gateway offshore wind farm will be located 8 km off the east Yorkshire coast, north of the mouth of the river Humber. The wind farm will consist of 73 turbines that will generate up to 219 MW. Once complete, the wind farm will be capable of generating enough electricity to power up to 170,000 UK homes.

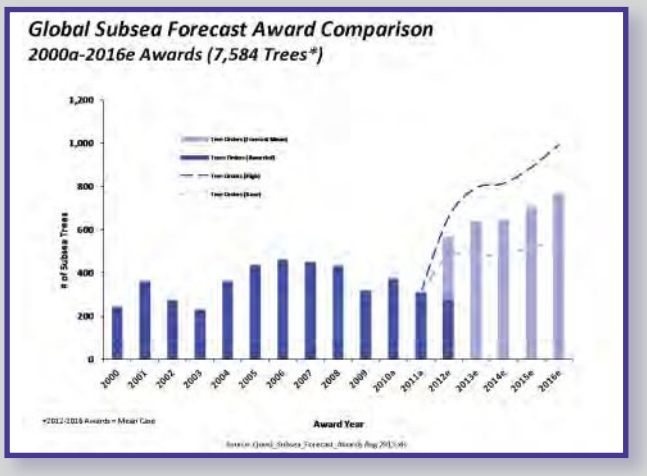
For more information, visit www.nsw.com.

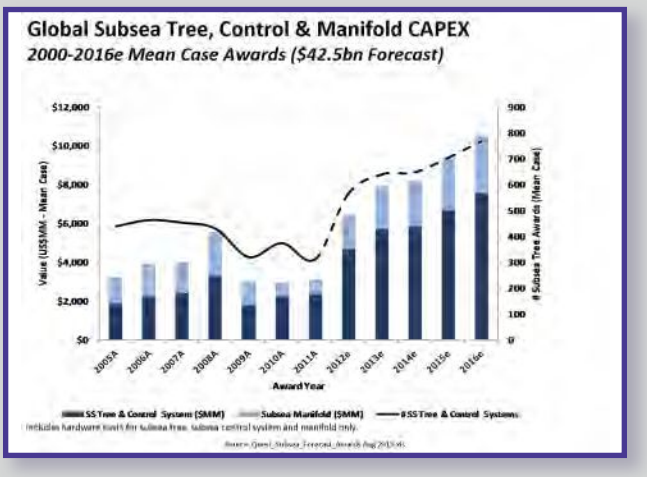
Offshore At-A-Glance

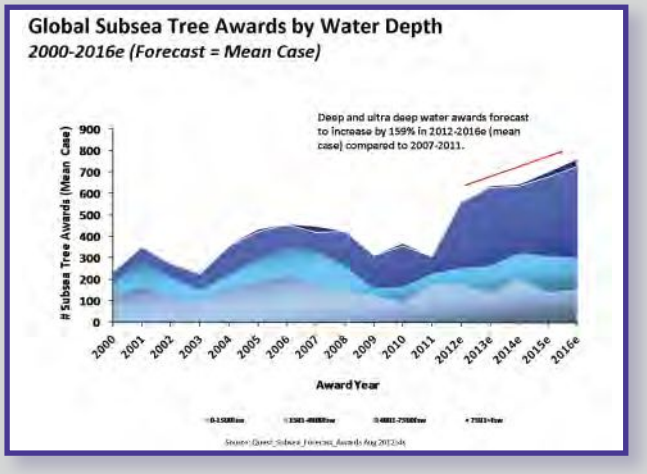
Quest Offshore Activity Report











Gulf of Mexico Data
Current Deepwater Activity

Operator	Area	Block	OCS Lease	Rig Name	Prospect Name	Water Depth (ft)
Shell Offshore, Inc.	WR	508	G18730	NOBLE DANNY ADKINS	Stones	9,553
Petrobras America, Inc.	WR	206	G16965	PRIDE DEEP OCEAN MENDOCINO	Cascade	8,143
Shell Offshore, Inc.	AC	857	G17565	H&P 205	Great White	7,815
ExxonMobil Corp.	KC	918	G32654	T.O. DEEPWATER CHAMPION	Hadrian	7,381
Shell Gulf of Mexico, Inc.	MC	391	G26252	T.O. DEEPWATER NAUTILUS	Appomattox #3	7,157
Union Oil Co. of California	WR	677	G18753	T.O. DISCOVERER INSPIRATION	Saint Malo	7,040
Union Oil Co. of California	WR	634	G18745	T.O. DISCOVERER CLEAR LEADER	Saint Malso	6,805
BP Exploration & Production, Inc.	MC	607	G09837	SEADRILL WEST CAPRICORN	East Anstey	6,590
BP Exploration & Production, Inc.	GC	744	G15605	T.O. DEVELOPMENT DRILLER II	Atlantis	6,523
Murphy E&P Co.	DC	134	G23488	NOBLE JIM DAY	Dalmation	6,428
BHP Billiton Petroleum (GOM) Inc.	AT	618	G08038	GSF C.R. LUIGS	Neptune at 574	6,266
Marathon Oil Co.	MC	993	G24134	MAERSK DEVELOPER	Innsbruck	6,266
Union Oil Co. of California	WR	98	G21841	PACIFIC SANTA ANA	Coronado	6,127
Noble Energy, Inc.	MC	948	G28030	ENSCO 8501	Bob	6,060
BP Exploration & Production, Inc.	MC	778	G14658	THUNDER HORSE PDQ	Thunder Horse South	6,040
BP Exploration & Production, Inc.	KC	292	G25792	SEADRILL WEST SIRIUS	Kaskida	6,031
Eni US Operating Co. Inc.	MC	299	G21752	DIAMOND OCEAN VICTORY	Seventeen Hands	5,881
Shell Offshore Inc.	WR	95	G31943	NOBLE GLOBETROTTER	Yucatan North	5,847
Anadarko Petroleum Corp.	WR	51	G31938	ENSCO 8505	Shenandoah	5,838
Murphy E&P Co.	MC	734	G21778	T.O. DEEPWATER PATHFINDER	Thunderhawk	5,712
BP Exploration & Production, Inc.	GC	743	G15605	T,O. DEVELOPMENT DRILLER III	Atlantis	5,413
Chevron USA, Inc.	WR	29	G16942	T.O. DISCOVERER INDIA	Big Foot	5,187
ConocoPhillips Co.	GB	783	G11573	NABORS MODS 201	Magnolia	4,675
BP Exploration & Production Inc.	GC	700	G15604	T.O. DISCOVERER ENTERPRISE	Atlantis	4,409
Hess Corp.	MC	725	G22898	STENA FORTH	Tubular Bells	4,334
Cobalt International Energy LP	GB	959	G30876	ENSCO 8503	North Platte	4,297
Chevron USA, Inc.	GC	640	G20082	T.O. DISCOVERER DEEP SEAS	Tahiti 2	4,292
BHP Billiton Petroleum (GOM) Inc.	GC	507	G22970	T.O. DEVELOPMENT DRILLER I	Ness	4,028
Shell Offshore, Inc.	GC	248	G15565	NOBLE DRILLER	Glider	3,440
Murphy E&P Co.	GC	338	G21790	NABORS MODS 200	Front runner	3,325
Eni US Operating Co. Inc.	GC	298	G08876	ENSCO 8500	Allegheney (south)	3,308
LLOG Exploration Offshore LLC	MC	761	G28025	ENSCO 8502		3,031
Shell Offshore, Inc.	MC	807	G07963	NOBLE BULLY 1	Mars B	3,030
Shell Offshore, Inc.	GC	158	G07995	H&P 202	Brutus	2,985
Shell Offshore Inc.	MC	807	G07963	H&P 201	Mars B	2,945
LLOG Exploration Offshore, LLC	MC	503	G32334	NOBLE AMOS RUNNER	WhoDat	2,725
Shell Offshore Inc.	GB	427	G07493	NOBLE JIM THOMPSON	Cardamom	2,719
Shell Offshore Inc.	GC	200	G12209	CAL DIVE Q-4000	Troika	2,672
Statoil USA E&P Inc.	GC	36	G26287	T.O. DISCOVERER AMERICAS	Candy Bars	1,910
Chevron USA Inc.	VK	786	G10944	NABORS 87	Petronius	1,754
Dynamic Offshore Resources, LLC	GC	65	G05889	H&P 206	Bullwinkle	1,353
W&T Energy VI, LLCC	VK	823	G10942	WIRELINE UNIT (N.O. #3)	Virgo	1,132
W&T Energy VI, LLC	VK	823	G10942	WIRELINE UNIT (N.O. #2)	Virgo	1,130

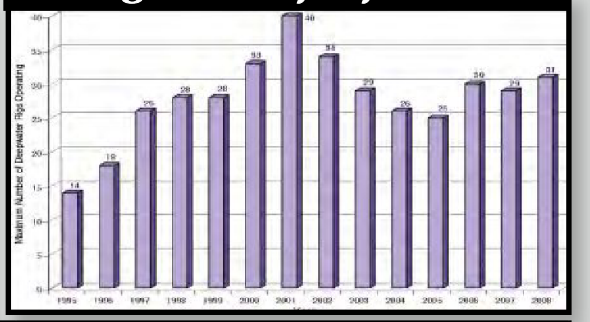
Deepwater prospects with drilling and workover activity: 43

Current Deepwater Activity as of Monday, 10 September 2012

Activity by Water Depth

Water Depth (m)	Active Leases	Approved Applications	Active
0 to 200	1,736	34,480	2,858
201 to 400	118	1,113	20
401 to 800	273	846	10
801 to 1,000	393	549	9
1,000 & above	3,304	1,767	25

Rig Activity by Year



Activity by Water Depth Information current as of Monday, 10 September 2012

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

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

Monthly Stock Figures & Composite Index

Industry Company Name	Symbol	Close *Mid-September*	Close *Mid-August*	Change	Change %	High 52 week	Low 52 week
Diversified, Production Support and Equipment Companies							
Baker Hughes, Inc.	BHI	50.10	47.07	3.03	6.4%	61.90	37.08
Cameron Intl. Corp.	CAM	58.15	51.28	6.87	13.4%	60.00	38.38
Drill-Quip, Inc.	DRQ	73.74	70.78	2.96	4.2%	77.12	47.49
Halliburton Company	HAL	37.22	34.85	2.37	6.8%	40.43	26.28
Tenaris SA	TS	43.94	40.43	3.51	8.7%	44.48	23.29
Newpark Resources, Inc.	NR	7.97	6.88	1.09	15.8%	10.62	5.19
Schlumberger Ltd.	SLB	77.14	73.50	3.64	5.0%	80.78	54.79
Superior Energy Services, Inc.	SPN	23.71	21.92	1.79	8.2%	36.37	17.54
Weatherford International, Inc.	WFT	13.39	12.15	1.24	10.2%	18.33	10.85
Deep Down, Inc.	DPDW	1.43	1.45	(0.02)	-1.4%	1.80	0.80
FMC Technologies	FTI	48.69	47.32	1.37	2.9%	55.19	34.46
Total Diversified, Production, Support and Equipment		**435.48**	**407.63**	**27.85**	**6.8%**	**487.02**	**296.15**
Geophysical / Reservoir Management							
Dawson Geophysical Company	DWSN	25.59	22.50	3.09	13.7%	40.76	20.20
Mitcham Industries, Inc.	MIND	17.86	16.44	1.42	8.6%	26.76	9.52
Compagnie Gnrale de Gophysique-Veritas	CGV	34.22	29.27	4.95	16.9%	34.84	15.08
Total Geophysical / Reservoir Management		**77.67**	**68.21**	**9.46**	**13.9%**	**102.36**	**44.80**
Offshore Drilling Companies							
Atwood Oceanics, Inc.	ATW	47.91	45.07	2.84	6.3%	49.75	30.64
Diamond Offshore Drilling, Inc.	DO	68.28	67.41	0.87	1.3%	72.80	51.16
ENSCO International, Inc.	ESV	58.22	55.17	3.05	5.5%	59.90	37.39
Nabors Industries, Inc.	NBR	16.21	15.91	0.30	1.9%	22.73	11.05
Noble Drilling Corp.	NE	38.10	37.62	0.48	1.3%	41.71	27.33
Parker Drilling Company	PKD	4.62	4.66	-0.04	-0.9%	7.62	3.60
Rowan Companies, Inc.	RDC	36.38	34.95	1.43	4.1%	39.40	28.13
Transocean Offshore, Inc.	RIG	45.79	47.53	-1.74	-3.7%	60.09	38.21
Total Offshore Drilling		**315.51**	**308.32**	**7.19**	**2.3%**	**354.00**	**227.51**
Offshore Contractors, Services, and Support Companies							
Helix Energy Solutions Group, Inc.	HLX	20.00	18.51	1.49	8.0%	21.09	11.57
Gulf Island Frabrication	GIFI	29.13	26.74	2.39	8.9%	35.48	19.55
McDermott International, Inc.	MDR	12.97	11.29	1.68	14.9%	15.35	9.04
Oceaneering International	OII	56.61	55.05	1.56	2.8%	58.53	31.77
Subsea 7 SA	SUBCY.PK	25.71	23.09	2.62	11.3%	27.21	16.82
Technip ADS	TKPPY.PK	29.45	26.73	2.72	10.2%	30.21	17.52
Tetra Technologies, Inc.	TTI	6.87	6.53	0.34	5.2%	10.97	6.09
Cal Dive International, Inc.	DVR	1.80	1.78	0.02	1.1%	4.00	1.50
Total Offshore Contractors, Service, and Support		**182.54**	**169.72**	**12.82**	**7.6%**	**202.84**	**113.86**
Offshore Transportation and Boat Companies							
Seacor Holdings, Inc.	CKH	89.39	88.85	0.54	0.6%	100.00	75.04
Gulfmark Offshore, Inc.	GLF	35.74	36.01	-0.27	-0.7%	56.41	30.03
Bristow Group	BRS	51.79	45.04	6.75	15.0%	52.44	37.92
PHI, Inc.	PHII	32.50	25.81	6.69	25.9%	32.50	16.95
Tidewater, Inc.	TDW	49.13	48.69	0.44	0.9%	63.27	38.80
Trico Marine Services, Inc.	TRMAQ.PK	0.04	0.04	0.00	0.0%	0.11	0.01
Hornbeck Offshore	HOS	40.38	41.24	-0.86	-2.1%	43.83	21.96
Total Offshore Transportation and Boat		**298.97**	**285.68**	**13.29**	**4.7%**	**348.56**	**220.71**

Monthly Stock Figures & Composite Index

Industry	Close Mid-September	Close Mid-August	Change	Change %	High 52 week	Low 52 week
Total Diversified, Production, Support and Equipment	435.48	407.63	27.85	6.8%	487.02	296.15
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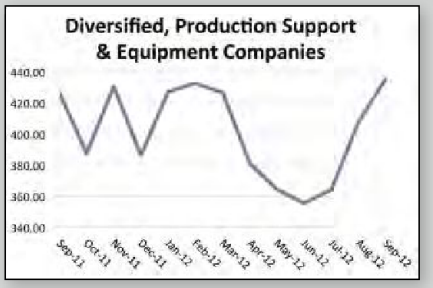
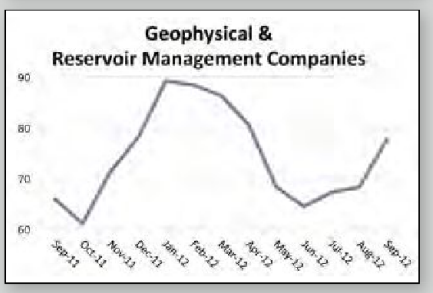
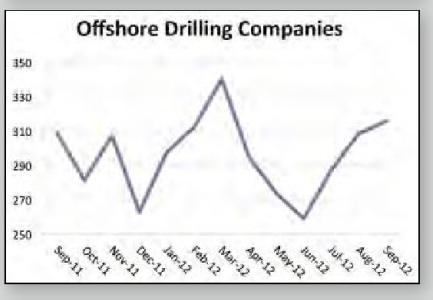
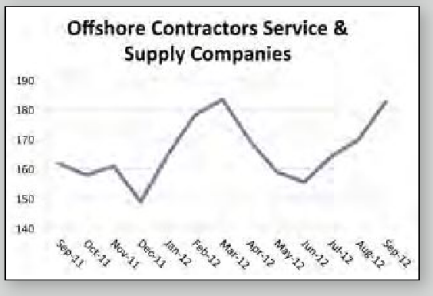
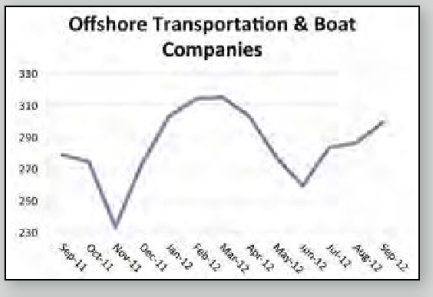
Total Offshore Transportation and Boat	298.97	285.68	13.29	4.7%	348.56	220.71
Total Offshore Source Index	1,310.17	1,239.56	70.61	5.7%	1,494.78	903.03

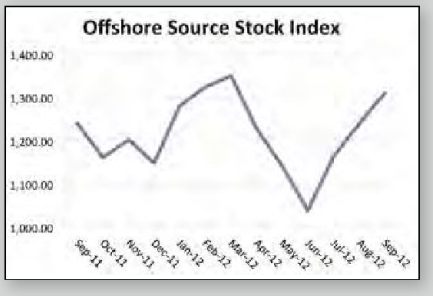










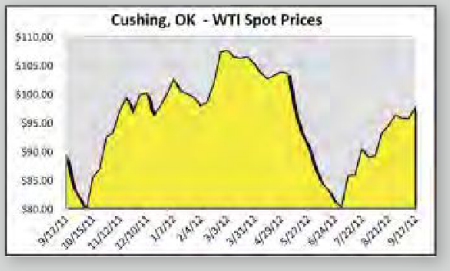


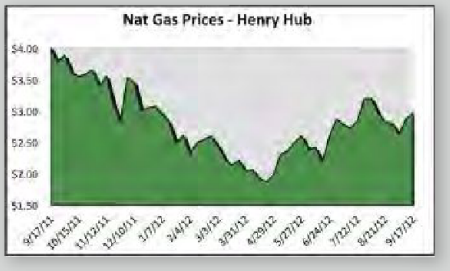
DISCLAIMER

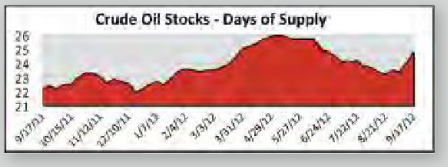
The information on this page is provided for information and comparison purposes only and should not be used to make financial and business decisions and is accurate to the best of our knowledge for the period indicated.

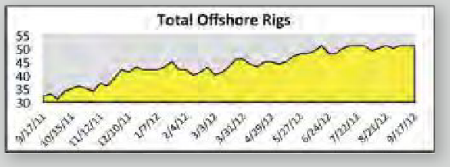
Oil & Gas Industry Trends

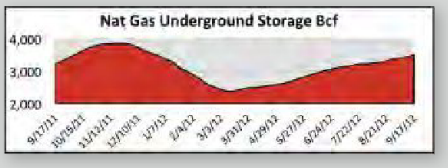
Monitoring the pulse of the U.S. Offshore Oil & Gas Industry

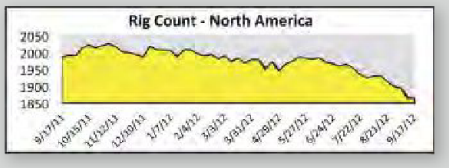












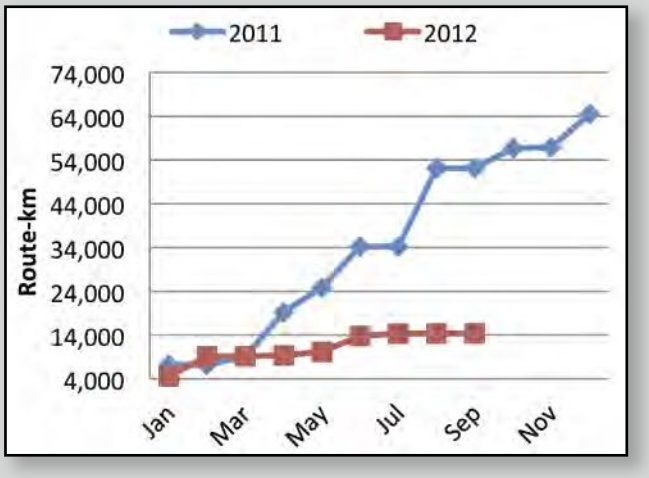
Positive trend, at least 3 weeks

Changing trend, less than 3 weeks

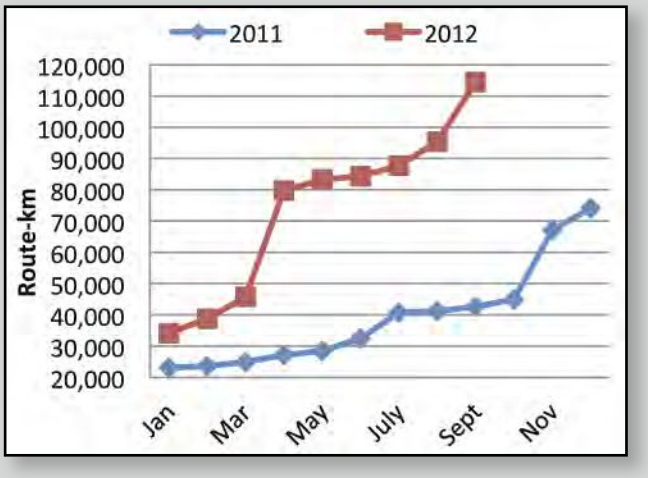
Negative trend, at least 3 weeks

Subsea Telcom & Power Cable Data

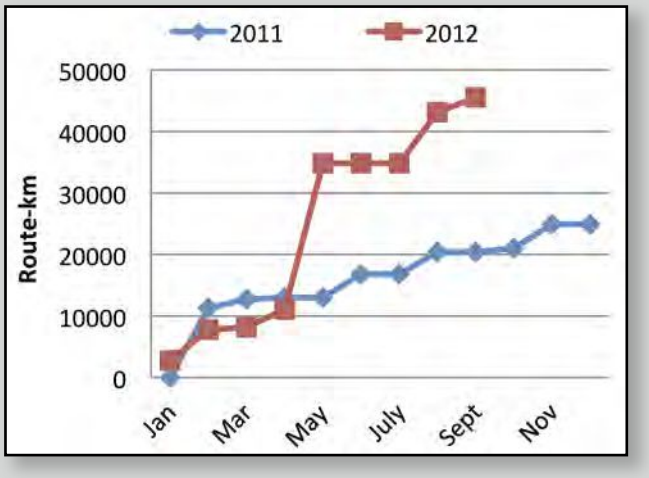
FO Cable Awards by Month



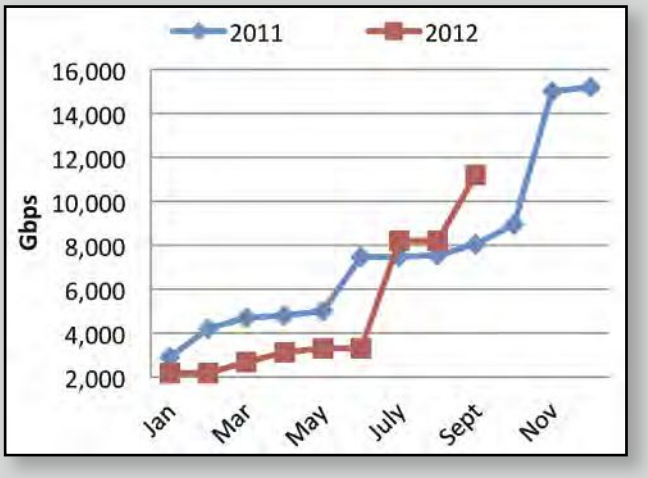
FO Cable Announcements 2012



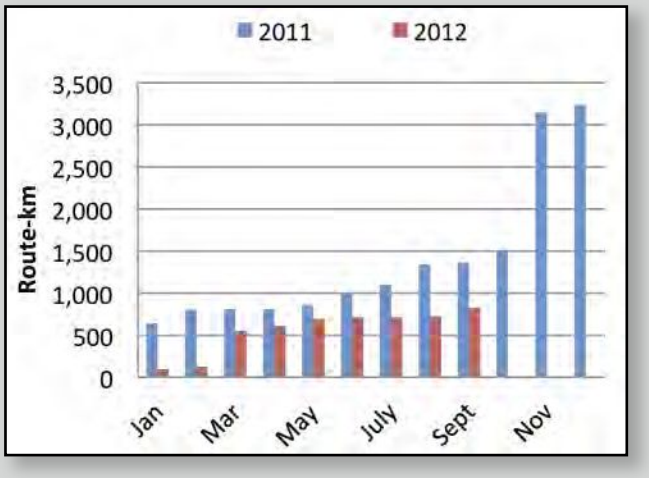
Submarine FO Cables Entering Service 2012 in Route-km



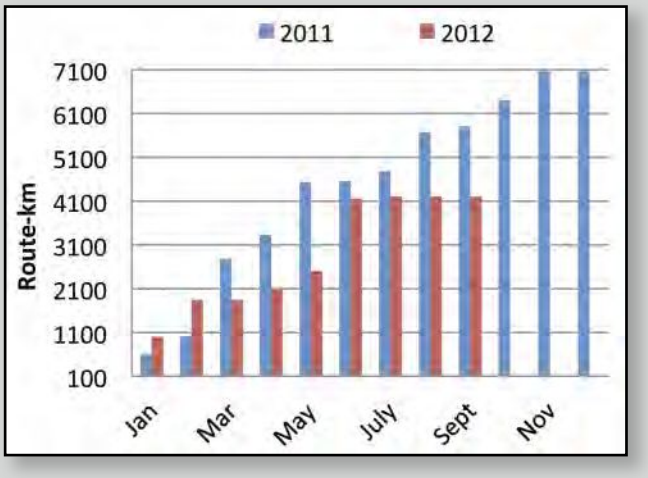
Upgrades of Existing Cable Systems in Gbps



Submarine Power Cable Awards 2012 in Route-km



Submarine Power Cable Announcements 2012 in Route-km



www.ocean-news.com
Ocean News & Technology

FLASHBACK

A look back at the pioneering days of the ocean and offshore industries

Industry briefs torn from the Ocean News Archives

Development of an advanced fiber optic umbilical cable systems has recently been completed by Oceaneering International

August 1983

International Hard Suits Inc. announced the deepest dives ever made in a NEWTSUIT down to 360 m

July 1993

Can you name the product, the company, or the year?

Many companies have contributed to the evolution of the industry. Some continue to forge the path of new technology, others have faded into the annuls of history. But all have played a role in setting the milestones that have led to today's achievements.

Print Readers, *send your answers by emailing us at ocean-news@tscpublishing.com or fax us at 772-221-7715.*

Digital readers*, click on the Ocean News Interactive logo here.*

Ocean News Interactive

The first respondant to answer all 3 questions correctly will receive an ONT Press Photographer T-Shirt.

Answers will be featured in the October Flashback.

September Answer:
Perry Tritech
Voyager
1994

OceanWorks cable termination instrumentation

OceanWorks International has been awarded a contract by the Fundy Ocean Research Center for Energy (FORCE) to instrument a cable termination for a ground-breaking tidal energy project in the Bay of Fundy. The project includes the design, manufacture, and integration of the subsea instrumentation, shore station, and commissioning.

FORCE is deploying four power cables to connect prototype instream tidal turbines to a dedicated electrical sub-station. By providing this infrastructure, FORCE is lowering the "barrier to entry" for turbine manufacturers to test their equipment in one of the most demanding tidal environments. The planned deployment will take place in Atlantic Canada's Bay of Fundy, which is renowned for having the highest tidal range in the world. When deployed, the first of the four cables will be equipped with cable termination instrumentation provided by OceanWorks International. This will add valuable information on the behavior and likely lifetime of the cables that are essential for the connection of turbines to the electrical grid and, ultimately, to the end customers for the delivery of clean power.

FORCE is Canada's leading test center for in-stream tidal energy technology. FORCE works with developers, regulators, and researchers to study the potential for tidal turbines to operate within the Bay of Fundy environment. FORCE provides a shared observation facility, submarine cables, grid connection, and environmental monitoring at its pre-approved test site. The Government of Canada, the Province of Nova Scotia, Encana Corporation, and participating developers have provided funding for the project.

For more information, visit www.oceanworks.com.

"Beastly Drone" with beautiful connectivity

Wired Magazine dubbed the Columbia Group's Proteus, a massive 7.6-m/25-ft, 3719.2kg/8200lb Dual Mode Undersea Vehicle capable of operation in either manned or autonomous modes, a "beastly drone", and that's right on target. BIRNS was thrilled to be called on to provide highly complex connector systems as the conduit for everything from its propulsion and camera systems to the sensor package.

The extremely versatile system can serve as an unmanned underwater vehicle (UUV) capable of carrying 1632.8kg/ 3600lbs (in air weight) of mines and/or other vehicles, and a manned wet submersible with a variable ballast capacity of 249.5kg/550lbs and room for a crew of up to six combat divers with ten hours of onboard air. Proteus can carry payload in three internal compartments with a total volume of 15.8m3/170ft^3, and can go on missions out to 532 nautical mi /985km (unmanned), or for 266 hours (unmanned) on its baseline battery, before recharging is needed.

Among the 96 connectors we developed for the project was a series of 11 sets of unique 77-pin high-density metal shell connectors--BIRNS Millennium 3R-77-CPs (3R size-77-socket-cable plug) with mating 3R-77-FRs (3R size-77-pin-flange receptacles).

These powerful connectors had custom-made inserts that were a mere Ø31mm/ Ø1.2 inches, thus, a colossal number of pins had to fit in a minute footprint. The BIRNS Millennium 3R-77 connectors were engineered specifically for the vehicle's electronic keel subsystem, as the Columbia Group needed an incredibly robust connector design capable of running multiple systems at once.

Our engineering department also designed five sets of highly specialized BIRNS Primum MSSL-3-4-CP (L size- with [3] 4 AWG socket-cable plug) and MSSL-3 -4-FR (L size- with [3] 4 AWG pin-flange receptacle) connectors to be used for Proteus' propulsion power. These robust connector pairs featured three large pins capable of handling the system's demands for power, and could withstand heavy mechanical impact without damage.

For more information, visit www.birns.com.

Class VII torque tool adapter

Seanic is pleased to announce that it recently delivered four API 17D Class 6/7 Torque Tool Adapters to two major oilfield clients and has a pending order for a fifth Class 6/7 scheduled for delivery in the next 60 days. Seanic also expanded its rental fleet by adding a Class 6/7, which is available for immediate hire.

The Torque Adapter design is ideally suited for any subsea application and can be ordered with or without latching capability. The design does not require a direct electric or hydraulic interface, which allows the ROV to leave it in place and perform other subsea operations. The 4:1 ratio gear box of the Class 6/7 torque adapter is powered by a standard Class 1-4 Torque tool and can generate up to 25,000 ft-lbs of torque.

For more information, visit www.seanicusa.com.

ClearSignal coated Scripps Spray Glider completes 5-month mission in Monterey Bay

Severn Marine Technologies (Annapolis, Maryland) and Scripps Institute of Oceanography (SIO) (La Jolla, California) recently completed a 135-day mission where the Spray Glider was coated with the Clear Signal Biofouling control system.

Half of the glider was coated with Clear Signal in order to qualify the coating for much larger-scale use on the Spray Glider. The coated qualification occurred during a normally scheduled science mission in Monterey Bay for gathering oceanographic data.

The results showed the Clear Signal coating to be highly effective in controlling the growth of biofouling on the glider. There was no biofouling accumulation on the coated sections, while the uncoated sections showed moderate to high biofouling. The coating showed no signs of wear and is designed to last for the life of the glider. As a result of its success, SIO will be coating multiple Spray Gliders with the Clear Signal Biofouling Control System.

For more information, visit www.severnmarinetech.com.

FarSounder launches next generation navigation sonars

FarSounder announced the introduction of their new generation Navigation Sonars. This official launch has been planned to showcase the technology at the 2012 Monaco Yacht Show, which opened in Port Hercules, Principality of Monaco.

The newly launched 3D, forward-looking obstacle avoidance sonars are the FarSounder-500 and FarSounder-1000. These systems feature longer detection ranges, in-water target tracking for improved image stability, and chart overlay of sonar targets. The FarSounder-500 is capable of detecting targets out to 500 m whereas the FarSounder-1000 is capable of detecting targets out to 1,000 m.

Development of these new products has been in process over the last several years. System improvements include both a complete redesign of the Transducer Module electronics and cutting-edge sonar signal processing. Since January 2012, all of the Transducer Modules that have been shipped have had this newest generation of electronics inside and are eligible for a free software upgrade enabling all the new capabilities.

For more information, visit www.farsounder.com.

Xsens industrial grade MEMS motion trackers

Xsens, the leading innovator in 3D motion tracking technology and products, has launched a new MTi® product portfolio for industrial applications such as antenna/camera stabilization and unmanned system control. With the introduction of the 4th generation high-performance product line, MEMS-based motion trackers (IMU, VRU, AHRS, and GPS/INS) now match the requirements in terms of accuracy and robustness for many applications previously depending on fiber-optic gyroscope (FOG)-based solutions. The new MTi® builds on the benefits in size, price, power consumption, and flexible interfacing options that Xsens' customers have relied on for the past 12 years. With seven distinctive models in the product portfolio offering 3D orientation, 3D position, 3D velocity, 3D dynamic data, and a range of interface options, there is a match with any industrial application.

The MTi® product portfolio consists of two product lines. The MTi 10-series extends the proven technology of the previous generations of the MTi, of which more than 20.000 units have been deployed since 2005. The MTi 10-series improves orientation accuracy while under vibrations with at least a factor of 50. The bandwidth of the accelerometers and gyroscopes has been increased by a factor of 15. Available products are the MTi-10 IMU (Inertial Measurement Unit), the MTi-20 VRU (Vertical Reference Unit) and the MTi-30 AHRS (Attitude and Heading Reference System).

For more information, visit www.xsens.com.

SOSI's new expanded ECO winch line

The new ECO Winch family consists of 1 and 2 HP ECO-ELW winches (ELW signifies electronic levelwind to distinguish from earlier models), a 3 HP ECO Magnum and a 7.5-HP ECO OceanPro. The ECO Magnum and OceanPro winches can be configured with different drum sizes and levelwind sheaves, guide shoes, or rollers to suit a wide range of rope, cable, or umbilicals. The OceanPro can also be configured with a 3-, 5-, or 7.5-HP motor. An optional derrick, turntable, pedestal, and ECO Sheave can be combined with the 1- or 2-HP ECO-ELW to create a simple, manually operated instrument handling system.

Original ECO winches were designed for profiling relatively small instrument packages aboard small vessels for shallow water (<600 m) estuarine and coastal oceanography (ECO and large lake and reservoir monitoring). A relatively small drum can hold a lot of small diameter cable (2.5 to 5 mm), making small economical winches feasible. However, the working life of small cable is vulnerable to potentially severe wear from uneven spooling, so a good levelwind is essential. Traditional diamond screws need to be precisely designed (pitch and length) for the intended cable diameter and drum width. Even then, dynamic operating conditions can cause repeated small spooling errors that accumulate beyond the mechanical ability of the levelwind to spool properly and force operator intervention to avoid cable damage.

Diamond screws also prevent changing to a different cable diameter without also changing the diamond screw and/or the sprockets driving the screw. Nonetheless, sales of diamond screw ECO winches grew because they are mechanically simple, relatively inexpensive, and, until now, a cost-effective alternative was unavailable.

The electrical system design is the same for every ECO winch up to 10 HP (.75 to 7.5 kW) and includes regenerative load braking, computer controlled, high-precision acme screw levelwind, non-contacting drum rotation and levelwind position sensors, and accurate cable payout and line speed display.

For more information, visit www.soundocean.com.

Ocean News & Technology 2012/2013 EDITORIAL CALENDAR

November 2012
Editorial: Offshore Vessels, Marine Construction
Distribution: International Workboat
Deadline: October 15th
Product Focus: Workboats, Diving Systems

December 2012
Editorial: Year in Review, Marine Salvage Operations, Commercial Diving
Distribution: Underwater Intervention
Deadline: November 15th
Product Focus: Handling Equipment, Winches & Control Systems, Battery Technology

2013 EDITORIAL CALENDAR

January/February 2013
Editorial: Decommissioning & Abandonment, Subsea Fiber Optic Networks
Distribution: Decommissioning & Abandonment Summit, NACE, Offshore Mediterranean, U.S. Hydro
Product Focus: Navigation, Mapping & Signal Processing

March
Editorial: Oceanology & Meteorology, Maritime Security
Distribution: Ocean Business
Product Focus: Ocean Instrumentation, Diver Detection Systems

April
Editorial: Offshore Technology, Ocean Mapping & Survey
Distribution: GMREC, IDGA Maritime Homeland Security, OTC
Product Focus: Connectors, Cables & Umbilicals

May
Editorial: UW Imaging & Processing, Marine Salvage
Distribution: EnergyOcean, Oceans '13 Bergen, Sea Work Intl, UDT
Product Focus: Cameras, Lights & Imaging Sonars

June
Editorial: Workclass ROVs, Deepwater Pipeline & Repair & Maintenance
Distribution: TBA
Product Focus: Subsea Tools & Manipulators

July
Editorial: AUVs & Gliders, Marine Construction
Distribution: AUVSI
Product Focus: Tracking & Positioning Systems, Seismic Monitoring

August
Editorial: Defense & Naval Systems
Distribution: TBA
Product Focus: Multibeam & Side Scan Sonars

September
Editorial: Ocean Observing Systems, Ocean Renewables
Distribution: Oceans MTS IEEE, SPE ATCE, MREC, MTS Dynamic Positioning, AWEA/Offshore Windpower
Product Focus: Buoys & Monitoring Instrumentation

October
Editorial: Subsea Inspection, Repair Maintenance, Offshore Communications
Distribution: LAGCOE, Subsea Survey/IRM, Clean Gulf, Oil Comm, North Sea Decommissioning
Product Focus: Acoustic Modems, Releases & Transponders, Marine Communications

November
Editorial: Offshore Vessels, Subsea Telecom
Distribution: International Workboat
Product Focus: Handling Equipment, Winches & Control Systems, Battery Technology

December
Editorial: Light Workclass ROVs, Commercial Diving
Distribution: Subsea UK, Underwater Intervention
Product Focus: Diving Equipment & Buoyancy Materials

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Texas/Lousiana:
Amy Dukes
713-557-8057
adukes@tscpublishing.com

UK/International:
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People & Company News

Apache Corp. promoted **Alfonso Leon** to senior vice president and chief of staff. **Brady Parish** joined the company as vice president, investor relations. Leon will support the delivery of Apache's growth strategy, performance and portfolio management, partner relationships, and new business opportunities. He will continue to report to chairman and chief executive officer Steve Farris. Leon previously served as vice president, planning and strategy. He holds a bachelor's degree from Harvard College and an MBA from Harvard Business School.

Devin International, a division of Greene's Energy Group, named **Danny E. Watson** as U.S. sales manager. Based in Houston, Watson will manage the North American sales group and be responsible for business development and overall customer relations for North America. He will also supervise the growth of current and new technologies. He gained extensive management experience through several appointments with Halliburton Energy Services.

Watson

International energy business advisors Douglas-Westwood opened a new office in Houston and appointed **R. Michael Haney** to lead its professional team. Located at Two Allen Center in the city's central business district, the new facility forms a core part of the company's growth strategy and will manage the Douglas-Westwood group's advisory and research business in the world's energy capital as well as across the Latin America region. Haney has more than 12 years of experience consulting for energy clients with Accenture, Arthur D. Little, and Booz Allen Hamilton.

Helix Energy Solutions Group, Inc. said the board of directors appointed **Jan Rask** as a new director. Rask has worked in the shipping and offshore industry for approximately 33 years and has held a number of positions of progressive responsibility in finance, chartering, and operations. Most recently, he served as the president, chief executive officer, and a director of TODCO, an oil and gas drilling contractor. Rask will serve as a Class I director until the company's next annual meeting of shareholders. Rask also was appointed to serve on the compensation and corporate governance and nominating committees of the board.

Reggio

Pipeline Services International LLC (PSI) is pleased to announce that Rick Reggio has joined the PSI team as vice president. Reggio has worked in the oil and gas industry since 1981. Over his career, he has been involved in various aspects of the oil and gas field, including engineering, construction management, project management, executive management, and administration. Reggio has a degree in civil engineering.

Applied Acoustic Engineering has strengthened its sales team with the appointment of **Julian Rickards** as technical sales advisor. He has more than 15 years of experience within the industry with acoustic and inertial manufacturers, bringing a wealth of valuable expertise to the company, including time spent operating positioning equipment offshore.

UTEC announces the appointment of **Daniel Boone** as its Louisiana-based operations manager. His main responsibilities will be to execute safe and profitable projects for UTEC as well as building UTEC's client base while maintaining and improving existing local client relations.

Kosmos Energy said **Paul M. Nobel** joined the company as senior vice president and chief accounting officer. He will be responsible for all aspects of the company's accounting practices and financial reporting processes. He will report directly to W. Greg Dunlevy, executive vice president and chief financial officer. With over 20 years of industry and public accounting experience, Nobel previously held the position of senior vice president and chief accounting officer of World Fuel Services Corp., a global fuel logistics company. He earned a bachelor of science degree from Florida State University.

Hess Corp. elected former Georgia U.S. Senator **Sam Nunn** to its board of directors. Nunn currently is co-chairman and chief executive officer of the Nuclear Threat Initiative (NTI), a charitable organization working to reduce the global threats from nuclear, biological, and chemical weapons. He is also a board member of Coca-Cola and General Electric Co. He is retired from the law firm of King & Spalding. Nunn, who served in the U.S. Senate for 24 years (1972 to 1996), was chairman of the Senate Armed Services Committee and the Permanent Subcommittee on Investigations.

Calendar

October 9-11, 2012
AWEA/Offshore Windpower
Virginia Beach, VA
www.offshorewindexpo.org

October 14-19, 2012:
MTS/IEEE Oceans 2012
Virginia Beach, VA
www.oceans12mtsieeehamptonroads.org

October 21-24, 2012:
Ocean Innovation 2012
Canada
www.oceaninnovation.caOctober 30-31, 2012

October 30-31, 2012:
Marine Renewable Energy Technical Conf.
Providence, RI
www.mrec.umassd.edu/event

November 5-8, 2012:
Subsea Survey IRM 2012
Galveston, TX
www.subseasurvey.com

November 6-8, 2012
Oilcomm
Houston, TX
www.oilcomm.com

November 13-15, 2012
Clean Gulf
New Orleans, LA
www.cleangulf.org

November 20-21, 2012
North Sea Decommissioning Conference
Aberdeen
www.decomworld.com

December 3-5, 2012
OTC Artic Technology Conference
Houston, TX
www.otcnet.org

December 5-7, 2012
International Workboat
New Orleans, LA
www.workboat.com

January 15-17, 2013
Underwater Intervention
New Orleans, LA
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• Autonomous data loggers for the measurement of physicochemical parameters of fresh and marine waters: pressure, temperature, conductivity, dissolved oxygen, turbidity, fluorescence, pH. • Automated stations and instrumented buoys for coastal waters monitoring and MRE assessments. • Monitoring equipment for atmospheric and marine corrosions, and cathodic protection. • Specific equipments and developments: monitoring of sedimentary transports, diving systems behaviour, fishing efforts and environmental parameters, embedded measurement network. • Provor and Arvor profiling subsurface floats (ARGO project), CTD, dissolved oxygen and optical sensors; Argos and Iridium transmission. • Drifting surface buoys with temperature and GPS receiver for Surface velocity project. • Carioca drifting buoy: sea water dissolved pCO2, chlorophyll, wind speed and salinity.

RBR

RBR
95 Hines Road, Ottawa
Ontario Canada K2K 2M5
Tel: 613.599.8900, Fax: 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.*

OCEANOGRAPHIC INSTRUMENTS — Continued

Sea-Bird Electronics, Inc.
13431 NE 20th St., Bellevue, WA 98005
Tel: 425-643-9866, Fax: 425-643-9954
E-mail: seabird@seabird.com,
Website: http://www.seabird.com
Contact: Calvin Lwin, Applications Engineering

Sea-Bird is the leader in accurate, stable ocean instruments for measuring conductivity, temperature, pressure (salinity); oxygen; and related variables. Our CTD profilers, water samplers, moored CT recorders, wave/tide recorders, and DO sensors are used by research institutes, ocean observing programs, government agencies, and navies globally. Investments in engineering, metrology, calibration, software, and analysis make our products the best choice.

Star-Oddi
Vatnagardar 14, 104 Reykjavik, Iceland
Tel: +354 533 6060, Fax: +354 533 6069
E-mail: baldur@star-oddi.com
Website: http://www.star-oddi.com
Contact: Baldur Sigurgeirsson

A manufacturer of miniature data loggers with sensors as temperature, depth/pressure, salinity, tilt/acceleration, compass direction/magnetometer, light levels, acoustic receiving/transmitting. The loggers are used for various researches, including oceanography, fishing gear studies, equipment behavioral monitoring and fish tagging. Data is presented in the application software with a time-stamp for each measurement.

OFFSHORE EQUIPMENT

OEG Offshore, LLC
Millennium Tower, Suite #1300
10375 Richmond Ave.,Houston, Texas 77042
Tel: M(+1) 713 899 7502
Tel: O(+1) 713 783 1771
E-mail: larry.bobbitt@oegoffshore.com
Website: www.oegoffshore.com
Skype: larrybobbitt

*OEG Offshore LLC is the industry's first choice in supplying **DNV 2.7-1 equipment** on a worldwide basis, either for rental or purchase. The equipment supplied is all types and sizes of DNV 2.7-1 containers, baskets, skips, gas bottle racks, refrigerated units, workshops and hazardous area modules. Our specialty is ATEX, which includes pressurization, air conditioning, fire & gas systems. If we don't have the type and size you need, call us for a custom build. OEG's corporate office is located in Aberdeen, Scotland with operational offices in Houston, Perth and Singapore.*

Unique System, L.L.C.
(Survey & Hydrographic)
5355 W. Sam Houston Pkwy. N., Suite 320
Houston, Texas 77041
Tel: (713) 937 6193, Fax: (713) 937 8695
E-mail: infous@uniquegroup.com
Website: www.uniquegroup.com

Unique System, L.L.C.
(Diving Equipment)
1302 Import Drive
New Iberia, LA 70560
Tel: (337) 365 5650, Fax: (337) 365 5610
E-mail: infous@uniquegroup.com
Website: www.uniquegroup.com

Unique System, L.L.C. (USA), Unique Maritime Group's operating entity in the United States, provides Survey and Hydrographic rentals and sales support for products such as Kongsberg C Node Maxi/Mini and Sonardyne G6 Series products. Also in inventory are IXSEA, CDL, Edgetech, Tritech, Blueview, Hypack, Valeport and Teledyne products at our Houston, TX office. These products along with the rest of the inventory allow our client's acoustic, positioning, ROV, navigation and hydrographic needs to be served. The New Iberia, LA office provides diving rentals and sales for DNV and ABS classed Saturation Diving Systems, Hyperbaric Rescue Facilities, LARS and surface diving equipment.

PROJECT CONSULTING/ADVISORY SERVICES

Ocean Specialists Inc.
8502 SW Kansas Ave
Stuart, FL 34997
Tel: (772) 219-3033
Fax: (772) 219-3010
Email: jbyous@oceanspecialists.com
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.

ROV BROKERS

MaRE Trans. Ltd.
MaRE Trans. Ltd.
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Bruntland Road
Portlethen, Aberdeenshire, AB12 4QL
Tel: +44(0)1224 781123, Fax: +44(0)1224 783407
Email: michael@m-are.com
Website: www.m-are.com
Contact: Mike Kernaghan

*MaRE provides an **International Brokerage and Equipment Sourcing** service to the underwater industry. We are the world's leading source of used ROV systems and components. **"DeepSearch"**, a free-issue database, is distributed monthly highlighting used ROVs and associated equipment for sale worldwide. Our **Procurement** department offers an equipment and spares sourcing service which compliments the brokerage side of the business. MaRE also provides **Consultancy** on all aspects of remote underwater technology.*

SONAR SYSTEMS

BlueView Technologies, Inc.
2515 N. Northlake Way, Suite 214
Seattle, WA 98103, USA
Tel: (206) 545-7260
E-mail: info@blueview.com
Website: www.blueview.com
Contact: Beto Campos - Director, Global Com. Sales

BlueView delivers state of the art, compact acoustic imaging, measurement, and automation solutions for defense, energy, civil engineering, transportation, and port security applications worldwide. BlueView's advanced acoustic systems support underwater operations from a wide variety of platforms, including ROVs, AUVs, surface vessels, fixed mounts, portable tripods, and diver handheld systems.

Imagenex Technology Corp.
209-1875 Broadway St., Port Coquitlam
BC, Canada, V3C 4Z1
Tel: (604) 944-8248, Fax: (604) 944-8249
E-mail: imagenex@shaw.ca
Website: www.imagenex.com
Contact: Steve Curnew

Imagenex is an innovative company specializing in advanced acoustic underwater sensors. The company's products include multibeam, mechanical scanning, and sidescan sonars. The Delta T is a compact, cost-effective multibeam sonar, small enough to fit on most underwater vehicles for obstacle avoidance, navigation and profiling applications. The profiling versions feature an output for real-time 3D plotting and are compatible with third party post-processing software. The Model 881A is a small multi-frequency sonar for imaging or profiling applications. There is an Azimuth Drive available for the 837B Delta T and the 881A for profiling applications from stationary platforms. The Model 881L features improved performance via Ethernet communications. Two sidescan sonars, the SportScan and the YellowFin, feature a revolutionary price/performance ratio. For more information please visit www.imagenex.com.

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Toll Free: (800) 447-4804
E-mail: jdemille@marinesonic.com
Website: www.marinesonic.us

Marine Sonic Technology, Ltd. builds high quality, high resolution side scan sonar systems. Located in Gloucester, Virginia, Marine Sonic has been in business for more than 20 years. Our towed systems are rugged, easy to deploy and easy to operate. We also offer highly efficient embedded side scan systems for use in AUVs which occupy minimal space in the vessel and operate with minimal power consumption.

Sonatech
A Division of Channel Technologies Group
869 Ward Dr. Santa Barbara, CA 93111-2920 USA
Tel: (805) 683-1431; Fax (805) 683-4862
E-mail: marketing@sonatech.com
Website: www.channeltechgroup.com
Contact: K.Ruelas, pres.; R. Franklin, v.p., nav & range sys; M. Shaw, v.p., sonar & transducer sys; B. Febo, Director of Business Development

Sound Engineering Solutions – Sonatech, A Division of Channel Technologies Group (CTG) develops innovative solutions for underwater acoustic applications. Existing technologies span a wide variety of acoustic systems, including sonar systems, navigation systems, and custom acoustic solutions. Our solutions are based on a 36-year career of developing high-performance, high-reliability undersea systems that are continually improved through research and development.

Sound Metrics Corp.
15029 Bothell Way NE, Suite 100
Lake Forest Park, WA 98155
Tel: (206) 364-1441, Fax: (206) 374-2929
E-mail: sales@soundmetrics.com
Website: www.soundmetrics.com
Contact: Jeanne Dorsey

Founded in 2002, Sound Metrics Corporation is one of the first manufacturers of high resolution imaging sonars. These units are used in virtually every marine industry by some of the most recognized companies around the world. In addition to being the technological leader in image quality, Sound Metrics has built a reputation for support and for innovative solutions around their customers' applications.

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E-mail: info@saivas.no
Website: www.saivas.no
Contact: Gunnar Sagstad

• STD/CTD, Sound Velocity probes/recorder with optional multi-parameter facilities; Turbidity, Fluorescence, Oxygen etc.
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SUBSEA FABRICATION

NEW Industries
6032 Railroad Avenue
Morgan City, LA
Tel: 985-385-6789
E-mail: bill.new@newindustries.com
Website: www.newindustries.com
Contact: Bill New

New Industries (NI) provides quality fabrication services to the offshore oil & gas and marine industries. NI focuses on large diameter, pressure vessels and deepwater subsea equipment such as jumpers, PLETs, PLEMs, suction piles and ROV components.

SUBSEA TOOLING

Seanic Ocean Systems
8860 Fallbrook Drive
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Tel: 713-934-3100
E-mail: contact@seanicusa.com
Website: www.seanicusa.com
Contact: Karen North

Seanic Ocean Systems is an industry leader in providing simple, rugged and reliable subsea tooling for remote intervention.

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Bellville, Texas 77418, USA.
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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.

TRANSDUCERS

ITC
A Division of Channel Technologies Group
869 Ward Dr. Santa Barbara, CA 93111-2920 USA
Tel: (805) 683-2575, Fax (805) 967-8199
E-mail: sales@itc-transducers.com
Website: www.channeltechgroup.com
Contact: K.Ruelas, pres.; B.Dolan, Director of Business Development; E.Kunstal, eng. mgr.

The Science of Sound Performance – ITC, a Division of Channel Technologies Group (CTG), designs and manufactures both custom and off-the-shelf underwater, air, and ultrasonic acoustic transducers, projectors, hydrophones, hydrophone/preamp, side-scan arrays, OEM and end-item products for commercial and military applications.

UNDERWATER THICKNESS GAUGES

Cygnus Instruments, Inc.
PO Box 6417
Annapolis, MD 21401 USA
Tel: (410) 267 9771
Fax: (410) 268 2013

E-mail: sales@cygnusinstruments.com
Website: www.cygnusinstruments.com
Contact: Rod Sanders

Cygnus manufactures the world's first true multiple echo ultrasonic thickness gauge. Multiple echo means that coatings, such as paint or epoxy, do not have to be removed in order to measure the steel. We offer hand held gauges that divers take into the water. Also have models that can communicate topside to a display repeater or PC. Also offer a range of shallow to deepwater units for ROVs. Manufacturing to ISO 9002 standards. Approved by classification societies.

UNDERWATER VEHICLES

AUVS

Exocetus Development LLC
1444 East 9th Avenue, Anchorage, AK, 99501
Tel: 858-864-7775, Fax: 907-569-0268
E-mail: sales@exocetus.com
Website: www.exocetus.com
Contact: Ray Mahr, VP Sales & Marketing

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ROVS

Perry Slingsby
10642 West Little York, Suite 100
Houston, TX 77041
Tel: 713-329-8230, Fax: 713-329-8299
E-mail: perry.sales@f-e-t.cm.com
Website: www.f-e-t.com/Subsea

Forum Energy Technologies' Perry Slingsby brand supplies deepwater work class ROVs, tooling solutions, burial systems, and control-system-based products to the oil, gas, and telecommunications industries. Providing the most advanced, robust and dependable ROVs and subsea products in the world, Forum's Subsea group has facilities in the US and UK and sales offices and agents around the world.

SeaBotix Inc.
2877 Historic Decatur Road, Suite 100
San Diego, CA 92106 USA
Tel: +1 619 450-4000
Fax: +1 619 450-4001
E-mail: Info@SeaBotix.com
Website: www.SeaBotix.com

SeaBotix Inc. is the world leading manufacturer of capable MiniROV systems. The Little Benthic Vehicle range of systems have become the benchmark in compact ROVs around the world. All systems perform a multitude of tasks including maritime security, body rescue, sensor deployment, object recovery, hazardous environment intervention, and hull inspection.

Sub-Atlantic
Woodburn Rd, Blackburn Business Park, Blackburn, Aberdeen, AB21 0PS, Scotland
Tel: +44(0)1224 798660, Fax: +44(0)1224 798661
10642 West Little York, Suite 100
Houston, Tx, 77041-4014, USA
Tel: +1 713 329 8730, Fax: +1 713 329 8299
E-mail: sub-atlantic.slaes@f-e-t.com
Website: www.f-e-t.com/Subsea

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.

UNDERWATER VEHICLES — Continued

ROVS — Continued

VideoRay
580 Wall Street, Phoenixville, PA 19460
Tel: (610) 458 3000, Fax: (610) 458 3010
E-mail: info@videoray.com
Website: www.videoray.com
Contact: Brian Luzzi

With more than 1,900 Remotely Operated Vehicles (ROVs) in service around the world, VideoRay has clearly become the global leader in Observation ROV technology. VideoRay is an extremely versatile, portable, affordable, and reliable solution for underwater operations including surveys, offshore inspections, search & recovery, homeland & port security, science & research, fish farming, and other unique applications in underwater environments. VideoRay is available on the General Services Administration.

UUVS

iRobot Corporation | Maritime Systems
4625 Industry Lane, Durham, NC 27713
Tel: 919-405-3993, Fax: 919-495-3994
E-mail: frochleder@irobot.com
Website: www.irobot.com
Contact: Friedrich Rochleder, Sales Account Manager

iRobot designs and builds robots that make a difference. iRobot's family of unmanned underwater vehicles (UUVs), including the iRobot 1KA Seaglider and iRobot 15A Ranger, perform a variety of missions for researchers, oceanographers and military planners including physical, chemical and biological oceanography, persistent surveillance, marine environmental monitoring and other missions.

UNDERWATER VIDEO EQUIPMENT

Kongsberg Maritime Ltd.
Camera Division
Campus 1, Science & Technology Park, Balgownie Rd Bridge of Don, Aberdeen, AB22 8GT, UK
Tel: +44 (0)1224 226500
Fax: +44 (0)1224 226598
E-mail: km.camsales.uk@kongsberg.com
Website: www.kongsbergmaritime.com
Contact: Bill Stuart

Kongsberg Maritime Ltd is a world leader in providing harsh environment underwater camera & imaging technology and marine CCTV systems to the Offshore Oil Field & Renewable Energy, Power Generation, Scientific, Maritime and Military sectors.

Shark Marine
23 Nihan Dr., Unit 4
St. Catharines, Ontario LsN 1L2
Tel: 905-687-6672, Fax: 905-687-9742
E-mail: sales@sharkmarine.com
Website: www.sharkmarine.com
Contact: Jim Honey

Since 1984 Shark Marine Technologies, has been manufacturing Remotely Operated Vehicles and accessories, Winches, Handling & Control Systems, Underwater Cameras and Diver Held Sonar Systems, for operations including surveying, oil and gas, security and defence, search and recovery and archaeological investigations. We also provide on-site operations and consultation, software development and custom manufacturing.

SIDUS Solutions, Inc.
San Diego, CA Office:
Tel: (619) 275 5533
Fax: (619) 275 5544
Houston, TX Office:
Tel: (281) 658-2555
E-mail: info@sidus-solutions.com
Website: www.sidus-solutions.com

SIDUS Solutions LLC is an integrated systems provider for security and video surveillance systems specializing in customization. Our products are operational to subsea depths of 6,500m, serving industries worldwide. We are a full service provider, offering end-to-end solutions from concept design, product selection, engineering, manufacturing, technical and customer support. Industries we serve are Oil and Gas, Scientific, Military and Academic.

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.

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Website: www.markeymachinery.com

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Rapp Hydema AS
Burøyveien 31/33, Bodø, Norway
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E-mail: runar.tunem@rapphydema.com
Website: www.rappmarine.com

State-of-the-art hydraulic and electric winches are key to the range, features efficient, computerized control system and Launch & Recovery Systems. ROV Winches and Heavy Lift Winches with Pentagon Control Systems incl. Active Heave Compensation. ROV Moon Pool LARS Systems and Winch Drive Conversions. Rapp Hydema AS is represented in 22 countries word wide.

WINCHES - UNDERWATER

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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

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(Indicate the primary activity of your organization by placing a 1 next to the catagory. Place 2, 3 and 4 next to other markets served.)

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D. ___ RESEARCH & DEVELOPMENT
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F. ___ OFFSHORE OIL & GAS
G. ___ COMMUNICATIONS / UTILITIES
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I. ___ EDUCATIONAL INSTITUTION / LIBRARY
J. ___ GOVERNMENT MILITARY
K. ___ GOVERNMENT CIVILIAN
L. ___ MARINE HARDWARE / DECK EQUIP.
M. ___ FISHING INDUSTRY, AQUACULTURE
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O. ___ DIVING EQUIPMENT / SERVICES
P. ___ CONSULTING, DATA SERVICES
Q. ___ MARINE ELECTRICAL / ELECTRONICS
R. ___ COMPUTER SERVICES / SOFTWARE
S. ___ OCEAN RENEWABLES
T. ___ SUBSEA IRM
U. ___ OCEAN OBSERVING
V. ___ SHIPPING/ TRANSPORTATION
W. ___ SUBMARINE TELECOM
X. ___ EQUIPMENT RENTAL
Y. ___ MANUFACTURERS' REPRESENTATIVE
Z. ___ OTHER (Please specify below)

_____

_____

4 Which category best describes your job function? (check only one)

1. ___ OWNER / EXECUTIVE
2. ___ MANAGEMENT / PROFESSOR
3. ___ ENGINEER / SCIENTIST
4. ___ TECHNICIAN / OPERATOR
5. ___ BUYER
6. ___ SALES
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Ackerstrasse 76,
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fax: +49 30 4679 862-01
sales@evologics.de
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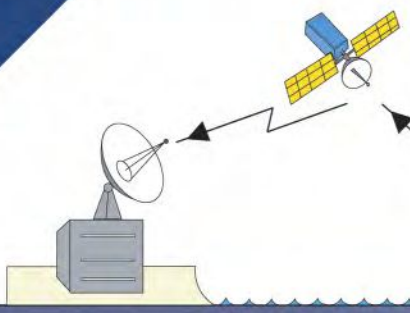
More than 3,000 Sea-Bird IM instruments deployed worldwide since 1997

Real-Time Data Moorings using *Field-Proven* Sea-Bird Inductive Modem (IM) Telemetry



IMM

Inductive Modem Module

Using a standard plastic-jacketed, galvanized-steel-wire mooring cable as the communication link, up to 100 instruments are easily positioned at any depth up to 6000 meters without cable connectors

SBE 37-IMP-ODO

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ICC

Inductive Cable Coupler

CTD-DO

CT-DO

CTD

CT

SBE 39-IM

T(D) Recorder

SBE 37-IMP

CT(D) Recorder with Integral Pump

CTD

T

CT

TD

Third party instrument with integrated IMM

Third Party Examples

TRDI DVS with integrated IMM

Nortek Aquadopp IM400

CT

SBE 16*plus*-IM V2

CT(D) Recorder with Auxiliary Sensors (DO, Fluorometer, Turbidity, PAR, etc.)

CTD & Auxiliary Sensors

Underwater Inductive Modem

UIMM

Underwater Inductive Modem Module (make any RS-232 instrument compatible with Sea-Bird IM telemetry)

ADCP or other serial instrument

Maximum 6000 meters

Sea-Bird Electronics, Inc.
13431 NE 20th Street, Bellevue, Washington 98005 USA
www.seabird.com

E-mail: seabird@seabird.com
Telephone: (425) 643-9866
Fax: (425) 643-9954