News for the Ocean Industry
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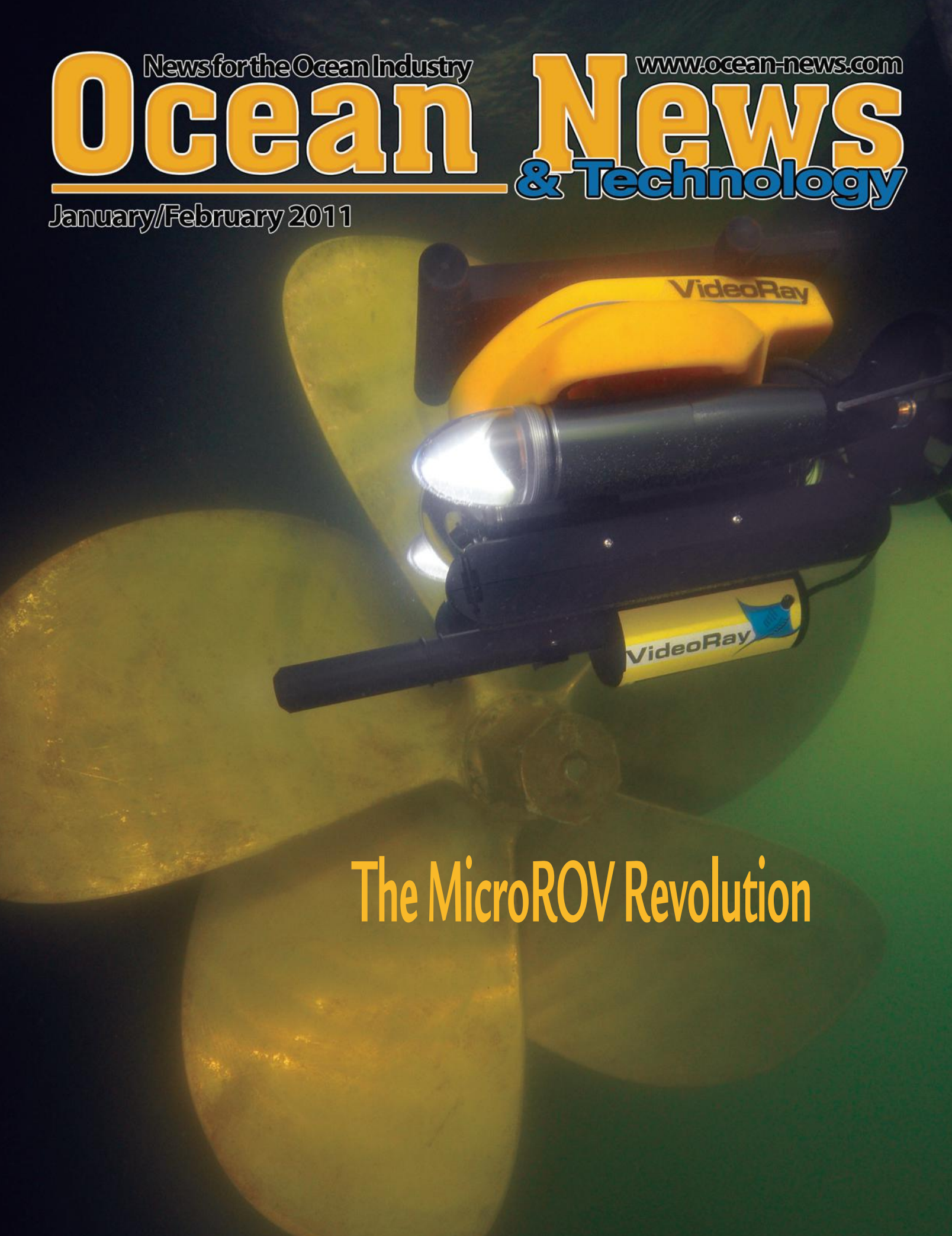
Ocean News & Technology

January/February 2011



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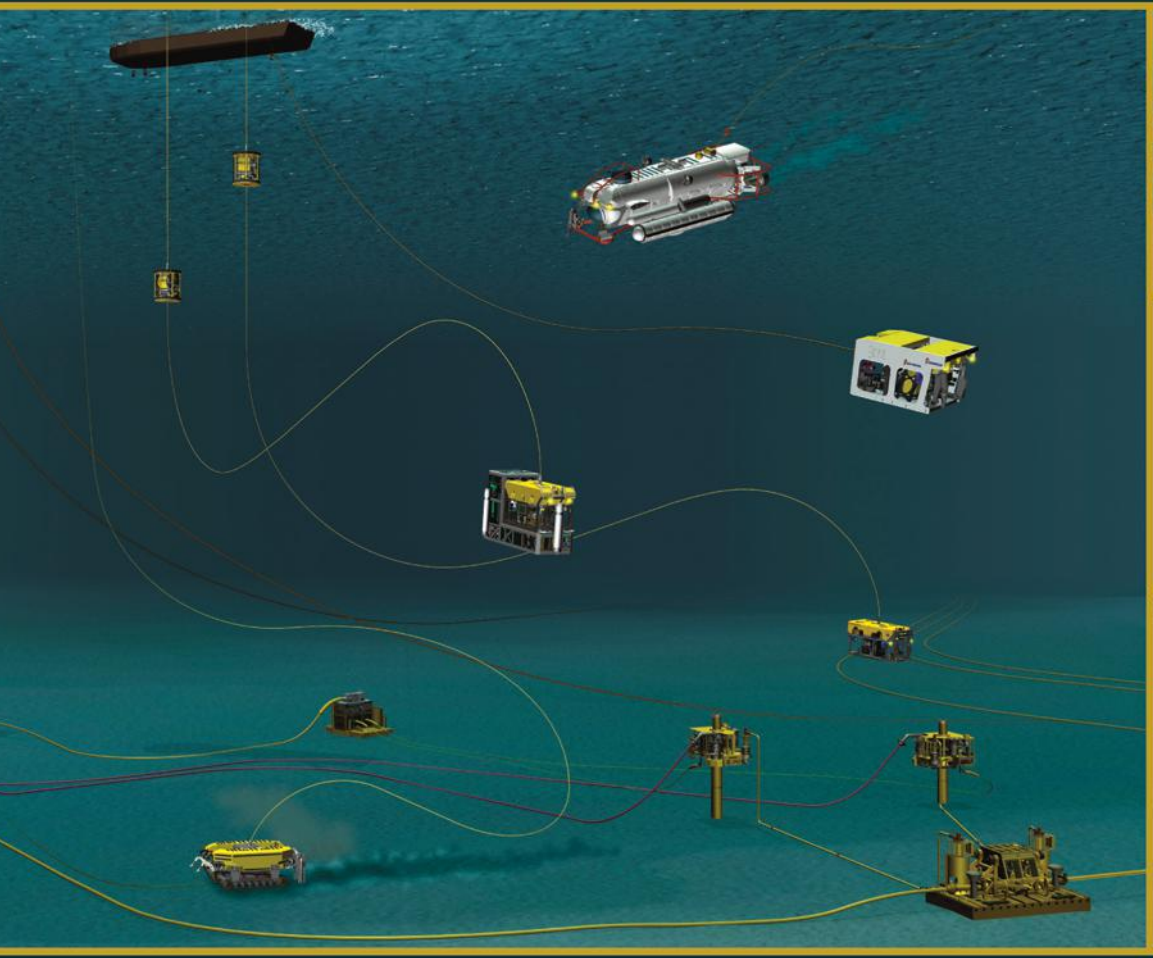

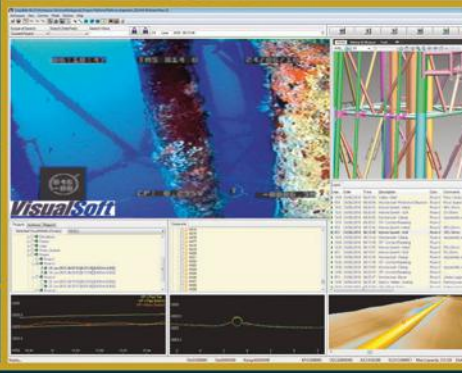

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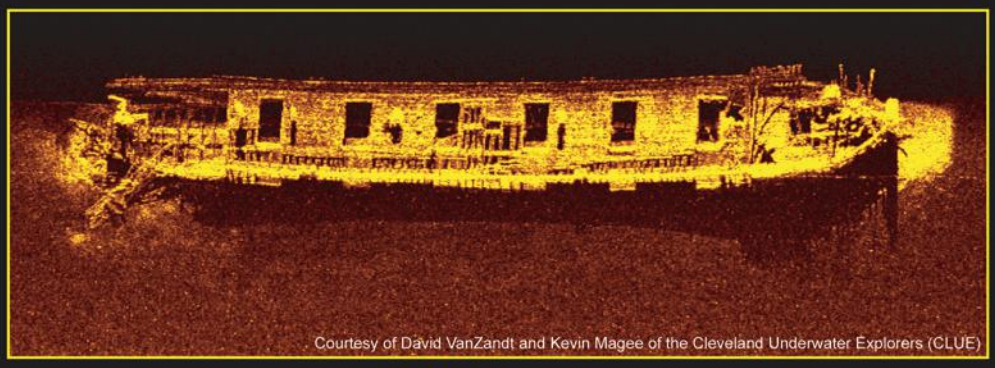
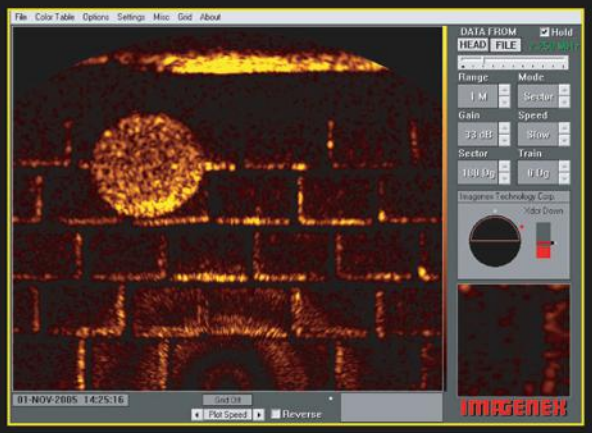
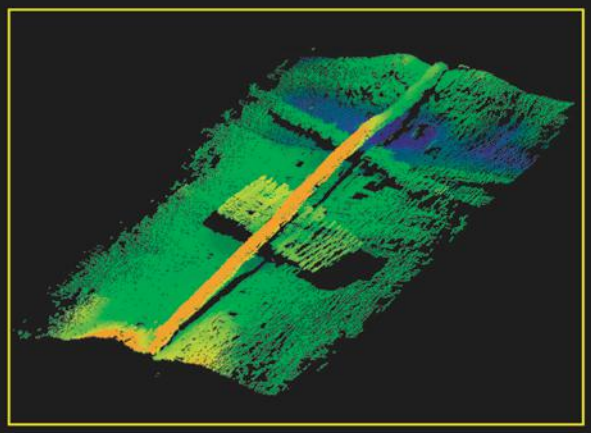


Courtesy of David VanZandt and Kevin Magee of the Cleveland Underwater Explorers (CLUE)

Sidescan



Mechanical Scanning



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Product Focus

- *Navigation, Mapping, & Underwater Batteries*

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Cover photo: VideoRay ROV performs inspection work

DEPARTMENTS

EDITORIAL

SPECIAL FEATURES

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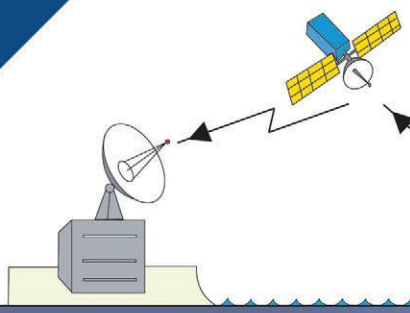

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CT(D)-DO Recorder with Integral Pump

ICC

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CTD-DO

CT-DO

CTD

CT

CTD

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T(D) Recorder

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CT(D) Recorder with Integral Pump

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CT

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Editorial

By Dan White

Ocean News & Technology

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Hyperbaric Evacuation

IMCA, ADCI and diving companies focus on the needs

Lloyds-classed Hyperbaric Rescue Vessel, Cal Dive DSV Kestrel, rebuilt and certified at Arc Controls, Mobile, Al. ARC manufactures and repairs Classed ASME/PVHO code saturation systems, deck chambers, rescue chambers, and classed launch & recovery systems for many of the leading U.S. and international companies.

During all my years of involvement with the offshore industry, I have never seen much technology applied to rescuing divers who are in a hyperbaric chamber during a rig or vessel disaster. Now, it is becoming a major focus of agencies and developers alike.

After a quick review of the ADCI Consensus Standards for Commercial Diving, Sections 5.7.4 and 5.75 on Hyperbaric Evacuation Systems, it is apparent there is a lot of work to do to address this need. I did not see any specific reference to Hyperbaric Life Boats (HLB).

Are you prepared, and do we need a coordinated global response?, asked David Smith of the National Hyperbaric Centre (NHC) in the UK at a conference in Dubai.

Smith says the requirement for hyperbaric lifeboats to move divers from a saturation system in the event of a sinking or stricken DSV is now widely accepted following a number of incidents within recent years. Even areas in the world that previously did not have them are now considering installing them in response to the IMO, Class, client demand, and diver awareness plus the moral responsibility to employees and families.

However, this advance has not been thought through much beyond the "launch" phase, and this is the next area that the industry needs to concentrate on.

Smith also points out that there is a belief that once launched, we have an adequate system to provide the necessary facilities and services to ensure safe treatment of the divers. Recent experience and activity of the National Hyperbaric Centre has identified a number of critical gaps in HLB management systems and has brought to the forefront the industry's need to consider carefully plans for future activities.

The HBC has identified the problem of a lack of commonality in the handling of HLBs. Quite extraordinarily, the industry has missed an opportunity for common systems to be agreed upon with the introduction of the new generation of HLBs. There is no commercial advantage in having individually tailored systems.

There is also a need for medical support that can work worldwide, and we believe that this is inextricably linked with the physical aspects and training and crew required to affect safe decompression of divers from a recovered HLB.

The NHC proposes that there should be a global network of Hyperbaric Reception Facilities with common, proven systems along with integrated Hyperbaric Medical Support Teams.

IMCA has set up a working group to address these issues with support from major contractors.

Ahead of the forthcoming ADCI Consensus Standards for Commercial Diving, Revision 6 requirement, IMO directives and Class Requirements, Cal Dive International has begun a program to upgrade all saturation diving systems with hyperbaric rescue capability. Utilizing the expertise of Arc Controls, the leading ASME/PVHO fabrication shop on the Gulf Coast, Cal Dive has already begun design and fabrication work on these systems.

ON&T will keep an eye on the progress made on diver evacuations and revisit this important subject sometime in the future.

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The most **simple, rugged, portable, and reliable solution** available for underwater observation, location, and recovery challenges. With more than 1,800 systems sold worldwide, VideoRay is clearly the most trusted and capable small ROV available. Learn more about VideoRay products, experience past missions, and view videos at **www.videoray.com**.

Pictured : Joe Haxel (left) and Oregon State University's lost Hydrophone recovered from a depth of 175 feet by Dennis Lancaster of Water Work Resources, LLC (right) and Craig Thorngren (not pictured) of Submerged Recovery & Inspection Services along with all it's data using a VideoRay Pro 4 ROV with imaging sonar to attach a recovery line in September 2010.

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Cover Story

Underwater search and inspection robots rapidly replacing older technologies

By Brian Luzzi, VideoRay

Until recently, managers responsible for underwater search or inspection had three options. They could use human divers who were flexible, intelligent, and able to do minor repairs if they located problems or they could use large work-class ROVs, which could go deeper and, when properly equipped, handle almost any problem at almost any depth. In some cases an Autonomous Underwater Vehicle (AUV) or a fleet can be sent on missions to survey an area and return with data.

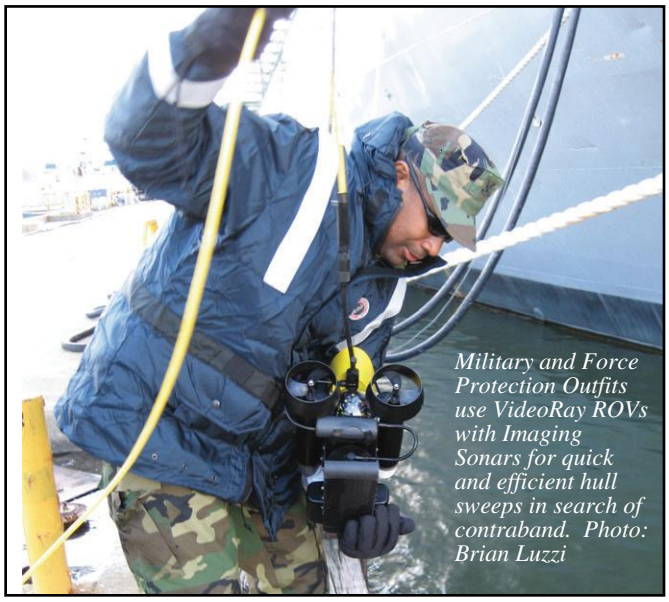
However, all three of these solutions come with headaches. Human divers require expensive support and health and safety considerations, and need to be scheduled in advance. They cannot be deployed in rough sea conditions, and the deeper they go the more costly the operation. They cannot enter some confined spaces for both practical and safety concerns. While work class ROVs have neither the depth restrictions nor the health and safety requirements, they cannot enter confined spaces, and close inspections may risk damage to infrastructure from collision. AUVs have made possible large area underwater exploration at lower cost than survey vessels, but cannot be directed in real time and are therefore not practical for close inspection work. In addition, divers, work class ROVs and AUVs are all quite expensive when compared to the latest microROV solutions.

In fact, few new robotic technologies have had as widespread an impact in as many different industries, environments and organizations as the microROV. Single-man portable, low-cost microROVs can be critical to anyone who needs to explore at depths up to 1,000 feet, in spaces that are just 12 inches wide, and where the sole power is a single 12-volt battery. These systems can be deployed at a moment's notice as checked luggage on commercial airlines, be carried on almost any helicopter flight, and be deployed from vessels as small as a jet ski. In terms of the access to underwater investigation technology, microROVs are the equivalent of today's mobile phone. Original mobile phones were large, expensive, and only used by wealthy individuals. When they became smaller, cheaper, better understood, and more powerful, everyone discovered their power, and today we cannot imagine daily life without them. MicroROV technology is, at this point, early in a similar revolution in underwater technology for a variety of applications.

Military / Force Protection

In 2002, when asked to step up to the job of protecting America from underwater terrorism, the United States Coast Guard (USCG) surveyed the off-the-shelf tools available at the time. While VideoRay was only a couple years old at the time, its value as a portable, rapid-response inspection tool was clear. The USCG has since standardized on these microROVs throughout their Maritime Safety and Security Teams that have been established at all Tier I U.S. ports.

Now the USCG has the largest single fleet of VideoRays used in homeland security, and hundreds have been purchased with US homeland security grants by state and local law enforcement agencies involved in port security type operations. With the addition of low to zero water visibility, VideoRay ROV accessories such as High Definition Imaging Sonar, acoustic and non-acoustic tether-based positioning systems, and real-time video enhancement integration, the VideoRay becomes an extremely potent and effective underwater investigation tool.



Military and Force Protection Outfits use VideoRay ROVs with Imaging Sonars for quick and efficient hull sweeps in search of contraband. Photo: Brian Luzzi

Law Enforcement, SAR, and First Responder

The VideoRay ROV has been proven in countless drowning victim location and search and rescue (SAR) operations, underwater crime scene investigations, and evidence recovery. These range from inland under-ice body recoveries to evidence investigations. More VideoRays have located and recovered drowning victims than all other ROV brands combined, and they are the unit of choice for law enforcement agencies throughout the United States and, indeed, the world.

VideoRay ROVs make under ice drowning victim and evidence location and recovery safer and more efficient for Law Enforcement officers and First Responders around the world. Photo: Dave Phillips

Offshore

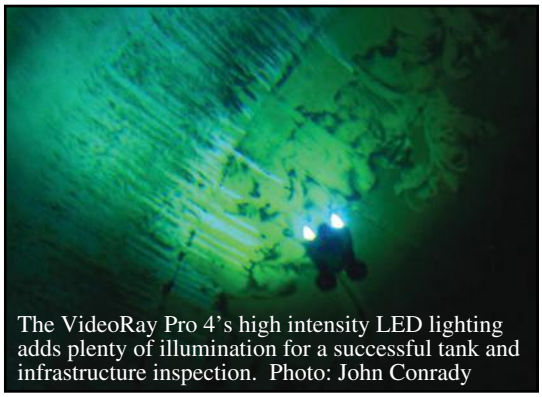
The offshore industry – mainly oil & gas exploration, but increasingly renewable energy through wind – has been a prime user of ROV technology since the first units became available. Larger machines, equipped to dive deep and do all the intervention work required to build and manage undersea infrastructure, are state of the art technology in the ROV world. However, using an ROV the size of a truck to inspect and/or monitor work in less than 300 meters of water is inefficient given the resources, power, and money generally involved. A slight miscalculation driving the machine can damage structures and valves, and these ROVs are too large to penetrate pipes or structures for close inspections or non-destructive testing. With pressures on offshore companies to conduct shallow inspections more often, more safely, and cost effectively, microROVs are now in the toolbox or acquisition lists of all major offshore operating or maintenance companies.

Bjarte Langeland of Stinger Technology AS, a small oil & gas specialized service company in Norway, stands with his submersible rig comprised of a VideoRay Pro 4 OG 300 SE ROV, acoustic cameras, current meter, methane sensor, and other "sniffers" Photo: Bjarte Langeland

Inshore and Critical Infrastructure Inspection

Inshore work – inspecting dams, power plants, water towers and inground tanks, lakes, water intakes, and reservoirs are an obvious application for microROV technology. The advantages of low cost, high portability, and small size make these ideal tools for many different inspection missions – many of which might be done by divers, albeit at higher cost and with serious safety concerns.

Using the VideoRay eliminates the risk of human contamination in potable water tanks and exposing divers to unsafe conditions. Interior pipe and small intake inspections can be completed as the pilot flys and sometimes crawls along or inside the pipe or intake to check for leaks as well inspect the integrity of welds. Interior inspections of nuclear and coal power plant pools can be accomplished in hours rather than days without the delays of tag-outs or danger to human divers.



The VideoRay Pro 4's high intensity LED lighting adds plenty of illumination for a successful tank and infrastructure inspection. Photo: John Conrady

Science, Research, and Education

MicroROVs have found several different roles in science and research. Many projects investigating underwater archaeology or fishes and their habitats involve long periods of observation – something ideally suited to microROV capabilities. Scientists find that a rugged tool that can be easily transported and deployed from small boats or through long holes in ice allows them to collect data in locations where no other technique would work. VideoRays have discovered new fish species in Ecuador, been used repeatedly in Antarctica, filmed hundreds of hours of reef activity in the Gulf of Mexico, surveyed the interior of the USS Arizona Historical Site and in general become the tool of choice for underwater video research. Educational possibilities are also endless with remote internet ROV piloting capabilities and interactive aquarium exhibits at museums around the world.

Broadcast and Film Production

Broadcast production companies are always looking for new

The VideoRay ROV makes an interesting on camera subject while completing its main task of capturing unique point-of-view high definition video down to 1,000 feet. Photo: National Geographic

and more creative ways to bring interesting, high quality shots to their viewing audience. Those who shoot in the underwater realm have typically relied on divers with broadcast quality cameras to gather their HD footage. While a trained diver with a camera is a great way to get professionally framed shots, divers are limited by depth, time under the water, dangerous animals or environments, or spaces too small to accommodate a diver with a bulky camera.

This VideoRay ROV Control Platform for an integrated museum exhibit has simple joysticks, provides a live HD video feed and can take still images of the marine life it encounters while performing its main function of educating visitors. Photo: Paul Selvaggio

Recently, some independent film makers and production companies shooting for television outlets such as National Geographic, the History Channel, History International, SyFy Channel, and Animal Planet have realized that small ROVs outfitted with HD cameras can offer a more efficient, and frankly cool way of capturing quality underwater high definition video footage. A trained ROV pilot can easily and comfortably capture hours upon hours of broadcast quality HD footage from the comfort of a vessel without getting tired, wet or eaten.

Technical MicroROV Presentations at Underwater Intervention 2011

These applications will be addressed by industry professionals during the Shallow Water and Observation ROV technical presentation track at Underwater Intervention 2011 in New Orleans February 22-24, 2011. In addition to application-specific presentations, there will be several presentations on sonar, positioning and video-clarification techniques that are deployed with microROVS as well as techniques for recovering large underwater objects with microROVs.

To learn more about VideoRay microROVs, view specific mission product configurations and view past presentation and video examples, please visit www.videoray.com.

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Purisima diving bell restoration project

Many in the commercial diving industry are aware of the significant early contributions of the late Dan Wilson to the diving industry.

Wilson is credited with introducing deep mixed gas diving to the civilian commercial diving industry with a demonstration dive off Santa Barbara in November of 1962. Wilson went on to form General Offshore Divers in Santa Barbara and later started Subsea International in the Gulf of Mexico.

Willson's dive was a catalyst for the expansion and development of commercial diving and equipment into the industry we know today. The group is asking for the support and help of the industry to preserve a piece of history.

One of Wilson's early developments was the world's first commercial lockout diving bell the Purisima. Purisima was originally launched in Santa Barbara in 1964 and ultimately shelved with the rapid evolvement of diving technology at the time.

Prior to Wilson's death in 2007, he had reacquired the bell from the late Andre Galerne, IUC whom passed away in 2008. Galerne had purchased Purisima for its historical significance. Dan had kept the Purisima in an indoor boat storage facility for a number of years in Florida. Purisima still sits there today, along with an outstanding storage bill.

This past October, Dan Wilson and Don Barthelmess met — along with Lad Handelman, Bob Kirby, Bev Morgan, diving historian Chris Swann, Bob Christensen, Bob Ratcliffe, and Greg Gorga, Executive Director of the Santa Barbara Maritime Museum.

A result of that meeting was an overwhelming desire to see Purisima restored and returned to Santa Barbara at the Santa Barbara Maritime Museum for a key exhibit. The museum is located mere yards from where the bell was launched over 45 years ago. The museum is a 501 (c) 3 non-profit organization.

The Association of Diving Contractors International (ADCI) is trying to raise a minimum of $10,000 to pay the storage and mobilization of Purisima to the Santa Barbara Maritime Museum. Funds raised beyond that will be used to help sandblast, paint, and prepare an interactive exhibit for the bell.

If you can help or make a contribution, contact Don Barthelmess at subsea@cox.net or at 805-708-0621.

Houston commercial diver dies

A diver died after cleaning the hull of a ship offshore from Galveston, authorities reported January 8. Matt Smock, 30, of Houston, was found unresponsive Saturday afternoon after he dove from an offshore service boat to clean the hull of a ship about 10 miles offshore. Smock was taken to the University of Texas Medical Branch and pronounced dead at 1:37 p.m., according to the Galveston County Medical Examiner's Office. The case is under investigation by the Coast Guard's Marine Safety Unit in Texas City.

Kendall to oversee Arctic drilling

The federal agency that polices offshore drilling is putting a new person in charge of overseeing decisions about oil and gas exploration in the Arctic waters near Alaska. **James Kendall** was named acting director of the Alaska Outer Continental Shelf Region. He took over the job from the retiring Alaska Region Director **John Goll**, who left after 13 years in the post. Kendall was the head of the environmental division at the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) -- a position that gave him responsibility over the agency's handling of environmental reviews that are required before the government green lights new drilling projects.

Marport spins off underwater robotics division

Marport Deep Sea Technologies Inc., a leading developer and manufacturer of sonar products for the defense and commercial fisheries markets, announced today that its Board of Directors has unanimously approved a decision to spin off its underwater robotics division. The division will be transferred to a new wholly-owned subsidiary company called Marine Robotics Inc. By creating Marine Robotics Inc., Marport's senior management is taking steps to separate its sonar and underwater robotics businesses into two distinct private companies.

Duke Energy to buy Progress Energy for $13.7 billion plus debt

Duke Energy and Progress Energy Inc. plan to merge in a stock-for-stock transaction worth $13.7 billion to Progress shareholders. Duke also agreed to assume $12.2 billion in Progress Energy debt. The companies are targeting a closing by the end of 2011.

The combined company, to be called Duke Energy, will be among the country's largest utilities, with $65 billion in enterprise value and $37 billion in market capitalization; 7.1 million electric customers in six regulated service territories North Carolina, South Carolina, Florida, Indiana, Kentucky, and Ohio; 57 GW of domestic generating capacity from a mix of coal, nuclear, natural gas, oil, and renewable resources; and one of the largest regulated nuclear fleets in the country.

When the merger is completed, Jim Rogers will become executive chairman of the new organization. Rogers will advise the CEO on strategic matters, play an active role in government relations, and serve as the company's lead spokesperson on energy policy. Bill Johnson will become the new company's president and chief executive officer.

Both Rogers and Johnson will serve on the board of directors of the combined company, which will be composed of 18 members, with 11 designated by Duke Energy's board of directors and seven designated by Progress Energy's board of directors.

First woman to take helm of a U.S. military academy

The Coast Guard will have the first woman superintendent of a military service academy at the helm of the U.S. Coast Guard Academy when classes convene next summer. The commandant of the Coast Guard, Adm. Bob Papp, has selected Rear Adm. Sandra L. Stosz, Coast Guard director of reserve and leadership, for the superintendent position.

"Rear Adm. Stosz has dedicated her career to developing professional Coast Guard men and women," said U.S. Coast Guard commandant, Adm. Robert J. Papp. "We are also extremely proud to be the first service with a woman at the helm of our academy.

The Coast Guard has always led by allowing men and women equal access to all career fields and assignments."

In her current position, Stosz is responsible for policy affecting the recruitment and training of more than 8,000 Coast Guard reserve members. She has also commanded the Coast Guard's only

recruit training center in Cape May, Nj. She will be the first and only female commander to head any of the nation's five military academies.

"I am humbled by the prospect of taking over such an important position in our service and honored to be following Rear Adm. Burhoe," said Stosz. "The school and officer corps have benefited in so many ways from Scott's outstanding leadership and vision."

Under the command of the current superintendent, Rear Adm. J. Scott Burhoe, the school was ranked as a top college by the New England Association of Schools and Colleges and listed as the number one college in the northeast by U.S. News and World Report. The school had five Fulbright and three Truman scholars during his tenure. Burhoe also improved the school's diversity record, doubling the percentage of minority admissions from 12% in 2008 to 24% in 2010. Burhoe is scheduled to retire July 1.

"Rear Adm. Stosz is an excellent choice to succeed me as superintendent," said Burhoe, "She has a distinguished record of service, and, as a member of the board of trustees, understands the importance of continuing to move the academy forward on its current track."

The Coast Guard Academy was established in 1876. The oldest service academy is West Point, which was established in 1802.

ADCI announces the 2011 Commercial Diving Hall of Fame Inductees

Ben Miller – acknowledging Ben Miller's significant contributions to the commercial diving industry, specifically as a world-renowned helmet, mask, harness, and weight belt manufacturer.

Tom Angel – significant contributions to the commercial diving industry, specifically as one of the founding members of the Association of Diving Contractors and being instrumental in the introduction of saturation diving to the Gulf of Mexico. Participation in "Project 600" demonstrated the practicality of saturation diving as it applies to the oil field as well as setting a world record for open sea diving at the time.

Joe Sanford – acknowledging the groundbreaking formation of the first Gulf Coast Diving Contractor that carried insurance, Sanford Brothers Diving, as well as the formation of Morgan City Rentals.

Phoenix awarded U.S. Navy diving services contract

Phoenix International Holdings, Inc. (Phoenix) was awarded the U.S. Navy's five year, worldwide Diving and Diving Related Services contract. The contract is in direct support of the Navy's Office of the Supervisor of Salvage and Diving (SUPSALV) for whom Phoenix maintains an around-the-clock, global capability to perform waterborne repairs to ships and structures. The company provides surface-supplied air, mixed gas, and saturation diving services along with engineering, technical, and software support when meeting this primary objective. Supplemental contract responsibilities include salvage assistance.

Phoenix is honored to hold this competitive contract since 1997. During this timeframe, Phoenix expertise was called upon to undertake a number of challenging projects, including repair support to USS DENVER (Hawaii), USS LA MOURE COUNTY (Chile), USS SAN FRANCISCO (Guam), USS NEWPORT NEWS (Bahrain), and USS HARTFORD (Italy and Bahrain), all ships and submarines that suffered collision damage while on operations; the in-water repairs to U.S. Coast Guard icebreakers POLAR STAR and POLAR SEA and the Russian icebreaker, MV KRASIN — all requiring propeller repairs while in the Antarctic Ocean; the design and development of a 6-man, 1,000 foot depth capable, fly-away, saturation diving system; and the capture and lifting device used to safely recover the 143-ton turret of USS MONITOR.

Phoenix developed 14 U.S. Navy-approved underwater dry chamber and wet welding procedures for welding on a variety of materials from mild steels to the more exotic alloys found in ship construction. These and attendant non-destructive test procedures are critical to successfully performing emergent and scheduled repairs to ships and submarines deployed around the world.

For more information, visit www.phnx-international.com.

Princes tinned tuna linked to mass deaths of marine life

Food giant Princes has been ranked as the least sustainable tuna brand in the UK market according to a new Greenpeace ranking report.

The Japanese-owned food and drink company uses fish aggregation devices (FADs) along with massive nets known as purse seines to catch the majority of its tinned tuna, resulting in vast amounts of by-catch, including sharks, turtles, and juvenile tunas.

"Endangered sharks and other species are killed every year while catching tuna to be put in tins. And, despite the hugely misleading claims on their cans, Princes are the worst of the lot. It's time for Princes to follow other industry leaders and stop selling tuna caught using methods which cause the deaths of sharks and many other marine animals," said David Ritter, Greenpeace UK Oceans campaign manager.

By contrast those that top the Greenpeace UK league table – Sainsbury's and Marks & Spencer -- use tuna caught with pole and line, a traditional method of fishing that minimizes the catch of other species, and are among those that have pledged to support a proposal made by eight Pacific Island countries to set aside large areas of international waters around their borders as a fully protected marine reserve. This is an important move towards restoring the region's declining tuna stocks.

Greenpeace is campaigning for a global network of marine reserves covering 40% of the world's oceans and for a more sustainable fishing industry, both necessary steps to restore our oceans to health.

RigNet, Inc. Announces Pricing of its initial public offering

RigNet, Inc. announced the initial public offering of 5,000,000 shares of its common stock at $12 per share. The shares began trading on The NASDAQ Global Select Market on December 15, 2010 under the ticker symbol "RNET." RigNet is offering 3.333.334 shares of common stock and selling stockholders are offering the remaining 1,666,666 shares in the offering. The underwriters have a 30-day option to purchase up to an additional 500,000 shares from RigNet and an additional 250,000 shares from the selling shockholders to cover over-allotments, if any.

RigNet is a leading global provider of managed communications, networks and collaborative applications dedicated to the oil and gas industry.

First underwater robot to cross Atlantic highlighted at Smithsonian Ocean Hall

The Scarlet Knight was picked up at 9 a.m. local time December 3, off the Spanish coast by the M/V Investigador. The glider's designers, builders, and project oceanographers were on hand for the retrieval.

The first underwater robotic vehicle — or "glider" — to cross an ocean will be the centerpiece of a new exhibit opening in the Sant Ocean Hall at the Smithsonian National Museum of Natural History on December 9. The U.S. Integrated Ocean Observing System (IOOS®) glider, operated by Rutgers University, carried out the trans-Atlantic journey last year, just months before the technology was used to help in the Deepwater Horizon BP response.

Rutgers scientists and students launched the trans-Atlantic glider, dubbed "the Scarlet Knight" in honor of the school's mascot, off the New Jersey coast in spring of last year. They and their Spanish colleagues from Puertos Del Estado (the Spanish Port Authority) recovered the glider off the Spanish coast after seven months at sea and brought it ashore in the small town of Baiona where Christopher Columbus' ship, the Pinta, landed with news of the New World more than 500 years ago. The glider reached Baiona on December 9, 2009 — one year to the day of the exhibit being launched within the Smithsonian's Sant Ocean Hall.

Courtesy of Rutgers

Maersk Training to distribute Castrol Academy
Castrol Marine has appointed Maersk Training as a global non-exclusive distributor of Castrol Academy, a module-based training course designed to help marine engineers develop a broad range of skills to move the industry forward. Castrol Academy was developed in direct response to an industry-wide problem: a recent survey by the Institute of Engineering and Technology revealed that 55% of those polled reported problems recruiting experienced, well-trained technical ship crews.

Dockwise confirms backlog
Dockwise announces that it has signed a contract for $25 million with an affiliate of Chevron U.S.A. Inc. regarding the transportation of the Jack & St. Malo hull from Korea to the Gulf of Mexico. It is the intention of the parties that this contract — already included in the Q3 backlog as a Letter of Intent (LOI) – will be executed on the new T-0 vessel. Another LOI published earlier this year for the transportation of the topside for ATP's Cheviot from the fabrication yard in China to Europe and the associated float-over was also converted into a firm contract with Bluewater Industries for a total contract value of approximately $40 million. In addition, Dockwise Ltd. announces eight awards for Heavy Marine Transport (HMT) that have recently been secured by its subsidiary Dockwise Shipping, with a total contract value of $30 million.

U.S. Coast Guard extends recognized authority capabilities of ABS
The U.S. Coast Guard (USCG) has granted ABS the authority to issue Certificates of Fitness on the USCG's behalf to U.S.-flagged offshore supply vessels (OSVs) that transport or handle limited amounts of hazardous and noxious liquid substances (NLS) outside of U.S. jurisdictional waters. ABS is the first classification society to be granted this authority from the USCG. Acting under the authority of the USCG, the society is authorized to issue the certificate based on the relevant conditions set forth in IMO Resolution A.673(16), as amended. Additionally, ABS will review OSVs against the requirements stipulated in MARPOL 73/78 Annex II, USCG 46 CFR 8.130, USCG Policy Letter 09-01, as revised and the US Supplement to ABS Rules. Existing OSVs (keels laid prior to 20 February 2010) that carry limited amounts of hazardous and NLS in bulk outside of U.S. jurisdictional waters will be required to obtain this Certificate of Fitness on or just following their first annual inspection carried out in 2011.

Wärtsilä to power technologically advanced UK research vessel
Wärtsilä has been awarded the contract to supply the propulsion equipment for a new, state-of-the-art, research vessel. The vessel will be operated by the UK's Natural Environment Research Council (NERC) and is to be built at the C.N.P. Freire S.A. shipyard in Spain. The NERC is the UK's main agency for funding and managing world-class research, training, and knowledge exchange in the environmental sciences.

P&O/OMM enters cable installation market

P&O Maritime Services, owner and operator of specialist science and cargo vessels, has entered the power cable installation market with its vessel CS European Supporter.

The company has signed a long-term agreement with UK-headquartered subsea cable specialists, Offshore Marine Management (OMM), for the provision of a suite of capabilities to be marketed with the entrant cable installation vessel.

The European Supporter, formerly Oceanic Viking, is due to enter the European and international power cable market in March 2011 after undergoing a major conversion from a submarine fiber optic vessel to a state-of-the-art power cable installation and trenching vessel.

The agreement means that P&O Maritime Services will operate the vessel, and OMM will provide a full cable spread to the industry — cable equipment, trenching, operations and maintenance, remedial and survey.

The 106 m, DPII vessel will be equipped with modern cable installation equipment, work-class ROV, ROV trencher, and survey spread. All ancillary cable equipment and cable lay deck operations are enclosed, allowing for a 24-hour, all-weather working area. A further extensive open working deck is atop, which will be utilised for mattressing operations.

The vessel will boast DPII capability along with cable coiling arms within her three tanks. She will have capacity for 5000 tonnes of power cable, 60-tonne SWL active heave compensated crane, 20-tonne linear cable engine (20 wheel pair), and a 35-tonne A-frame, among other engineered additions and equipment solutions to expand the vessel's capabilities portfolio. The European Supporter offers spacious, comfortable living and recreational facilities for up to 60 personnel.

Andrew King, managing director of P&O Maritime Services, said that P&O Maritime Services, as part of its strategy to deliver high-quality, long-term cost effective solutions to the renewables market, is delighted to partner a company of OMM's pedigree.

Rob Grimmond, managing director of OMM, said that the ability to offer project-specific solutions with a vessel that is converted to do that job is a very exciting opportunity for both P&O Maritime Services and OMM.

"The strength of P&O Maritime Services and the experience gained by OMM will forge a strong partnership to supply the industry — both clients and cable installation companies — with a total cable installation solution.

Coast Guard announces publication of Outer Continental Shelf Notice of Arrival Rule

The U.S. Coast Guard announced recently in the Federal Register the publication of an outer continental shelf notice of arrival rule designed to enhance maritime domain awareness over outer continental shelf activities.

This final rule enhances maritime security and safety by requiring U.S. and foreign vessels, floating facilities, and mobile offshore drilling units arriving on and engaging in outer continental shelf activities to report their arrival time and location and information regarding the vessels' voyage, cargo, crew, and vessel information.

The outer continental shelf includes all submerged lands seaward and outside of the area of lands beneath navigable waters and of which the subsoil and seabed are subject to the jurisdiction and control of the U.S. Outer continental shelf activity is defined in the U.S. regulations as any activity that occurs on the outer continental shelf and is associated with the exploration for or development or production of minerals, including oil.

"Maritime domain awareness supports and informs all of the nation's maritime safety, security, environmental, and transportation interests. The equipment and procedures that create awareness are just as important for prevention of and response to vessel collisions and oil spills, and search and rescue cases as they are for law enforcement and counterterrorism missions," said Dana Goward, director of the Coast Guard's Marine Transportation Systems Management Division.

The rule implements provisions of the Security and Accountability for Every Port Act of 2006 and will enable the Coast Guard to more effectively prevent or respond to a safety or security concern on the outer continental shelf.

The final rule and related materials may be reviewed online at http://www.regulations.gov; Number: USCG-2008-1088.

BMT Group and SUSY come to the rescue of sinking vessels

Damaged vessels at risk of sinking could soon benefit from a revolutionary new system being developed by a consortium led by BMT Group Ltd, the international design, engineering, and risk management consultancy.

Using technology originally developed for submarine rescue, the research team is developing a system that can be used in a wide range of maritime applications. These include salvage, emergency subdivision of roll-on/roll-off ferry car decks, self-righting buoyancy for fishing vessels in the event of capsize, and emergency buoyancy to stabilize ships with holed compartments.

The new solution uses Kevlar-reinforced balloons that can be rapidly inflated to provide extra buoyancy, expelling water and keeping the vessel afloat until repairs or other emergency measures are implemented. By preventing damaged ships from sinking, the technology could help minimize the risk of major loss of life at sea.

The team consisting of researchers from nine companies spread throughout Europe call the system SUSY (Surfacing System for Ship Recovery) and were inspired by submarine rescue technology from ASTRIUM and ideas proposed by the German firm, BALance Technology Consulting.

Rory Doyle, senior research scientist at BMT Group, said, "While we may not be ready to raise the Titanic, the SUSY project team is developing a system which will allow us to salvage or stabilize damaged vessels more efficiently than we do today." He continued, "The potential environmental, safety, and financial benefits of SUSY are enormous, providing us with the first tools to assess and advise on the impact of using buoyancy systems to stabilize or resurface ships."

The research team at BMT Group Ltd secured a 2.65 million Euro grant from the European Commission for the consortium to carry out the research.

For more information, visit www.bmt.org.

Draka nets new marine cable order for Royal Boskalis Vessel

Draka Offshore announced that Keppel Singmarine has selected Draka as a cable supplier for its production of Hull 362 for Royal Boskalis Westminster.

The contract requires Draka to deliver the first batch of cable during first quarter 2011 that is being manufactured at the company's Asian marine cable manufacturing facility located in Suzhou, China.

Keppel Singmarine has developed a reputation for delivering quality vessels on time with their customers. "We take pride in helping our customers develop strong reputations," added Ang. "We work hard to make sure our customers projects are done on time and with good quality."

Royal Boskalis Westminster awarded Keppel Singmarine with the contract to construct a 159-m (522-ft.) long rock dumping fallpipe vessel during the first quarter of 2010. The vessel will have a 24,000 ton carrying capacity features propulsion machinery, special rock handling equipment, and a flexible fall pipe with an ROV for positioning.

For more information, visit www.DrakaOffshore.com.

Northrop Grumman to supply integrated bridge systems for new bulk ships

Northrop Grumman Corporation has received orders to supply advanced electronic navigation systems for two new 37,000 deadweight ton (dwt) bulk carriers to be built in Korea for Italian shipowner d'Amico Dry Limited.

The orders were awarded to Northrop Grumman's Sperry Marine business unit through Telemar, the sales and service representative for Northrop Grumman Sperry Marine products and services in Italy. Telemar will oversee the installations and provide technical support and service for the shipboard navigation systems.

Each of the ships is being fitted with a complete Sperry Marine VisionMaster FT™ integrated bridge system (IBS), including electronic chart display and information system, X- and S-band radars, autopilot, voyage data recorder, and other navigation sensors and subsystems. All of the components are tied together in an Ethernet network, providing a high level of system integration.

The two bulk carriers are on order from Hyundai Heavy Industries shipyard in Ulsan, Korea and are due for delivery to the owner in 2011.

L-3 MPRI Announces new version of its liquid cargo handling simulator software

L-3 MPRI, a global provider of integrated training solutions, which includes simulation-based training systems, services, and turnkey training facilities, announced the release of Version 5.0 of its liquid cargo handling simulator (LCHS) software called Safe Cargo. This major release incorporates significant improvements to the performance, instructor features, and configuration options currently available in the software suite. The release is fully compliant with the latest Windows® operating systems and incorporates a new network communications infrastructure that vastly improves the speed and stability of the simulator as well as system diagnostics and recovery.

The new software additionally features the option to incorporate real hardware consoles or virtual panels with the appropriate gauges and controls.

For more information, visit www.mpri.com.

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Ocean Science

NOAA - 2010 Tied for Warmest Year on Record
Independent analyses performed by the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA) have found that 2010 is tied with 2005 as the warmest year in the 131-year instrumental record of global surface temperatures. NOAA's National Climatic Data Center (NCDC) found that the annual average for the combined global land and ocean surface temperatures was 1.12°F (0.62°C) above the 20th century average. While 2010 was the warmest year on record for the Northern Hemisphere, it was the sixth warmest year on record for the Southern Hemisphere. The record temperatures were aided by high ocean surface temperatures from January through April due to a strong El Niño, but a shift into a cold La Niña phase late in the year helped to lower the average ocean temperatures for the year. As a result, the global ocean surface temperature for 2010 tied with 2005 as the third warmest on record, while the global land surface temperature also tied with 2005 as the second warmest on record.

Scientists find methane near-normal levels
Researchers from Texas A&M University and the University of California, Santa Barbara report that methane gas concentrations in the Gulf of Mexico have returned to near normal levels only months after a massive release occurred following the Deepwater Horizon rig explosion. Findings from the research study, led by oceanographers John Kessler of Texas A&M and David Valentine of UCSB, were published in *Science Xpress*, in advance of their publication in the journal *Science*. The findings show that Mother Nature quickly saw to the removal of more than 200,000 metric tons of dissolved methane through the action of bacterial blooms that completely consumed the immense gas plumes that the team had identified in mid-June.

'MiddleLight' reefs found in Puerto Rico
NOAA-funded scientists have found extensive and biologically diverse coral ecosystems occurring at depths between 100-500 ft. within a 12-mile span off the southwestern coast of Puerto Rico. With the overall health of shallow coral reefs and the abundance of reef fish in Puerto Rico in decline, this finding brings hope that deeper fish stocks may help to replenish stocks on shallower reefs. These mesophotic ecosystems — "meso" for middle and "photic" for light — are the deepest of the light-dependent coral reefs. Too deep for exploration with traditional SCUBA gear, these reefs have, until recently, remained largely unexplored because of the cost and technical difficulty in reaching them. Advances in diving techniques allowed scientists to safely dive and conduct this pioneering survey.

Scientists find biodiversity runs deep in Sulawesi Sea
New submarine volcanoes, a large hydrothermal field with a thriving exotic animal ecosystem, and areas rich with deep-sea ocean animals are among the discoveries reported today by U.S. and Indonesian scientists who explored the largely unknown deep Sulawesi Sea last summer off the coast of Indonesia. The joint science team mapped Kawio Barat, an active undersea volcano that rises nearly 12,000 ft. from the seafloor, and the mission revealed that high marine diversity extends deep in the area, but that there is a different mix of diversity between the shallow and deep ocean.

Eat Lionfish!

Lionfish (native to the Western Pacific) have invaded the waters of the Caribbean and are quickly multiplying along the East Coast from Florida through the Carolinas, devouring native reef fish as they go. According to some scientists, the lionfish invasion has the potential to be the "most disastrous marine invasion in history," decimating commercially-valuable fish populations and wreaking havoc on our vulnerable coral reef ecosystems.

According to a recently released NOAA report, one of the only viable methods for controlling these predators is to encourage a market for them. Professional tasters have ranked the fish high for taste and texture, and a recent pilot project that brought the fish to several top New York and Chicago restaurants proved very successful. The eating of lionfish has become a grass-roots cause in some local areas, and several restaurants in the US and the Caribbean are serving up the fish whenever they can.

NOAA's National Centers for Coastal Ocean Science, which have conducted extensive lionfish research, have conceived an "Eat Lionfish" campaign that builds upon the original New York/Chicago pilot project. Top chefs in five cities hosted tasting events in 2010. NOAA will be working with them to develop press for the event that brings attention to the threat of lionfish and highlights eating lionfish as a method of conservation and protection for our coral reefs. The media campaign will include not only pitches to major print outlets but also to television producers for The Food Network and The Travel Channel.

The intent is not to develop a fishery for the lionfish but to consume it out of existence in Caribbean and American waters. The FDA has agreed to add Pterois volitans—the red lionfish—to the list of species approved for commercial sale under the name "lionfish".

In concert with the restaurant tasting events, NOAA will develop online resources for the interested public (including those in the diving and commercial fishing communities) that provide information on issues as the impact of lionfish on coral reefs, safe lionfish capture and handling, regulatory requirements for landing and sales, where to fish for lionfish, the latest information on lionfish populations and densities, nutrional analysis, and upcoming tasting events.

NOAA is building a diverse coalition to build and promote the campaign. It is working with commercial fishers, fish wholesalers, diving organizations, NGOs, and other federal agencies in this regard. NOAA welcomes the input of the SAFMC in how it can promote this effort in the south Atlantic region.

CSA awarded BOEMRE task order for PEIS

CSA International, Inc. (CSA) is pleased to announce that the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) has officially awarded CSA a task order to develop the first Geological and Geophysical (G&G) Programmatic Environmental Impact Statement (PEIS) for areas in the mid and south Atlantic. The PEIS will evaluate potential environmental effects of multiple G&G activities, such as seismic surveys, that will be conducted to inform future decisions regarding oil, natural gas, and renewable energy development on the outer continental shelf in the mid- and south Atlantic planning areas.

On 1 December 2010, Secretary of the Interior Ken Salazar announced an updated strategy for energy development on the OCS that included G&G studies in the mid- and south Atlantic planning areas. The PEIS will identify potential environmental effects and inform decision makers and the public of reasonable alternatives to avoid or minimize adverse impacts and guide decision making about seismic research in the region and decisions about where to allow oil and gas leases, placement of renewable energy infrastructure, and development of non-energy mineral resource (e.g., sand and gravel). The analyses will also support BOEMRE environmental compliance efforts with other applicable laws, such as the Endangered Species Act, Marine Mammal Protection Act, National Historic Preservation Act, and the Coastal Zone Management Act. The draft PEIS will be made available for public comment in 2011. The final PEIS is expected to be completed in late 2012.

For more information on this important G&G PEIS being developed for areas in the mid and south Atlantic, visit www.gomr.boemre.gov.

Danish high-technology revolutionizes the clean-up process after oil disasters

Oil accidents prompt Danish industries and research to cooperate on new ground breaking sonar technology.

For the first time ever, it will be possible to get a detailed picture of oil in the water column and on the seafloor. The technology will be able to prevent fatal environmental disasters caused by oil extraction – as recently seen in the Gulf of Mexico – in areas such as Greenland.

A consortium composed of RESON A/S and Center for Energy Resources Engineering at The Technical University of Denmark (DTU-CERE), has received the acceptance of a project under the Danish National Advanced Technology Foundation (Højteknologifonden). The project deals with the use of advanced sonar technology for the detection of oil in sea water. A reliable detection and mapping of oil in sea water will have a revolutionary effect on the recovery efficiency in the wake of an oil accident – for the benefit of the fishery, the coastal areas, and the environment in general.

The accident with the oil rig Deepwater Horizon in the Gulf of Mexico was one of the largest oil disasters in history. More than 4.9 million barrels of crude oil spilled into the ocean. Following concentrated efforts, an estimated 0.8 million barrels have been collected. More than 4 million barrels of crude oil have never been collected. In 1979, a similar accident

occurred in Mexico when a total of approximately 3 million barrels of crude oil poured into the ocean. Only a small part of the oil was recovered, with the consequence that marine life more than 30 years later is still affected. Contrary to earlier theories, after the Deepwater Horizon accident, the oil is also present in great volumes below the surface. This may, in part, contribute to the use of dispersing agents (which make the oil sink and mix with water) in connection with the recovery process, but a lot indicates that we have a limited knowledge about deep-water oil leaks, as was the case with Deepwater Horizon.

Today, new oil deposits are often found on deep waters. In September, the Scottish firm Cairn Energy and Nunaoil found an oil deposit west of Greenland on about 500 meters depth. An oil leak in Arctic regions will most likely have even greater catastrophic consequences than is presently seen in the Gulf of Mexico. The oil find in Greenlandic waters increases the necessity for efficient methods of detecting oil in the water column in order to enable an early and effective recovery in the case of an oil spill.

There are currently no methods to efficiently map oil in the water column or on the seafloor. An anonymous representative of a leading recovery company states: "During the recovery of oil spills, recovery rates vary greatly; in very successful operations, the rate may be as high as 98%, but in more complicated scenarios with submerged oil, the recovery rate is very low, with 10% typically being considered very successful. An efficient technology as the suggested sonar technology will improve the recovery rates immensely, as it addresses one of the key challenges of cleanup operations: localizing the oil."

The goal of the project, to begin on 1 February 2011, is to develop an efficient method of imaging oil in the water column, enabling recovery companies to remove as much oil as possible after a leakage. During the course of the project CERE DTU Chemical Engineering will develop a model of oil-contaminated sea water. Based on this model RESON A/S will in collaboration with CERE DTU Informatics develop an efficient detection method based on sonar technology that can perform a reliable detection and consequently mapping of the oil-contaminated areas.

Underwater acoustic technology helps preserve endangered aquatic species

Materials Systems Inc. (MSI) of Littleton, Ma. is supplying piezocomposite sonar sensors for use in the upgraded Manatee Protection System at Florida's Canaveral navigation lock. The system will help safeguard Florida's endangered manatees from serious injury or death. Also known as sea cows, manatees live in Florida's shallow rivers, estuaries, canals, and coastal waters. These slow and gentle creatures travel through the canal lock gates in search of food. Watercraft collisions are the leading human-related cause of manatee deaths, but lock gate accidents are second. Approximately 200 manatees have been crushed by Florida lock gates since 1974 because the turbid water often prevents gate operators from seeing the manatees. In 2000, the U.S. Army Corp of Engineers funded the development of a manatee protection system. Scientists and engineers at Florida's Harbor Branch Oceanographic Institution (HBOI) developed a system using a "ladder of sound beams" between two lock gates — one outfitted with sound emitters and the other with sound receivers — to detect the presence of manatees during gate closure. Because of the large number of beams, the system is able to distinguish between manatees and small fish. When a manatee is detected, the system stops the gate from closing and keeps it open until the manatee passes through safely. Numerous manatees have been saved by this system, which is now installed on several locks throughout Florida.

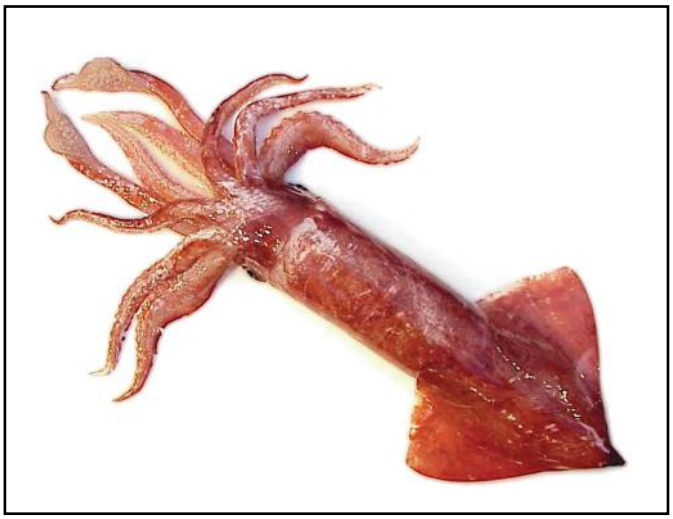
The system design has recently been upgraded with improved HBOI technology and MSI piezocomposite sensors to further enhance its ability to detect and protect manatees. The new system is being installed at the Canaveral Lock by Underwater Engineering Services, Inc. (UESI) of Fort Pierce, Fl. with funding from the U.S. Army Corps of Engineers. Additional locks will be upgraded over the next several months.

Rick Foster, MSI's Director of Business Development, sees the utilization of MSI's sensors for this project as an innovative use of government funded technology: "It is gratifying to see MSI's piezocomposite sonar technology, originally developed for the U.S. Navy to detect underwater threats, being successfully transitioned and employed to help save an endangered species.

Founded in 1991, MSI develops and manufactures custom sonar transducers and arrays using its injection molded piezocomposite material. MSI's transducers and arrays offer wide bandwidth and can be easily curved. The company's core strength lies in its ability to understand customers' sophisticated requirements and to provide solutions that integrate innovative designs with high or low volume manufacturing.

For more information, visit www.matsysinc.com.

More Firsts for Oceanscience and the UnderwayCTD



Word of the UnderwayCTD system from The Oceanscience Group is spreading rapidly, according to the San Diego, Ca.-based company. As part of this expanding world-wide recognition of the revolutionary profiler, the first UnderwayCTD destined for India is headed to the Central Marine Fisheries Research Institute (CMFRI) in Kochi. The UnderwayCTD will be used for habitat mapping of oceanic squid in the Arabian Sea for a project to help better utilize these fast-growing but distant water fishery resources. According to the Oceanscience representative for India, Rommel Coelho of Woods Hole Engineers and Consultants, "The fisheries researchers wanted the flexibility of performing very fast CTD profiling of the upper 200 m of the water column without a significant equipment or vessel infrastructure investment. The UnderwayCTD is flexible enough to be installed on several potential survey vessels as required".

For more information, visit www.oceanscience.com.

DNV developing new offshore standard for floating wind turbine structures
In order to support faster progress in the offshore floating wind industry, DNV and key players are developing a common design standard. The conclusions from this joint industry project will provide best practices on principles and technical requirements and guidance for design, construction, and in-service inspection work. Floating wind turbines introduce new risks and technological challenges related to stability, station keeping, power transmission, and structural strength. In addition, economic aspects are likely to be challenging in the early phases. One barrier to the growth and development of this industry has been the lack of a design standard," explains Johan Sandberg, the business development leader for wind at DNV. A lot will be learned from the traditional offshore industry.

Verdant power grid license
New York-based Verdant Power has filed an application with the Federal Energy Regulatory Commission (FERC) that would allow the company to install up to 30 new tidal power turbines in the East Channel of the East River in New York. If approved, the project would be the first tidal power plant in the U.S. licensed to transmit energy onto the national grid. The license application has been submitted under FERC's Hydrokinetic Pilot Project Licensing Procedures, established to allow for the advancement of U.S. hydrokinetic technologies (tidal, river, wave power), while maintaining FERC oversight and agency input.

SNM unveils wave power technologies
SNM Global Holdings (pinksheets:SNMN) announced the official unveiling and launch of seven additional hydrokinetic wave power development technologies under its recently announced Small & Micro Hydro Technology Development Initiative. These wave power technologies address the issue of harvesting wave and tidal power and converting it efficiently and cost effectively into mechanical energy through innovative design, engineering, and application of proven principles, thereby providing redundant energy supplies in a wide variety of applications, particularly adaptable as solutions for emerging markets.

Neptune ready for commercial deployment
Neptune Renewable Energy Ltd (NREL) announced that it has successfully completed a series of rigorous in-water tests on the multi-million pound, full-scale demonstrator of its world-leading Proteus NP1000 tidal stream power generator prior to the device's operational deployment in the Humber Estuary at Hull, England. Weighing more than 150 tonnes and measuring 20 m in length with a beam of 14 m, the Proteus NP1000 consists of steel buoyancy hulls, a vertically mounted turbine with a 6 x 6-meter rotor, and computer controlled flow vanes within a Venturi duct. Neptune's engineers believe that the Proteus NP1000 will be able generate at least 1,000 MWh/year.

Aquamarine Power Attracts £11 Million in Investment Support

Wave energy developer Aquamarine Power took a major step towards the commercialization of their Oyster technology with the announcement in late 2010 of £11 million new investment in the company.

The new funds comprise £8 million from ABB, one of the world's leading power and automation technology companies, and £3 million from Aquamarine Power's existing shareholders, which include SSE Venture Capital, the ventures unit of Scottish and Southern Energy.

"This is a game-changing moment for our company and for the UK's marine energy industry," says Aquamarine Power CEO Martin McAdam. "ABB is a global leader in power and automation technologies, and they have taken a strategic decision to invest in Oyster technology. Through working together ABB will gain an early-mover advantage in our wave energy technology, whilst we will be able to access ABB's technical, research, and engineering expertise and utilize their global supply chain network.

The investment in Aquamarine Power was made by ABB Group's technology investment arm, ABB Technology Ventures. ABB is a Swiss-Swedish multinational corporation headquartered in Zurich, Switzerland. It specializes in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in approximately 100 countries and employs about 117,000 people.

Ian Marchant, Chief Executive of SSE, said: "Wave energy can play a very important part in meeting our electricity needs over the long term. Aquamarine Power is playing a pivotal role in the development of the technology, and this latest investment by SSE is confirmation of our belief in the potential of wave energy and in the ability of Aquamarine Power to fulfill it."

For more information, visit www.aquamarinepower.com.

Positioning offshore energy projects using Easytrak

One of the latest renewable energy sources currently being investigated for future large-scale commercial deployment is tidal energy that exploits the natural ebb and flow of coastal tidal waters. As with other energy sources offshore, innovations to harness tidal forces often present additional operational difficulties, particularly with positioning of the devices on the ocean floor and their connections to shore.

One such company experienced in hydrographic/seabed survey and recently involved in the installation and testing of a tidal energy test rig off the Orkney Isles in Scotland is local survey company Triscom Marine Ltd. A specialist in subsea positioning techniques pioneered in the offshore oil and gas construction, Triscom has recently added the latest USBL positioning system, the Applied Acoustics' Easytrak Nexus, to its equipment pool to meet the increasing requirement for accurate underwater positioning tasks.

"We were required to inspect some subsea cabling in the area of a massive OpenHydro tidal turbine off the island of Eday in Orkney," stated Tristan Thorne the Senior Surveyor, "because it was important to know what was happening in the deep inlet where surges of water are funnelled along a particular channel. As the turbine is mounted on the seabed, deep enough not to interfere with shipping traffic, its positioning is critical, as are the cables in the vicinity that lead to shore."

"Easytrak Nexus is generally impressive," stated Tris, "We mount the system's transceiver on a pole aboard our survey vessel and track the ROVs, divers, sonars, crane hooks, and virtually anything underwater with a high degree of accuracy."

The Easytrak Nexus is the latest generation of USBL tracking systems from Applied Acoustics that has Spread Spectrum Technology incorporated into it to improve the accuracy of positioning information. This technology also rejects unwanted reflected signals that have made operations in challenging locations such as ports and harbours difficult in the past. It is a rack-mounted system with a built-in PC that displays positioning information on a separate monitor where the activity of up to 10 subsea targets within a specified operating area can be viewed.

For more information, visit www.appliedacoustics.com.

BMT Nigel Gee to design and develop four new wind farm support catamarans

BMT Nigel Gee Ltd, a subsidiary of BMT Group Ltd, the leading international maritime design, engineering and risk management consultancy, announces that it has signed a design and development contract for the construction of an initial batch of four Wind Farm Support Catamarans to be built by VeKa Shipbuilding BV at their yard in Jongert for operation by SeaZip Offshore Service BV.

SeaZip Offshore Service BV is a Dutch company founded in 2010 by the shipping entrepreneurs J.R. Arends and S. D. Schakelaar to focus on the development and operation of specialized vessels for the Offshore Renewable Industry in European waters. SeaZip has identified the need for a new design of Wind Farms Support vessel to service their target market and selected BMT as the world's leading independent designer of catamarans to undertake the design in conjunction with VeKa.

Developed from BMT's range of Turbine Support Vessels the SeaZip catamarans will be 19.5 m in length with a beam of 7 m powered by two 720 kW MTU diesel engines via waterjets to achieve a service speed of 24 knots and a range of 300 nm. The design has been specifically configured to meet SeaZip's requirement to carry 12 passengers and enable the vessels to carry a combination of up to three standard 10-ft. ISO containers, one aft and two forward. The ISO containers will carry the necessary supplies and equipment for the offshore servicing tasks. In addition, the foredeck layout has

been expressly configured to incorporate the new Turbine Access System (TAS) being developed by BMT and Houlder to provide safer access to the turbine structures.

Construction of the four vessels has commenced at the Jongert shipyard in the Netherlands, with BMT providing a full production design service including cut part information. The first vessel will be delivered to SeaZip by mid 2011.

For more information, visit www.ngal.co.uk.

Aquamarine Power awards £4M Oyster 2 contract to Burntisland Fabrications

Wave energy developer Aquamarine Power announced its next-generation Oyster wave energy device is to be built in Scotland by leading fabrication contractor Burntisland Fabrications Ltd ("BiFab").

The £4 million contract will see the first next-generation Oyster device – known as Oyster 2 – fabricated over the next six months at BiFab's manufacturing plant at Methil on the Firth of Forth in Scotland. Installation of the device will then begin at the European Marine Energy Centre (EMEC) near Stromness in Orkney in summer 2011.

2035 - U.S. grid to rely more on renewable energy, natural gas

Renewable energy and natural gas will provide a growing share of U.S. electricity over the next quarter century, according to DOE's Energy Information Administration (EIA). The "business as usual" reference case for the EIA's Annual Energy Outlook 2011, released on December 16, finds that non-hydropower renewable energy resources and natural gas are the fastest-growing sources of electricity in the coming decades. This would cause renewable energy's share of U.S. power production to increase from 10% in 2009 to 14% in 2035, while the share for natural gas increases from 23% to 25%.

Nuclear power production stays flat as the demand grows, causing its share to drop from 20% to 17%, while coal loses its share but continues to dominate U.S. power production, dropping from a 45% share in 2009 to 43% in 2035.

The EIA projection attributes the growth in renewable energy use to federal tax credits in the near term and to state requirements in the long term, while low commodity prices and relatively low capital costs favor a growth in power production from natural gas.

EPA, Corps of Engineers grant permits for cape wind project

The U.S. Environmental Protection Agency (EPA) approved the Cape Wind Project 24 hours after the U.S. Army Corps of Engineers issued Cape Wind a permit, Cape Wind officials announced. These steps complete federal permitting for the proposed 130-turbine offshore wind farm in Nantucket Sound, Massachusetts. Various federal, state, and local agencies have participated in the environmental review process.

The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)—an arm of the U.S. Department of the Interior (DOI) and the lead federal agency in the environmental review—issued its record of decision in April 2010 favoring the project. In November, the Massachusetts Department of Public Utilities approved a 15-year power purchase agreement with National Grid to buy 50% of Cape Wind's energy, capacity, and renewable energy credits.

Proven reliability in tough conditions

Just off the coast of the Orkney Islands, British wave power company, Aquamarine Power Ltd. (www.aquamarinepower.com), is due to install the latest version of its wave energy capture system, Oyster 2.

Aquamarine Power will install control and instrumentation systems from MacArtney on their 3-linked wave energy converters, or WECs. Due for delivery in early 2011, the data acquisition and handling system and the control and instrumentation system will interface with their onshore SCADA system and provide the monitoring station with a range of data from monitors installed on the underwater equipment.

High-speed multiplexers offshore and onshore ensure rapid data transfer from MacArtney-supplied sensors, including proximity, inclinometer, hydrophone and camera data, via a fiber optic link in the control umbilical.

This prestigious contract award was won by MacArtney in late 2010, and deliveries will begin in early 2011.

For more information, visit www.macartney.com.

Ten EU countries sign up for North Sea offshore grid

Ten European Union (EU) nations signed a memorandum of understanding (MOU) on December 3 to develop an offshore energy grid linking renewable wind energy sources in the North Sea. The 10 countries—Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden, and the United Kingdom—committed to work together to identify and overcome the regulatory, legal, market, planning, and technical issues involved in creating a North Sea grid. The grid, targeted to begin operating by 2020, is designed to allow the countries to share electricity among the British Isles and mainland Europe.

Already, the ISLES project (Irish-Scottish Links on Energy Study) is assessing the possibility of connecting Scotland, Northern Ireland, and the Republic of Ireland in an Irish Sea and Atlantic coast grid. The new MOU calls for, among other things, an assessment of technical considerations through 2030 to be delivered by June 2011. Scotland's Energy Minister Jim Mather hailed the EU initiative because it will draw upon the ISLES work in overcoming challenges of a sub-sea grid.

The Electric Power Research Institute (EPRI) announces two executive appointments

Effective January 1, 2011, Mark McGranaghan will become vice president of power delivery and utilization, and C. Thomas Alley, Jr., will be vice president of generation.

McGranaghan will serve as EPRI's executive responsible for research, development and demonstration programs related to electricity transmission, distribution, energy efficiency and electric transportation. Prior to joining EPRI, he was vice president of the EPRI subsidiary EPRI Solutions.

Alley will oversee research, development, and demonstration programs related to fossil generation, including advanced generation technologies, carbon capture and storage, major component reliability and operations, and maintenance. Previously, he directed research and demonstration programs on advanced coal generation and emissions technologies.

Van Oord has completed the Belwind Phase I Offshore Wind Farm off the coast of Belgium

The Belwind Phase I Offshore Wind Farm was completed in the record time of 15 months and will now provide 175,000 households with green energy. Van Oord was responsible for the design and construction of all of the foundations, the complete electrical infrastructure, and the connection to the onshore grid.

The Belwind Phase I Offshore Wind Farm includes 55 wind turbines and one offshore high-voltage station. The farm is located approximately 50 km off the coast of Belgium, in waters ranging from 15 to 32 m deep. Belwind Phase I is the furthest operational offshore wind farm in the world to date. Project execution began in August 2009.

In February 2010, the 56 foundations, consisting of monopiles weighing 400 tonnes each and transition pieces weighing 160 tonnes each, were successfully installed. Between April and August 2010, the 55 Vestas V90 wind turbines, each capable of producing a maximum power output of 3 MW, were installed on the foundations.

Van Oord has also commissioned the construction of a transport and installation vessel for constructing offshore wind farms. The vessel will be constructed at the Sietas shipyard in Hamburg, Germany.

The extremely innovative and advanced transport and installation vessel to be built for constructing offshore wind farms will be 139 m long, 38 m wide, with a designed draught of 5.7 m and a top speed of 12 knots. The vessel will be fitted with a crane capable of hoisting 900 tonnes and accommodation for 74 people. The vessel will be delivered in September 2012.

For the past few decades, Van Oord has been involved with the construction of various offshore wind farms in the North Sea, sometimes as a contractor for parts of farms and sometimes as an EPC (Engineering, Procurement, Construction) contractor. Belwind is Van Oord's second EPC contract in the offshore wind farm industry. In 2007, Van Oord successfully completed the Princess Amalia wind farm off the coast of IJmuiden, the Netherlands.

For more information, visit www.vanoord.com/gb-en/.

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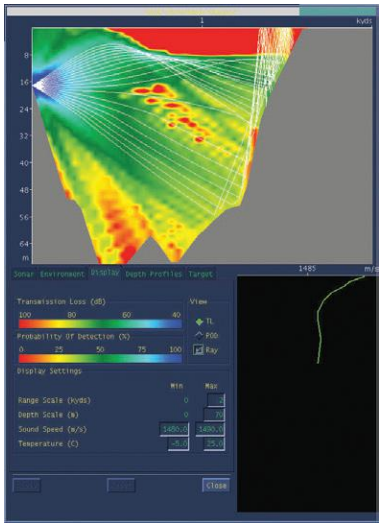
US Navy awards multi-vessel LCS contract
The U.S. division of Australian-headquartered Austal has been awarded a U.S. Navy contract to construct one Independence Class Littoral Combat Ship (LCS). The total value of the contract is US$432.1 million. The contract includes options for nine additional vessels in the following five years. Austal will immediately commence preparation work, including a US$140 million facility expansion and workforce development that will take approximately 12 months to complete. Construction of the first LCS vessel will commence in early 2012 and is scheduled for delivery in 2015. The aluminum warships will be built at Austal's U.S. shipyard in Mobile, Ala. and will more than double Austal's U.S. workforce to around 3,800 employees.

5th USCG national security cutter
The Coast Guard announced January 19 that it had exercised an $89 million contract option with Northrop Grumman to begin buying major parts and materials for the construction of its fifth national security cutter. The service plans to build eight NSCs, which will replace the aged high endurance cutters. The option was part of the construction contract for the fourth NSC signed in November 2010. Northrop will build the cutter at its shipyard in Pascagoula, Ms., where the Bertholf and Waesche were constructed and where Stratton is nearing completion. Stratton should enter service in the late this year and NSC 4 in fiscal 2014.

Pirates getting smarter
According to NATO, Somali pirates' use of "mother ships" to attack their prey is complicating foreign navies' efforts to improve safety in the Indian Ocean. Somalia's expanding army of pirates are increasingly launching their attacks from large, already hijacked vessels that offer greater physical protection during boarding and whose kidnapped crews act as human shields. Somali pirates were currently holding 28 ships and 654 crew members. Ecoterra International, an environmental and human rights NGO monitoring maritime activity in the region, says at least 45 foreign vessels have been hijacked and 800 seamen held hostage.

Turkish RMK launches 2nd Coast Guard ship
Turkish shipyard RMK Marine has put the second Coast Guard search-and-rescue ship to sea, denoting critical progress in a $480 million) program. TCSG Guven is the second in a program that involves the production of four ships. RMK Marine had earlier launched the TCSG Dost, and that ship started sea trials last month. The Dost will be delivered to Turkey's Coast Guard Command this year and the delivery of all four ships will be completed in 2012, the company said.

Kongsberg Mesotech announces DEFENDER III™ sonar processing



DEFENDER III™ is a complete wide band sonar signal processing, detection, tracking and classification, fusion, and display unit developed and manufactured by Kongsberg Defence Systems for use with Kongsberg Mesotech Ltd. Diver Detection Sonars, DDS 9000/1.

The development was done based on proven and up-to-date technology. Kongsberg Defence Systems' MSI (Multi-Sensor Integration) software for autonomous detection tracking and classification (ADTC) has been developed over the past 30 years, in collaboration with NATO acoustic experts. The MSI™ software is truly unique in applying data fusion capabilities to diver detection. The capability to combine data from different sensor types as well as data from multiple sensors exceeds basic multistatic capability provided by earlier generation systems.

Kongsberg's C-Scope™ software provides the merged georeferenced tactical display. C-Scope™ has been employed over the past 30 plus years as the system architecture for over 200 vessel traffic management installations as well as a number of naval and civilian security installations.

Kongsberg Mesotech Ltd. is the leader in development of diver detection sonar and has been delivering diver detection sonar for a decade. The current Kongsberg DDS 9000™ sonar based on the tried-and-proven SM 2000 sonar design has evolved into a "MOTS" or militarized off-the-shelf version based on the requirements of our military customers.

This development also signals a move from Windows™-based PCs to LINUX-based open architecture using servers. The advantages to military clients are a solid development history or "pedigree" and proven hardware effectiveness and reliability. LINUX provides a secure, low-maintenance, reliable, predictable, and reproducible environment. Navies will be able to maintain programs more easily over operational lifetimes with the architecture of DEFENDER III™.

On the computer hardware side, the use of blade server processing hardware improves reliability and serviceability, reducing downtime and simplifying upgrades. A ruggedized laptop serves

as the operator console, providing a simple, reliable human machine interface (HMI). Ruggedized, approved laptops can serve as MOTS replacements. This combined development has truly taken underwater surveillance to higher levels of capability and reliability.

The system detects targets, divers, and swimmers, in designated areas within a port environment using high-frequency sonar. Once identified and tracked, targets are classified and direction of travel predicted. The autonomous detection tracking and classification software developed by Kongsberg distinguishes between divers and marine life such as often-present seals or dolphins, which are of similar size and speed to human divers. The target icons and tracks are displayed on operator's screens with NATO STANAG icons as a standard. Divers are classified as threats within operator-specified alert zones and announced with audio and visual alarms. Target data can be exported to other equipment for confirmation or interdiction.

DEFENDER III™ also provides a far higher level of operator support and analysis capability than seen on earlier generations. Support systems include Sonar Performance Analysis, System Status, and Sonar Performance Analysis. Individual track data can be examined in greater detail to aid in confirmation or elimination of targets as potential threats. The System Status window reports overall conditions and text descriptions for different parts of the system. Different access levels are provided for the control of system parameters. Sonar Performance Analysis enables operators to maximize sonar detection capability by modeling performance under current environmental conditions. The effect of altering settings to cope with changing environmental conditions can be evaluated and then implemented.

U.S. Navy acquires latest generation MCM software

The US Military has acquired six upgraded licences of the latest underwater situational awareness technology for supporting Clearance Diving and Mine Countermeasures (MCM) Forces. The software, known as SeeTrack Military or COIN (Common Operator Interface Navy – specifically tailored for the U.S. Navy EOD), was developed by Scottish-based software company, SeeByte.

The newest version comes with two modules — Performance Analysis Training Tool (PATT) and Automated Target Recognition (ATR) using computer-aided detection and computer-aided classification (CAD/CAC) components. They are designed to provide a higher level of awareness, accuracy, and confidence within the context of the individual systems' sortie and overall MCM Mission. The modules are visualized in the current COIN and SeeTrack Military software, originally developed by SeeByte specifically for U.S. Navy EOD Forces, but now deployed in 10 NATO and NATO-friendly nations' navies.

The ATR module uses CAD/CAC to detect specific regions in side-scan sonar data that potentially correspond to an object previously learned by the system. Multiple CAD detectors identify and discriminate objects several times, providing better accuracy in mine detection. Obvious false alarms are removed by the CAC component, creating an accurate map of contacts for operators to examine within the surveyed area. The new module is also being used as an engine to run third-party CAD/CAC algorithms.

PATT allows users to add synthetic but highly realistic images of objects to real mission data, providing a clear understanding of the actual performance of the MCM system and sensors in use. ATR algorithms, MCM systems, and operators can utilize PATT to train and analyze performance and segment the mission area in a visual layer based upon the region's seafloor complexity and mine-huntability.

Todd Webber, of Space and Naval Warfare Systems Center, PACIFIC, commented that "successfully integrating these two new modules into COIN and SeeTrack Military will bring new efficiencies to the way we operate. Speedier and smarter decisions, enabled by the intuitive assistance provided by PATT and ATR, will significantly enhance the timeliness and effectiveness of our operations.

For more information, visit www.seebyte.com.

Pirate activity reaches new high

A big shift is taking place in the rate of piracy in the Gulf of Aden, Indian Ocean and off the east coast of Africa. Drum Cussac, one of the world's leading anti-piracy and maritime security consultancy firms says, that over the past three months (September to November 2010) piracy activity in the Gulf of Aden has dropped dramatically, while activity in the Indian Ocean and along the east coast of Africa have collectively increased nearly 60 % – reaching an all-time high.

"Just in the last couple of weeks, we have seen numerous Pirate Action Groups operating in the northern Somali Basin," said David Pickard, head of maritime at Drum Cussac. "This means ship operators in the region may need to consider adjusting their routes and tactics accordingly," he said.

Drum Cussac's Automated Piracy Threat Assessment System (APTAS) is a critical tool for analysing, reporting, and making these types of strategic assessments. It enables users to create shipping routes throughout the world by balancing their risk tolerances against known threats and available mitigation measures.

Low-risk routes are developed from detailed information and maps generated by APTAS that show users exactly where pirate attacks are occurring, areas of current threat, pirate action group activity and other critical information.

However, even once a route is set, a piracy incident in proximity to any point along the route could change its risk level at any time. When this occurs, APTAS automatically provides users with details on the incident – giving the captain and ship operators an opportunity to modify their route and/or implement appropriate mitigation strategies.

"The increase of incidents outside of the Gulf of Aden can be partially attributed to the transitioning monsoon seasons and the resulting calmer seas," Pickard said. "But, as military efforts and tactics within the Gulf of Aden become more effective, the pirates appear to be seeking out less risky targets in the Indian Ocean and along the East African Coast where military response can be slower."

"Even as the number of incidents is on the rise with the improving weather conditions, the year-over-year data are showing us that robust and effective counter-piracy measures are proving effective in lowering attack success rates," Pickard said. "Having access to piracy incident information both before and during a voyage is a critical part of those measures, as is the effective use of the Best Management

Practices (BMP) outlined in the BMP document disseminated by coalition forces."

For more information, visit www.drum-cussac.com.

HarborGuard® selected for dam

L-3 Klein is pleased to announce that its HarborGuard® Radar System has been selected as a key security component for a critical Western U.S. dam. The L-3 Klein HarborGuard® will include a Klein's Small Target Detection Radar that will provide continuous coverage for dams and lakes and monitor all surface targets, with special attention focused on the security zones protecting critical structures. The L-3 Klein HarborGuard® system will provide immediate alerts as well as updated threat positions to a central Security Management System.

Radar coverage of dams and critical lakes poses a unique challenge because of the dramatic changes in water levels. In some dams, water levels can vary up to 75 ft. Systems using narrow, focused radar beams require constant mechanical and electrical adjustments to compensate for any water level changes; however, the L-3 Klein HarborGuard® system, with its wide vertical fan-beam pattern radar, is virtually unaffected by these changes in water levels. This is one of the primary reasons L-3 Klein's integrated Waterside Security System was selected as the Maritime Awareness solution.

For more information, visit www.L-3Klein.com.

OceanServer completes AUV delivery to Navy and awarded 5th

OceanServer Technology announced that it recently delivered two lightweight multibeam sonar equipped AUVs to the Navy Special Warfare(NSW) Command. These AUVs were competitively procured and operationally tested prior to delivery to the NSW Command at the Stennis Space Center in September of 2010. Additionally, the Office of Naval Research (ONR) has contracted with OTI for a third vehicle to be delivered in December 2011.

This is the fifth such award to OceanServer Technology (OTI) over the past three years and represents the most sophisticated vehicle developed by OTI to date. Fully equipped with side scan sonar, DVL ADCP, CTD sensor, and multi-beam

imaging sonar, the lightweight Iver is the industry leader in man-portable AUV systems. The NSW Command anticipates operationally deploying the vehicles early in CY 2012.

The Iver Platform

All Iver2 AUV models come standard with OceanServer's VectorMap Mission Planning and Data Presentation tool, which provides geo-registered data files that can be easily exported to other software analysis tools. The VectorMap program can input NOAA ENCs or any geo-referenced charts, maps, or photo images, allowing the operator to intuitively develop AUV missions using simple point-and-click navigation.

For more information, visit www.ocean-server.com.

Product Focus

Insulation technology enables cold protection at 1,000 feet below

By James Vultaggio, Vice President of Engineering Products, Trelleborg Offshore

James Vultaggio, Vice President of Engineered Products at Trelleborg Offshore in Houston, looks at the latest developments in syntactic foam insulation. These new developments have enabled diving bell manufacturer Unique System LLC to offer improved safety, easier operation and better working conditions at extreme depths with the first use of syntactic foam for diving bell insulation.

Saturation diving is a key task in the offshore subsea industry. Engineers are continually developing systems to improve the working and living conditions for the divers as well as reducing the health and safety demands.

Extensive advances have been made in many essential areas such as breathing gases, live aboard comfort and medical monitoring. Many of these innovations focus on the hyperbaric, live aboard chambers on the support vessel deck.

New insulation technology developments are making a contribution to improve operational and working conditions at the business end of the saturation diving system, the diving bell itself.

Meeting extreme demands

The diving bell is, of course, operating under the most extreme conditions. It must offer the best possible combination of both protection and operational effectiveness when it is remotely deployed from the support ship.

Insulation is required primarily to provide thermal protection for the interior of the bell. However, the inherent buoyancy of foam means that it can affect the subsea weight of the module and the effective use of lifting and lowering systems. Accurate data for the buoyancy can assist the deployment operation of the bell.

Traditional standard resin insulation foams can be crushed by the depths at which the diving bells operate, changing and even destroying buoyancy; the extremes of saturation diving can be at 1,000 ft. (300 m). To resist the pressure and offer buoyancy, the offshore industry has developed syntactic materials, in which high strength glass microspheres are contained in a rigid matrix. In addition to providing buoyancy, these small bubbles also enhance insulation properties.

Properly specified, syntactic systems have been developed and verified to offer buoyancy down to 23,000 ft. (7,000 m).

Maintaining integrity under pressure

Considering the integrity of the foam is vital. Water ingress must be eliminated at all costs, otherwise the buoyancy can degrade and the thermal insulation performance will worsen over time. Reduced insulation performance can mean an expensive diving bell is less suitable for extreme depth use.

For improvements in insulation for a new generation of diving bells, specifically protecting divers from the cold while in the bell, manufacturer Unique LLC consulted Trelleborg Offshore to development an innovative syntactic foam insulation solution.

"The engineered Trelleborg syntactic foam insulation, and the company's 3D modelling design capabilities, provides us with high accuracy thermal and buoyancy properties," comments Jim Williamson, General Manager, Unique System LLC. "This enables us to predict the thermal insulation thickness required, and the uplift of the bell for accurate system buoyancy control.

"The performance of previous insulation systems used was more difficult to predict. It was also susceptible to damage and water ingress, which could affect the thermal and buoyancy properties. In contrast, the Trelleborg polyurethane-based material has a high impact resistance and is totally impervious to water ingress under pressure. It is designed to eliminate any requirement for maintenance, so that life cycle costs are minimized."

In-depth requirements

The Unique System diving bell is designed as a submersible decompression chamber for a three-man saturation diving team. It transports them from a ship's live-in hyperbaric chamber down to working depths with typical sea temperatures of between 9°C and 20°C (45°F and 65°F). Typical subsea tasks include pipeline repair, maintenance and inspection, cable maintenance, platform installation and removal.

The diving bell, which has a total volume of 5.5 m^3 (194 cu.ft), is configured to include a bottom man-way measuring 800 mm (31.5 in.), as well as an external bottom man-way hatch, also measuring 800 mm. The bell features strategically positioned view ports to provide maximum natural light to the interior. The ports are protected with a perspex cover plate to the interior and exterior of the bell, providing impact resistance.

The interior of the diving bell includes stainless fold-up seats for each of the diving team members. The seats are designed to support a fully dressed diver and to provide optimal comfort and support for the diving team during all phases of the bell run. Small storage shelves and hooks are also provided within the bell and stainless steel standoffs are welded around the circumference of the shell, these can also be used for additional shelving.

The Heliox (Helium/ Oxygen) breathing mixture, for the diving bell atmosphere is supplied via an umbilical from the support ship. Heliox has a higher thermal conductivity than air, so good thermal insulation is essential for the divers comfort. As dive times in the bell are often 10 to 12 hours, and the divers remain under saturation conditions for up to 30 days, their wellbeing is critical to mission success.

Trident™ environmentally safer development

Trelleborg used its new Trident™ Insulation system, which is based on BASF's ZEROHg™ glass syntactic polyurethane foam technology. Trident™ has been developed in a strategic alliance with BASF Polyurethane Solutions as the next generation of glass syntactic polyurethane for subsea structure insulation.

A principle concern with standard marine grade polyurethane is the use of mercury containing catalysts. Reduction of the accumulation of mercury in the marine environment and food chain has been a priority for several decades, and Trident with ZEROHg is a major step forward.

In addition, Trident™ offers superior temperature resistance when compared to standard marine grade elastomers. This ensures it can be used in a wide number of applications, as well as helping to maintain its performance over time, when subjected to temperature stress.

Trident™ has a depth rating of 3,000 m (9,842 ft.) with a hydrostatic crush pressure rating of 330 bar (4,800 psi), offering an excellent depth capability for today's offshore operations. The thermal conductivity of 0.161 W/mK (0.093 Btu/fthF) provides excellent insulation, the hardness of 93 Shore A ensures good impact protection and the density of 850 kg/m^3 (53 lb/cu.ft.) is suitable for a wide range of insulation applications.

Application success

Key to the successful use of Trident™ insulation for the diving bell was its application to the metal shell of the bell. Despite the size, shape and construction technique of the bell, with openings and protrusions, it was essential that the material pour was completed in a single operation.

The single-pour technique was necessary to eliminate the possibility of any discontinuities or interface joints in the insulation structure, ensure consistency and prevent water ingress into the material when under pressure at depth. Water ingress could affect the system's thermal properties and integrity of the exterior coating of the diving bell.

Trelleborg engineers developed an innovative new pour method for an application of this size and complexity. The capability for achieving this size of mix, pour and application was achieved through a combination of considerable investment in systems and equipment and 30 years' experience in offshore buoyancy and protection manufacture.

The BASF polyurethane base is supplied to Trelleborg with a long gel time so that the large surface area of the bell can be thoroughly coated. In addition, the polymer mix has been specifically formulated to reduce water absorption into the polyurethane during use.

One concern in the insulation application procedure was maintaining the integrity of the glass microspheres in the mix. Trelleborg engineers therefore designed special mixing and dispensing nozzles to avoid crush damage to the microspheres, ensuring the material retains its integrity and performance.

Strong shell construction

The underlying construction of the bell provides its core strength, which allows the safe transport of divers, equipment and breathing apparatus while offering protection from the changes in pressure, temperature and the effects of currents and even storms.

The diving bell shell is constructed of ABS approved carbon steel, welded in carefully designed sections; the total weight of the insulation poured around the shell was 1300 lb. (600 kg). This project marks the first time Trident™ insulation with BASF ZEROHg™ polymer technology has been used in a custom coating operation. It is also the first diving bell to be insulated using glass syntactic polyurethane foam and represents a significant advance in diver safety and reduced operating costs.

Success on several fronts

In this project, several needs were combined: improved diving bell insulation for Unique System LLC, more environmentally friendly syntactic polyurethane insulation systems from BASF and better process techniques for one lift/one-pour insulation applications on a very large and complex object from Trelleborg Offshore.

As a result, the development of improved diving bells has gone hand-in-hand with advances in insulation technology benefiting a far greater spectrum of offshore and subsea applications. Collaborative development successes of this kind are a clear demonstration of the benefits of cross-fertilization of ideas and disciplines.

For more information regarding Trelleborg Offshore thermal insulation solutions for all offshore and subsea markets, contact James Vultaggio, +18324568343 Mobile: +12817851241; James.Vultaggio@trelleborg.com or visit www.trelleborg.com/offshore.

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OFFSHORE INDUSTRY

Oil company talent pool is shrinking

Oil companies face a dwindling pool of engineers and other technical staff needed for exploration and production. The number of young recruits hired to replace aging petroleum engineers has declined over the last 10 years, as many college graduates choose managerial positions over engineering jobs and other field assignments, according to Andrew Gould, chairman and chief executive officer of Schlumberger Ltd., the world's largest oilfield service company. "The talent gap is still a factor that limits the expansion of the oil and gas exploration industry," he said. Many young people believe exploration for oil and natural gas is a dying business, Gould said.

Andrew Gould

Fluor development voted top project

Fluor's Bohai Phase II Development Project was named by Platts as its Engineering Project of the Year in the Premier Projects category. The project, located off China's coast, was the sole unanimous selection of the 17 winners and more than 150 finalists. Jointly owned by ConocoPhillips and China National Offshore Oil Corp., the project is located 140 miles offshore in Bohai Bay and included the development of an oil field with a capacity of 190,000 barrels per day of oil production. The floating production, storage, and offloading vessel (FPSO) measures more than 320 meters long and can store two million barrels.

Disputes threaten Arctic exploration

Large-scale exploitation projects will no longer be feasible in Arctic waters if nations continue to argue over maritime boundaries, according to an industry analyst. Ove Gudmestad, professor of Marine and Arctic Technology at the University of Stravanger in Norway, stressed that geopolitical disputes "still pose a barrier" to future projects. "If people are willing to cooperate, then large-scale projects will go ahead, but there is a trust issue between politicians and oil and gas companies," Gudmestad said. The Arctic Sea region has long been a subject of dispute. Canada, Denmark, Russia, and Norway all regard the area as national waters, whereas the U.S. and EU regard it as international. A dispute over how the U.S. and Canada should define their maritime boundaries has caused a major obstacle for offshore projects since the 1970s. Gudmestad added that oil spill lawsuits are still being dragged through the courts until "those who suffer have passed away. If this carries on, there will be no offshore projects."

GoM likely to fully recover from spill

The long-term impact of the U.S. Gulf Coast disaster could be relatively minor, and the Gulf of Mexico is likely to fully recover from the April 2010 oil spill, the government-appointed compensation chief said. Speaking to USA TODAY's editorial board in a year-end interview, Ken Feinberg said his optimistic prediction is based on opinions the government has solicited from experts. "We're asking everybody right now, scientists, biologists, (to) give us your best estimate ... of the status of the Gulf," Feinberg said. "We're hearing right now, not much long-term adverse impact."

BP to challenge oil spill estimates

BP is preparing to challenge the government's estimates that its damaged Macondo well gushed 4.9 million barrels of oil into the Gulf of Mexico this summer — and instead is poised to argue that as little as half that amount ultimately flowed into the sea, according to the presidential commission investigating the Deepwater Horizon disaster. Because the amount of dumped oil is linked to the fines BP could be forced to pay under the Clean Water Act, a 50% smaller number could shrink the company's final bill by as much as $10.5 billion.

Energy Partners buys shelf assets

Energy Partners, Ltd. executed a purchase and sale agreement to acquire producing oil and natural gas assets in the shallow-water central Gulf of Mexico shelf from Anglo-Suisse Offshore Partners, LLC for $201.5 million. The assets are producing about 3,000 net barrels of oil equivalent per day, about 92% of which is oil. The assets are located in Main Pass, South Pass, and West Delta.

Strong demand for offshore service vessels signals growing market

Offshore service vessels (OSV) are becoming larger, more specialized, and technically sophisticated as a result of the rising demand for more complex deepwater field developments, including the Gulf of Mexico.

Currently, there are some 2,500 OSVs worldwide, with a steady growth projected from now until 2020. All this has led to an expanded definition of OSV, which refers to "not only traditional supply boats, but also anchor handling tug-supply ships, well stimulation ships, and standby ships and even those built to carry hazardous and noxious substances, to fight fires, or to occasionally recover oil," Stephen Gumpel, area manager of North and Central America at GL, explained.

Oceaneering's service vessel Performer

Aside from the traditional uses of OSVs in the maritime and oil and gas industries, interest in OSVs is rising exponentially in the growing offshore wind industry.

European offshore wind parks will create a demand for 15 to 20 installation ships, an additional 40 to 50 installation ships will be needed as China and the U.S. enter this market.

These vessels will require 200 to 300 service craft, such as crew supply and service and maintenance vessels.

Currently, GL is supervising several OSV newbuilding and re-building projects, including self-elevating units for wind turbine installation purposes, anchor handlers, cable-laying barges and vessels, and various supply and maintenance vessels, and is already involved in more than 18 wind installation and maintenance newbuilding projects.

Oil, gas facility costs are on the rise

The costs of building and operating oil and gas exploration and production facilities are on the rise again after falling last year in what could be a sign of renewed strength in the sector, according to a study released by IHS-Cambridge Energy Research Associates. Over the last six months, costs related to the construction of new facilities increased 3%, while operating costs inched up 1% in indicies created by the Massachusetts-based research and consulting firm. The gains suggest a modest rebound in oil and gas activities worldwide, despite continued setbacks in the Gulf of Mexico following the Deepwater Horizon rig accident last April, Daniel Yergin, IHS CERA chairman and author of the Pulitzer Prize-winning book, The Prize, said in a statement. "While the oil spill in the U.S. Gulf and the resulting moratorium has had significant impact on that region, its ramifications have, thus far, shown little impact on deepwater activity elsewhere." However, he said increased certification and regulations stemming from the accident will likely push up total project costs globally in the future.

Drilling ban draws mixed reaction

Public reaction to the Obama administration's decision to block drilling in federal waters along the Atlantic coast and in the eastern Gulf of Mexico are decidedly mixed. According to a Rasmussen Reports national telephone survey of 1,000 likely voters, slightly more than half (54%) believe the administration's offshore drilling decision will hurt the U.S. economy. Approximately 20% say the decision will have no impact. Roughly half of the likely voters surveyed also signaled their concern that the decision will cause a spike in gasoline prices down the line. According to the poll, 54% said the "seven-year ban on oil and gas drilling in the eastern Gulf of Mexico and along the eastern seaboard" will increase gas prices. A quarter of the survey respondents said the ban would have no impact on prices at the pump.

Drilling on UK shelf fell 9% in 2010

Offshore drilling on the UK Continental Shelf (UKCS) dipped by 9% during 2010 compared to 2009, according to recent industry figures released by Deloitte. The report reveals that a total of 71 exploration and appraisal wells were spudded in the UK sector in 2010 compared to 77 wells the previous year.

The level of drilling that took place on the UKCS in 2010 is comparable with the levels of drilling seen prior to the record oil prices in 2008.

Fixed platform market looks strong through 2014: Infield Systems study

The outlook for the fixed platform installation market looks strong across the five-year period to 2014, according to a new Infield Systems report. Infield sees capital expenditures exceeding $80 billion, with 1,651 platforms to be installed. Asia is expected to see the most capex, and the Gulf of Mexico to see the largest number of installations. Projects such as gas storage in the UK and deep gas in the shallow waters off the Louisiana coast are examples of new technology and the adaptation of fixed platforms to new ways of extracting hydrocarbons. Along with the more conventional use of piled platforms, these regions are expected to be more active in the fixed platform market as concerns over energy security and production rates create development opportunities in long established fields. Although only representing 2% of the market in platform installations, there is a large growth in capex for gravity-based platforms. These large fixed projects across the globe, designed to withstand environmentally harsh conditions, are attracting investment, which provides further evidence of a promising outlook for the fixed platform market, Infield said.

U.S. drilling up 12% from 2009 levels

U.S. oil and natural gas drilling in 2010 was up from 2009 levels but remained below 2008 levels, according to API's 2010 Quarterly Well Completion Report: Fourth Quarter. An estimated 10,487 oil wells, natural gas wells, and dry holes were completed in the fourth quarter of 2010, up 37% from 2009's fourth quarter though still well below 2008 levels. In 2010, a total of 37,892 wells were drilled, up 12% from 2009 but down almost 33% from 2008. For most of the past decade, natural gas was the primary target for domestic drilling. And for the first time since 1996, the estimated number of oil wells drilled in 2010 outnumbered gas wells 19,451 to 14,324, according to API statistics. "As the nation continues to struggle with a weak economy, the oil and natural gas industry has shown that it is willing and able to increase production to meet growing energy demand and put people back to work," said Hazem Arafa, director of API's statistics department.

Central Gulf lease sale postponed

The originally scheduled March 2011 oil and gas lease sale (216) for the Central Gulf of Mexico will be postponed and combined with the March 2012 Central Gulf sale (222), according to a ruling by the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). Moreover, this year's Western Gulf of Mexico lease sale (218), scheduled for August, may be delayed a year, BOEMRE said. The agency contends that due to fallout from last April's Deepwater Horizon oil spill, the necessary National Environmental Policy Act analysis to support Central Gulf lease sale (216) cannot be completed in time to hold it as initially scheduled. Last year's Western Gulf lease sale (215) was canceled due to the Deepwater Horizon disaster. In addition to sale delays, the Obama administration reversed itself and promised not to pursue offshore drilling in the eastern Gulf of Mexico or anywhere else along the U.S. East Coast.

Noble orders heavy duty jack-ups

Noble Corp. has entered into an agreement for the construction of two high-specification, heavy duty, harsh environment jack-up drilling rigs with Sembcorp Marine's subsidiary Jurong Shipyard in Singapore. The new units are scheduled for delivery in the fourth quarter 2012 and second quarter of 2013. Total delivered costs are estimated at $220 million per rig. The Friede & Goldman design represents the latest generation of high-specification jack-up drilling rigs with greater capacities and capabilities than most existing units. The rigs, which are about 231 ft. in length and 270 ft. in breadth, will have the capability to operate in water depths up to 400 ft. and drill to depths of 30,000 ft. The rigs will each have a 15,000 psi blow out preventer system.

UK to increase offshore inspections

The UK government said it will further increase the number of inspections it makes to oil and gas rigs operating in the North Sea and broaden their scope to include more types of facilities. A recent parliamentary inquiry raised serious doubts about the safety of deepwater drilling operations in the North Sea, following BP's blowout and oil spill in the Gulf of Mexico last year. Inspectors from the Department of Energy and Climate Change (DECC), will now visit 150 offshore facilities every year, up from 60 inspections before the Gulf spill. This is an expansion of a plan announced by the Department in June to raise the number of rig inspections to 120. DECC inspectors will focus on the environmental integrity of the facilities.

Oil recovery focus of research effort

Shell and Schlumberger have agreed to cooperate on a multiyear research and development program to improve petroleum recovery and to extend the life of existing fields. In announcing the agreement, the new venture said that the combination of Schlumberger formation evaluation and reservoir characterization knowledge with the subsurface laboratory and reservoir expertise of Shell will result in the development of better tools and methods to obtain improved field data, better and more efficient numerical models, and enhanced field development methods.

McDermott to build platform for Riker prospect

McDermott International, Inc. said one of its subsidiaries was awarded a contract by Arena Offshore, LP for construction and installation of a platform for Arena's Gulf of Mexico Riker prospect, located at Eugene Island Block 338 in 275 ft. of water. The company's Morgan City fabrication facility will handle construction, assembly, testing, coating, load out, and tie down of a four-pile jacket for a bottom-founded platform named EI 338 K. The jacket is designed to accommodate 20 well slots and, once complete, the platform will have full processing capabilities, supporting a self-contained drilling rig. The jacket and piles are expected to weigh about 3,600 tons, and the platform will have the capacity to produce 20 million cubic feet of gas and 7,500 barrels of oil per day. First steel for the EI 338 K jacket is expected to be cut during the third quarter of 2011. The offshore campaign is scheduled for the second quarter of 2012.

Technip gets Walker Ridge pipeline contract

Technip was awarded a lump sum contract by Enbridge Offshore Facilities L.L.C. for the development of the Walker Ridge gas-gathering system in the Gulf of Mexico, at a water depth of 7,000 ft. It covers the engineering, fabrication, and installation of 160 miles of steel catenary risers and pipelines as well as the installation of subsea equipment. Technip's operating center in Houston, Texas will perform the overall project management. The export pipelines and risers will be welded at the group's spoolbase located in Mobile, Ala. Offshore installation is scheduled to be completed with the DEEP BLUE, Technip's deepwater pipelay vessel, in 2013.

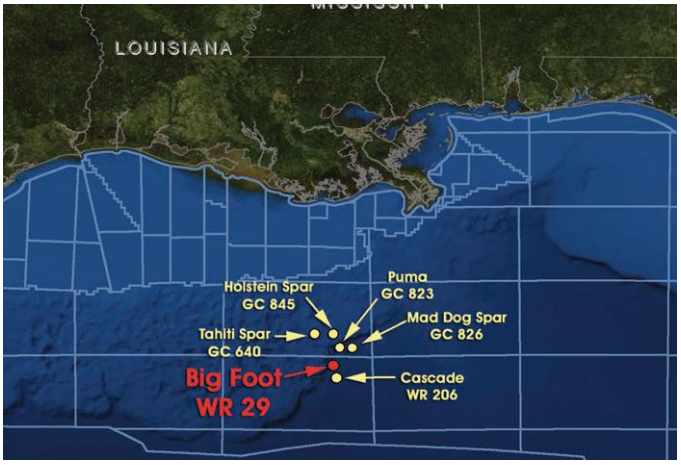
FMC to supply systems for Cardamom Deep

FMC Technologies, Inc. signed an agreement with Shell to supply subsea and topside systems for the Cardamom Deep project in the Gulf of Mexico. Cardamom Deep is a subsea tie-back to Shell's Auger tension leg platform. The field is located in Garden Banks Block 426 in water depths of approximately 2,860 ft. FMC's scope of supply includes five subsea production trees, each rated at 15,000 psi. The company will also manufacture and provide subsea and topside controls, manifold, and tie-in equipment and other systems and services. Deliveries will commence in the third quarter of 2011.

Entek's GA A133 well awaiting production tie-in

Entek Energy's GA A133 well in the Gulf of Mexico is temporarily suspended, awaiting tie-in to production after intersecting around 200 ft. of net gas pay. The well, interpreted from logs and offset production in the adjacent block, is expected to have an initial production rate of 10 to 20 mcfd. Post discovery reserves are being calculated and will be independently certified before the production tie-in. Entek chief executive and managing director Trent Spry said that first production from the well could begin as soon as the end of the second quarter of 2011.

Chevron's Big Foot discovery is big enough



Field operator and majority owner Chevron and its Big Foot partners are moving ahead with development of their Lower Tertiary discovery in deepwater Gulf of Mexico, the decision coming just a few years after some industry analysts reportedly questioned the project's economics, due in part to struggling oil prices. Prices have since surged.

And despite lingering regulatory uncertainty in the U.S. offshore region created by the BP oil spill, the nation's second-largest oil company and its partners now plan to spend $4 billion over the next several years to develop the Big Foot field, located 225 miles south of New Orleans.

"Sanctioning Big Foot underscores our commitment to the Gulf of Mexico and will contribute to future U.S. energy supply," said George Kirkland, vice chairman, Chevron Corp. "This project is another example of Chevron's disciplined approach to advancing our enviable queue of major capital projects."

The move came less than two months after the San Ramon, California-based oil giant approved a $7.5 billion project to develop its Lower Tertiary Jack and St. Malo fields in the deepwater Gulf, one of the biggest investments ever in the region. Big Foot will be Chevron's sixth operated facility in the deep waters of the Gulf of Mexico.

At Big Foot, Chevron plans to build a tension-leg platform capable of producing 75,000 barrels of oil and 25 million cubic feet of natural gas per day. However, because of the massive scale of the project, production is not expected to begin until 2014, the company said.

The long development timeline is typical of complex deepwater projects, which often take a decade or more from the time of discovery to yield their first drops of oil. Chevron, for instance, announced its Big Foot discovery in 2006.

Located in 5,200 ft. of water in an area known as Walker Ridge, the field is estimated to hold total recoverable resources in excess of 200 million oil-equivalent barrels, the company said. Chevron holds a 60% stake in Big Foot and is the operator, while Norway's Statoil has a 27.5% stake and Japan's Marubeni has 12.5%.

BP exercises right to acquire Shell's stake in U.S. Gulf fields

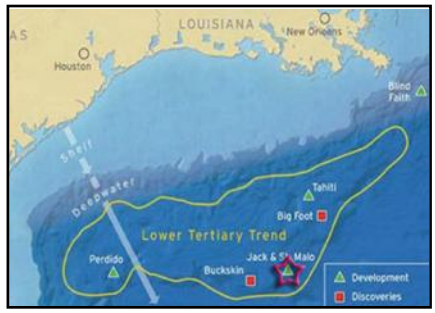
BP plans to exercise its preferential rights to acquire Shell's interest in W&T Offshore's Marlin and Dorado fields in the Gulf of Mexico. Recently, W&T acquired interests in five Gulf of Mexico deepwater producing fields: Tahoe, SE Tahoe, Droshky, Marlin, and Dorado.

The closing of the acquisition of Shell's interests in the Marlin and Dorado fields was funded in an exercise of preferential rights affecting these two properties.

W&T also signed a letter of intent to acquire Shell's interest in a sixth property in the Gulf of Mexico shelf for $450 million. The proved reserves from the six fields are estimated at 154.3 billion cubic feet of natural gas equivalent.

Amberjack okays pipeline linking Jack, St. Malo with Shell platform

Amberjack Pipeline has approved the installation of a crude oil pipeline from the Jack and St. Malo fields in the deepwater U.S. Gulf of Mexico to a Shell platform in Green Canyon Block 19 (GC19). The 136-mile, 24-inch pipeline will originate 280 miles south of New Orleans, La, in 7,000 feet of water and terminate at GC19.



From GC19, the Jack-St. Malo owners will have a variety of pipeline options for moving crude oil to most major trading hubs and refineries in the Gulf Coast. The pipeline will serve as an oil export solution for the Chevron-operated Jack-St. Malo hub production facility, which is expected to produce 170,000 barrels of oil per day when it opens in 2014.

Chevron Pipe Line will construct and operate the pipeline for Amberjack Pipeline Co. Amberjack Pipeline is a joint venture between Chevron Pipe Line and Shell Pipeline Co. LP.

Meanwhile, an affiliate of Chevron has contracted Dockwise to transport the Jack and St. Malo platform hull from Korea to the Gulf of Mexico.

The contract value is $25 million. Dockwise has also a firm contract from Bluewater Industries, valued at $40 million, to transport the topsides for ATP's Cheviot platform in the UK North Sea from the fabrication yard in China to Europe, and to perform the associated float-over.

Among the company's other recent orders are the transportation of the MENAdrill 1, a Super M2 jack-up rig, from the UAE to Mexico, plus three further jack-ups. The total value of this program is around $13.5 million.

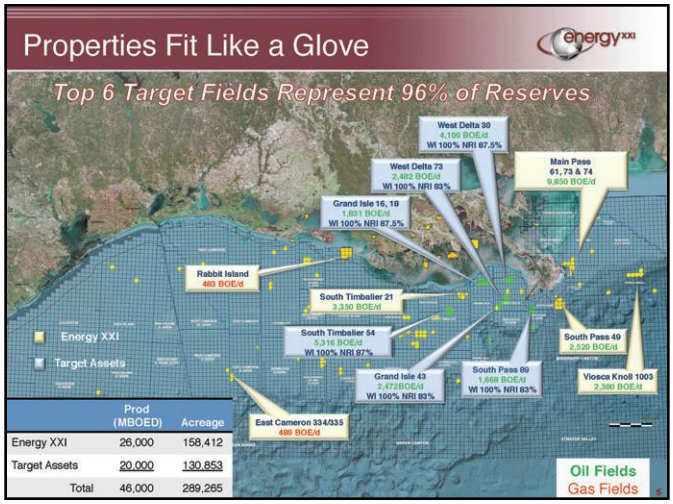
Early in 2011, Dockwise was to transport the semi-submersible rig Noble Clyde Boudreau from the U.S. Gulf to Brazil. And the company has been designated as contractor of choice for transportation of a topside consignment to Europe and of the jack-up barge GMS Endeavour from Abu Dhabi to Rotterdam in the 2011 first quarter.

Chief executive André Goedée said that 2011 would have "more of a spot market nature than 2010 and is, therefore, still uncertain from a backlog perspective. However, markets that typically demand these kinds of services like, for example, exploration drilling, seem to demonstrate more activity."

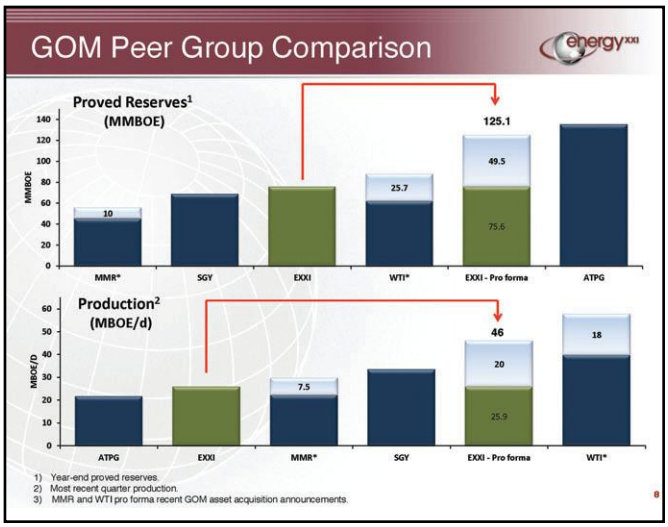
E&P independent's rapid ascent among peers on U.S. Gulf shelf

Five years and a pot load of property acquisitions later, most notably a recent $1.01 billion deal with super-major ExxonMobil, little known E&P independent Energy XXI suddenly emerged as a production powerhouse in shallow waters of the U.S. Gulf's continental shelf, with a handsome exploratory stake in what could very well be the largest gas discovery in decades on the shelf.

The Exxon acquisition, which closed in mid-December and elevated the Houston-based independent to the third largest oil producer on the shelf, nearly doubled Energy XXI's reserves and production profile.



The Exxon assets are currently producing roughly 20,000 net barrels of oil equivalent per day (boe/d), about 53% of which is oil. Offshore leases included in the purchase total 130,853 net acres. The properties are estimated to contain net proved and probable reserves of 66 million boe, 61% of which is oil. Proved reserves are estimated at 30.1 million barrels of oil and 116.1 billion cubic feet of natural gas, or a total of 49.5 million boe, 68% of which are proved developed.



The properties include nine fields on the shelf, generally located between Energy XXI's existing core South Timbalier and Main Pass operations in water depths of 470 ft. or less. The six largest fields account for 89% of the net production.

With the Exxon properties, Energy XXI now holds interests in seven of the top 11 oil fields on the shelf. Estimated proved plus probable reserves would increase 72% to 158.1 million boe from 92.1 million boe at the company's June 20, 2010 fiscal year end. Production would increase to about 46,000 boe/d, up more than 77% from the 25,900 boe/d average in the most recent fiscal quarter ended Sept. 30, 2010, with oil representing 63%.

"The ExxonMobil properties are an extraordinary fit with our existing, oil-focused core assets, which generate some of the highest margins in the industry," Energy XXI Chairman and Chief Executive Officer John Schiller said. "With this acquisition, we are gaining access to production, infrastructure, and extensive acreage complemented by seismic data and field studies. As operator of 94% of the assets being acquired, we would have a portfolio of drilling and recompletion opportunities that we can pursue while analyzing the potential for higher-impact exploration prospects."

The transaction was financed through a combination of cash on hand, borrowings against the company's $700 million corporate revolver, and $750 million in proceeds from a previously disclosed private placement by the company's operating subsidiary, Energy XXI Gulf Coast, Inc.

Energy XXI also helped finance the McMoRan-operated Davy Jones discovery, which verifies the ultra-deep potential of the Gulf of Mexico shelf and opens this new horizon as a major exploration frontier thought to contain trillions of cubic feet of natural gas reserves. Through a joint venture consisting of McMoRan and other E&P independents, Energy XXI is financing 14.1% of the exploratory costs to earn a 15.8% working interest and 12.6% net revenue interest at Davy Jones.

Independents represent big chunk of Gulf economics

If the U.S. blocks independent energy companies from offshore drilling in the Gulf of Mexico, the federal government could forfeit $147 billion in lost taxes and royalty revenue over the next 10 years, according to a report by IHS Global Insight.

Lawmakers are mulling proposals to do away with a 20-year-old cap on economic damages from oil spills in the wake of the Deepwater Horizon disaster, despite criticism that only self-insured major oil companies would be able to operate under unlimited liability.

Independent producers represent a significant and growing portion of the U.S. Gulf drilling industry, dominating shallow-water production in the region and playing an increasingly larger role in deepwater activities, according to IHS. For instance, in 2009, IHS reported that independents operating in the Gulf of Mexico accounted for more than 200,000 jobs, $38 billion in economic benefits, and $10 billion in federal and state revenue and royalty payments.

Independent energy companies currently are the largest shareholder in two-thirds of U.S. Gulf leases and more than half of all deepwater leases. And, they increasingly collaborate with major oil companies on those deepwater projects.

Oil companies re-evaluate risks of operating in U.S. Gulf of Mexico

Canceled and delayed offshore lease sales, extreme difficulty in acquiring new drilling permits, more stringent rules and regulations, and now final recommendations by a presidential panel appointed in the aftermath of last April's Deepwater Horizon oil spill disaster in the Gulf of Mexico have served to raise company frustration temperature levels to the boiling point.

Even before the panel handed down its recommendations in December, participants in a Deloitte LLP survey were venting their concern, overwhelmingly agreeing potential post-spill regulations would cause job losses in the U.S. oil and gas industry, boost drilling costs, and prompt higher crude oil prices in both the near and medium term.

Some 75% of survey participants expected more delays in the Gulf drilling permit process and 61% expected increased drilling costs tied to those delays. Half the survey participants expected increased merger and acquisition activity among companies operating in the Gulf following the Deepwater Horizon accident. Nearly 80% said the new regulations posed a threat of U.S. drilling operations moving to other areas. Consequently, because of the steep costs associated with a spill, many companies said they were re-evaluating risk factors associated with operating in the Gulf.

Deepwater Horizon ablaze in U.S. Gulf

"The new environment for risk means that managers of most companies are betting the entire company on every well, regardless of the likelihood of another disaster like the Deepwater Horizon," said Gary A. Adams, Deloitte vice-chairman of oil and gas.

Deepwater Brazil and Africa pose the biggest potential as likely alternatives for companies looking to drill outside of the U.S., Adams said. While all other regions were seen as having less stringent offshore regulations than the United States, Africa was seen by the survey participants as having the least stringent requirements.

"Overall, 70% of oil and gas professionals (polled) expect the Gulf spill and its consequences to decrease deepwater offshore development," Adams said. Deepwater drilling currently accounts for about 30% of U.S. oil production.

The bipartisan commission appointed by President Obama to investigate the Gulf recommended a higher liability level for companies involved in a spill, more time for federal regulators to review drilling permits and a host of other ways to update federal and industry safety and oversight.

The American Petroleum Industry, which represents more than 400 oil and gas companies, criticized the panel's report for casting doubt on the entire oil industry based on a single accident.

"This does a great disservice to the thousands of men and women who work in the industry and have the highest personal and professional commitment to safety," API Upstream Director Erik Milito said in response to the panel's findings.

Noble Energy nails huge gas discovery off Israeli coast

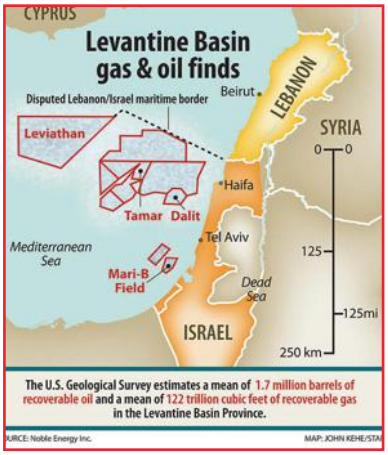
A recently announced natural gas discovery off the coast of Israel by Houston-based E&P independent Noble Energy, Inc. is so large it may reshape that country's economy, according to analysts.

The estimated 16 trillion cubic foot find means that Israel, a country that imports most of its natural gas from Egypt, is about to become a major producer in the region, said Delphi Global Analysis Group founder David Wurmser, who provided Noble Energy with strategic analysis on the project.

"This field is far beyond anything that Israel's economy can absorb over any reasonable period of time," he said. "This is essentially going to lead to Israel as an exporter of gas."

Drilled in the Rachel license, the well encountered a minimum of 220 ft. of net natural gas pay in several subsalt Miocene intervals, Noble Energy said, adding that the "apparent reservoir quality is very good." The intervals discovered are geologically similar to those intersected at Tamar, an earlier Noble Energy discovery thought to hold 8 tcf of reserves. Total gross mean resources discovered thus far by Noble Energy in the basin are estimated to be around 25 tcf.

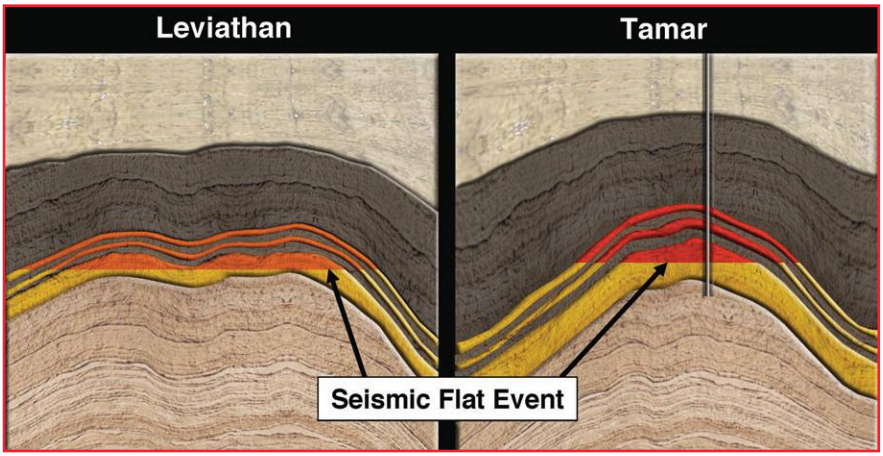
Leviathan-1, located in about 5,400 ft. of water, is about 80 miles offshore of Haifa and 29 miles southwest of Tamar. The results from the well confirm the pre-drill estimated resource range, with a gross mean for Leviathan of 16 trillion cubic ft. The Leviathan field is estimated to cover about 125 square miles and, as a result of its size, will require two or more appraisal wells to further define total gas resources.



"Leviathan is the latest major discovery for Noble Energy and is easily the largest exploration discovery in our history," said Charles D. Davidson, Noble Energy's chief executive officer. "The Leviathan discovery has further confirmed our geologic models and interpretation of this basin."

Drilling at Leviathan-1 at 16,960 ft., was to continue to a planned total depth of 23,600 ft. to evaluate two additional intervals. Noble Energy's second contracted rig was to arrive in the eastern Mediterranean in early 2011 to spud a Leviathan appraisal well located eight miles northeast of the discovery well.

Noble Energy operates Leviathan, with a 39.66% working interest. Other interest owners are Delek Drilling and Avner Oil Exploration with 22.67% each and Ratio Oil Exploration with the remaining 15%. Noble Energy also operates the Tamar and Dalit licenses, with 36% working interests.



BP Egypt makes significant gas discovery in West Nile Delta area

BP Egypt said it made a significant gas discovery in the deepwater West Nile Delta area. The Hodoa find is located in the West Mediterranean Nile Delta concession, some 80 kilometers northwest of Alexandria.

The WMDW-7 well was drilled to a depth of 6,350 meters and is the first Oligocene deepwater discovery in the West Nile Delta area. Further appraisal is underway, the company said.

BP operates and holds 80% of the West Mediterranean deepwater concession with RWE Dea holding the remaining 20%. Hodoa was drilled by the Pride North America semi rig, in a water depth of 1,077 meters.

"The Hodoa discovery further demonstrates the great potential of the deep reservoirs in the Nile Delta," said Mike Daly, BP's executive vice president of exploration.

RWE said it expects to invest $3.6 billion in field development of the North Alexandria and West Mediterranean deepwater concessions. Development of the Hodoa find likely will be in a second phase, RWE said.

BP has interests in 13 offshore concessions in the Nile Delta, with operatorship of six. BP Egypt has made a number of discoveries in these concessions including the Giza, Taurus, Libra, Fayoum, and Ruby in the Pliocene and the Raven discovery in the deeper Miocene formations.

To date, BP Egypt, in collaboration with the Gulf of Suez Petroleum Co., BP's joint venture company with the Egyptian General Petroleum Co., has been responsible for the production of almost 40% of Egypt's entire oil production base.

In addition, BP Egypt and its partners are currently producing close to 35% of the domestic gas demand.

Drilling contractors place orders for six modern 'ultra-deepwater' rigs

Orders for at least a half-a-dozen modern "ultra-deepwater" rigs have been placed by drilling contractors over the past three months alone, suggesting that the Deepwater Horizon disaster in the Gulf of Mexico and a continuing sluggish economy are having little negative impact on demand for these expensive rigs.

Moreover, Brazilian state-owned oil company Petrobras is initiating a massive deepwater rig construction program, approving the qualifications of all seven bidders on its multi-billion dollar tender aimed at contracting up to 28 deepwater drilling rigs to be built in Brazil for itsextensive pre-salt drilling program.

Seadrill said it will build four ultra-deepwater drillships at the Samsung Yard in South Korea. The first two drillships, valued at $600 million each, are expected to be delivered in the first and second quarters of 2013. The order includes a turnkey contract with the yard, project management, drilling and handling tools, spares, capitalized interest, and operations preparations.

The contract also includes a fixed price option for two more drillships to be declared during the first quarter of 2011. The dual derrick drillships are upgraded versions of the three drillships Seadrill took delivery of from Samsung and will provide further enhanced capacity related to water depth, technical capabilities, and increased accommodation capacity.

The new drillships will be capable of operations in water depths up to 12,000 ft. They will have a hook load capability of 1,250 tons, targeting operations in areas such as the Gulf of Mexico, Brazil, and West Africa. The drillships will be among the first newbuilds to be outfitted with a seven-ram configuration of the blow out preventer stack.

Diamond Offshore Drilling Ltd. entered into a turnkey contract with Hyundai Heavy Industries Co., Ltd. for construction of a new ultra-deepwater drillship with delivery scheduled for late in the second quarter of 2013. Total cost, including commissioning, spares and project management, is expected to be about $590 million and will be paid out of available funds. Diamond Offshore has also obtained from Hyundai a fixed-price option for the purchase of a second drillship that the company has the right to exercise at any time before the end of the first quarter of 2011.

The dynamically-positioned drillship also will have a seven-ram blow-out preventer, dual-activity capability, five mud pumps, and a maximum hook-load capacity of 1,250 tons. The unit will be designed for operations in up to 12,000 ft. of water. Diamond has now purchased, ordered, or upgraded six ultra-deepwater units over the last four years.

Pride International, Inc. reached agreement with Samsung Heavy Industries, Ltd. for the construction of a fifth ultra-deepwater drillship, further expanding the company's ultra-deepwater fleet size and drilling capabilities.

Consistent with the company's previous four ultra-deepwater drillships ordered since 2007, the new unit will be constructed on a fixed price basis at the Samsung shipyard in Geoje, South Korea, with an expected delivery in mid-2013. The rig will be equipped with some of the most technically advanced well construction features available in the offshore drilling industry, addressing a suite of superior capabilities, including advanced systems for hoisting, blow-out preventer handling, drilling and mud controls, and station-keeping.

Statoil partnership opts for gas compression to recover reserves

The Asgard field partnership, led by Statoil, has opted for subsea gas compression to help recover remaining reserves. Statoil also has assessed potential for subsea gas compression elsewhere on the Norwegian shelf on the Gullfaks field and for the Ormen Lange field with operator Shell.

"Compressing gas on subsea installations represents a considerable technological leap for the industry," said Margareth Øvrum, Statoil's executive vice president for technology and new energy. "With this technology in place, the recovery factor and producing life can be substantially increased for a number of gas fields."

At Asgard, the focus has been on the Midgard and Mikkel gas deposits tied back to the Asgard B floating platform. Both reservoirs have been developed with seabed installations, exporting their well streams 25 to 31 miles via pipelines.

The Statoil-operated Asgard B platform

For both fields, pressure decline will impact flow to the B platform towards the end of 2014.

"Installing compressors will sustain the gas flow and ensure a long producing life for the platform," said Ståle Tungesvik, head of reserves and business development in Statoil. "This makes it possible to recover large volumes – we're adding 28 bcm (989 bcf) of gas and 14 MMbbl of condensate after a possible investment decision." The alternative is to build a new platform with conventional surface compressors. A final decision was due early this year.

However, assessments to date suggest compression is the best commercial option, according to Øvrum. "Moving compression to the seabed gives both improved energy efficiency and lower costs compared with keeping it on a platform or on land. The closer to the well we compress the gas, the higher the efficiency and the production rates."

The proposed compression unit comprises a gas cooler, liquid separator, and compressor, the latter likely powered from the Asgard A oil production ship. Electricity will be converted to mechanical energy by a motor driving the compressor, which consists of numerous vanes around a shaft.

Placing compressors between the reservoir and the host platform should reduce the pressure where the wellstream enters the seabed unit. This should boost production by enhancing the pressure difference between the reservoir and the seabed receiving installation.

Statoil's partners at Asgard are Petoro, Eni Norge, Total E&P Norge, and Mobil Development Norway.

Alliance Engineering gets contract for Chevron's SNX Angola project

Daewoo Shipping and Marine Engineering (DSME) has awarded Alliance Engineering a contract to provide jacket and topsides engineering and design for Chevron's South Nemba Auxiliary (SNX) project in Angola's Nemba field.

The SNX project consists of an unmanned, four-pile jacket, multi-deck facility that will be bridge-connected to the SNA platform.

The SNX platform will include a flare boom, helideck, oil processing train, gas compression and dehydration equipment, electrical power generation, and other associated equipment. The oil processing train includes a two-phase IP separator, a three-phase LP separator, and an oil degasser. Compression equipment includes a surge gas compressor and an intermediate pressure compressor.

UK approves launch of Phase II of West Franklin field in North Sea

Total has approval from the UK Department of Energy and Climate Change to launch Phase II development of the West Franklin field. The field is in blocks 29/5b and 29/4d of the North Sea 149 miles east of Aberdeen, UK.

Phase II aims to produce the 85 MMboe estimated reserves and entails drilling three wells and installing a new platform to tieback to existing Elgin-Franklin facilities. Cost is estimated at $1 billion, and upon startup in 2013 the facility targets 40,000 boe/d production.

This project "will contribute to maintaining our production level on the UK continental shelf and to expanding the lifespan of the Elgin-Franklin hub,"said Patrice de Viviès, senior Total's vice president for Northern Europe. Total is operator for Elgin Franklin Oil & Gas, which has a 46.2% interest in the field, along with Eni UK Ltd., BG Group, E.ON Ruhrgas, Chevron, and Esso Exploration & Production UK Ltd.

Deepwater EU deploys nine ICCP systems to North Sea platforms

Deepwater EU, a subsidiary of Deepwater Corrosion Services, has successfully designed, deployed, and commissioned nine impressed current cathodic protection (ICCP) systems to four fixed platforms located in the Forties Field, North Sea, UK.

The 35-year-old platforms are 110 miles east-northeast of Aberdeen in around 120 meters of seawater. The owners required a life extension solution for the cathodic protection (CP) system to add at least 20 additional years of service for the aging structures. The engineering and design for the systems were carried out from Deepwater EU's UK offices; systems were all manufactured in the UK.

The installation followed extensive engineering in order to design the most appropriate system for the aging structures including topside equipment suitable for installation in hazardous areas on the platforms. Deepwater's focus was to provide a retrofit CP system that could meet the current required for the 20-year life extension, while minimizing installation costs for the client.

The ICCP systems consisted of nine RetroBuoy anode skids, which were deployed concurrently with all associated cabling in order to reduce the installed cost as much as possible.

World's largest FPSO headed for Usan field, Nigeria, in March

HHI has launched the $1.7 billion Usan, the world's largest floating production, storage, and offloading facility. The Usan FPSO, ordered by Total in February 2008, can refine 160,000 barrels of oil and five million cubic meters of gas daily. It has storage for two million barrels of oil. The facility is 320 meters long, 61 meters wide, 32 meters high and weighs 116,000 tons.

After its trial runs, the FPSO will sail out for the Usan field, which is located 100 kilometers south of Port Harcourt, Nigeria, at the end of March.

Apache's Balboa field begins daily production of 30 mmcf, 1,400 bbl oil

Oil and gas production has begun at Apache Corp.'s Balboa field, located on East Breaks Block 597. It is Apache's first operated deepwater development in the Gulf of Mexico. The company is a major producer in shallower waters of the U.S. Gulf.

Initial gross flow rates from Balboa have stabilized at about 30 million cubic feet of natural gas and 1,400 barrels of oil per day, the company said. Apache's subsidiary is the operator of the field and holds a 50% working interest.

"Through acquisitions completed in 2010, Apache now has both the capability in-house and the portfolio of properties in the deepwater Gulf of Mexico to exploit assets such as Balboa and add shareholder value," said John Crum, Apache's co-chief operating officer and president, North America.

Balboa is located in estimated water depths of 3,350 feet approximately 130 miles south of Galveston, Texas. The field is a one-well development with a six-mile tieback to the Anadarko-operated Boomvang spar on East Breaks 643.

"Subsea tieback technology has significantly improved the economics for deepwater developments by lowering the threshold for commercial accumulations," Crum noted.

The reservoir features oil-bearing sandstones with a natural gas cap. The well was completed near the crest of the structure to optimize overall hydrocarbon recovery, Apache said, adding that the Balboa completion was designed to initially produce natural gas and liquids with increasing liquids and decreasing gas volumes throughout the life of the field.

Apache assumed operatorship of Balboa with the acquisition of Mariner Energy in November 2010. The field started production in December 2010.

2010 performance places China among top offshore producers

China reportedly has joined the world's elite club of offshore oil producers after China National Offshore Oil Corp (CNOOC) announced that its oil and natural gas output surpassed 60 million metric tons in 2010.

The country's largest offshore oil explorer's oil and gas production last year totaled 64.13 million metric tons of oil equivalent, of which 50 million was produced domestically. It marks a milestone that China has become one of the world's largest offshore oil producers after the United States, the UK, and Norway.

China's surging energy demand has led the nation's foreign oil dependence ratio to reach a new high of 55% in 2010. "We estimate that 60% of China's oil consumption will be imported by 2020," said Wang Jiacheng, a researcher at the Academy of Macroeconomic Research under the National Development and Reform Commission. CNOOC has tapped into Africa, South America, the Middle East, and Australia for cooperation opportunities.

Offshore oil will make up 40% of the world's oil output by 2015, compared with 34% in 2004, according to figures from the China Petroleum and Petrochemical Engineering Institute. Offshore gas will account for 35% of the world's gas output over the same period.

Thales's support for maritime tactical network
Thales Australia has built on its successful participation in the Australian Department of Defence's establishment of a Maritime Tactical Wide Area Network (MTWAN) with the in-service support contract under SEA 1442 Phase 3 becoming operative. The five-year contract involves the company providing a range of engineering, maintenance, supply, and help desk support for the system. SEA 1442/3 has introduced an Internet Protocol (IP)-based MTWAN into the Royal Australian Navy, supporting the Australian Defence Force's Network Centric Warfare concept and providing the foundation for future maritime communication systems integration and implementation.

New communications system contributes to fewer accidents in the Philippines
The Philippine Coast Guard (PCG) reports that there were virtually zero major maritime accidents in Philippines waters in 2010 and attributes that, in part, to a new maritime communications system. Following the 2008 M/V Princess of the Stars disaster and as part of the Zero Maritime Accident Program, PCG now uses Navigational Telex (NAVTEX), an international automated medium-frequency, direct-printing service for delivery of navigational and meteorological warnings and forecasts as well as urgent marine safety information to ships. PCG said that thanks to improved communications and other initiatives, thousands of lives were saved in the Philippines during search and rescue and disaster response operations.

Integral Systems awarded a $10 million contract to modernize the USCG satellite communications (SATCOM) network
Integral Systems' SATCOM Solutions division will act as the prime contractor on the program, transitioning the USCG from its legacy SATCOM network to a commercial-based, advanced Ku-band system, significantly enhancing network reliability, flexibility, and scalability. Under the terms of the contract, Integral Systems' SATCOM Solutions division will provide an advanced 117MT Ku-band Maritime Antenna System that includes its innovative, electromagnetic compatible (EMC), and electromagnetic interference (EMI) management system. The antenna system is uniquely suited to meet the USCG's need for a commercial-based, interoperable solution that is extremely efficient and ultra-lightweight and includes an ultra-low loss radome. The 117MT fully supports primary "off-the-cutter" connection to the Coast Guard One Network (CGONE) and provides the ideal ocean-going platform for single channel per carrier or on-demand networks supporting video teleconferencing, virtual private networks, voice over IP, and large file data transfers.

BP Shipping Limited turns to Harris CapRock for Fleetwide Communications

HarrisCapRock Communications, a global provider of managed communication services, has signed a 39-month contract with BP Shipping Limited to deploy Harris CapRock's SeaAccess solution onboard its global tanker fleet. SeaAccess' turnkey VSAT (Very Small Aperture Terminal) services will enable BP to extend its corporate IT network and applications to its vessels and provide attractive crew welfare solutions.

"We decided to upgrade our VSAT network after assessing the benefits of the latest available technology," said BP Shipping Service Management and Infrastructure Manager Wasim Kayani. "We were looking to increase the services we can provide to our vessels while lowering the total cost of ownership. SeaAccess Communications leverages the platform and value-added services that we need to get the most out of our communications."

SeaAccess will extend BP's corporate office capabilities to each vessel, enabling ship captains to send real-time reports on vessel operations, logistics, and routes. The service will also provide crew welfare communications, specifically supporting the crew's heavy telephone traffic.

"BP's vessels are constantly traversing the deep seas and are rarely docked at harbor for an extended period of time, so it's challenging to get equipment installed on more than 50 vessels in such a short timeframe," said Pal Jensen, president, SeaAccess, Harris CapRock. "We rely on our 11 service-and-support centers that are strategically located nearby major ports to dispatch supplies and technicians in a timely manner. This is where Harris CapRock excels." To date, Harris CapRock has successfully deployed solutions to many of the world's leading maritime and drilling fleets.

Prior to choosing Harris CapRock, BP conducted extensive testing at the Harris CapRock UK facility based in Aberdeen. Harris CapRock's engineering team developed a time division multiple access (TDMA) demonstration with test circuits for BP's experts to conduct real-time data transfers, make telephone calls, and see first-hand the benefits of Harris CapRock's wide area network (WAN) optimization service.

"Securing BP Shipping's fleet communications further builds upon the strong relationship we've developed with BP," said Peter Shaper, group president, Harris CapRock Communications. "Currently, we're providing communication services to BP's offshore assets in the Gulf of Mexico and in West Africa. We're honored that BP continues to place their trust in us to deliver reliable communications for their critical operations."

Harris CapRock Communications is a premier global provider of managed satellite and terrestrial communications solutions specifically for remote and harsh environments, including the energy, government, and maritime markets. Harris CapRock owns and operates a robust global infrastructure that includes five teleports, four 24/7 network operations centers, and eleven regional support centers, and over 150 in-house field service personnel supporting customer locations across North America, Central and South America, Europe, West Africa, and Asia Pacific.

OCENS offers satellite router for maritime communications

OCENS, Inc. a leading provider of satellite data services for the maritime industry, and Global Marine Networks, a leader in advancing satellite data speed and services, announced the availability of the OCENS webXaccelerator Satellite Router with Access Control. The webXaccelerator is designed to help customers save time and money while getting more productivity from their satellite airtime for ship-to-shore and remote communications in the commercial fishing, marine transport, cruise ship, offshore oil rig, and first-response communications coordination markets.

The OCENS webXaccelerator is a satellite router with access control and data compression that gives unprecedented control to any broadband satellite installation. The webXaccelerator router can be used to address common satellite communications installation situations: create a satellite-based Internet café; generate new revenue or control shared usage through user-defined access codes for clients, crew, or passengers using a single data feed; and solve installation challenges through load-balancing and on-the-fly failover between satellite connections, on a ship, offshore oil rig, or any land-based situation that requires shared access to a satellite data feed.

The OCENS webXaccelerator router works with every major satellite data service provider, including Inmarsat, Iridium, Globalstar, Thuraya, MSAT, VSAT systems, or any IP-based connection. It works at all data rates above 2.4 KBps and is specifically designed for the new generation of higher-speed satellite data systems such as Inmarsat FleetBroadband and Iridium OpenPort.

Marlink secures contract with global shipping company

Marlink, the global provider of maritime satellite communications, is to provide its innovative Sealink™ VSAT service to GC Rieber Shipping, a global operator of vessels within the subsea, polar expedition, and marine seismic segments. As part of the new 3-year contract, Marlink will deliver and install its dual 9797 C/Ku-band Sealink™ antennas onboard five existing vessels and five new build vessels.

Marlink's dual 9797 antennas will ensure both C-band and Ku-band coverage is available to GC Rieber Shipping, ensuring the shipping company is able to offer customers onboard its vessels exceptional flexibility and value.

Owning several teleports globally, including Eik in Norway, Marlink is able to provide high-quality, reliable connectivity as well as exceptional flexibility of service. The company has also established customer service centers operating in major regions throughout the world. This level of regional presence means that Marlink is able to provide faster, more effective, and locally focused service intervention and customer support when required.

European countries agree on SuperGrid
In Brussels last month, Energy Ministers from 10 European countries signed a memorandum of understanding on the North Seas Countries Offshore Grid Initiative, often called the SuperGrid, one of the most ambitious renewable energy projects worldwide. The North Seas Countries Offshore Grid Initiative is an ambitious partnership project between Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Norway, Sweden, and the UK. The agreement follows a political declaration of intent signed by the same countries (now including Norway) this time last year. It establishes a formal structure to proceed with the initiative. Work will focus on the coordinated development of offshore and onshore grids to ensure cost-effective and sustainable investment. Potential barriers to grid development, such as planning, legal, or regulatory issues at national and EU level will be identified. SuperGrid is a network of submarine cables linking offshore wind and wave energy generating sites with the mainland. It would be one of the biggest transnational power structures in the world, ultimately connecting offshore wind farms in Northern Europe and allowing countries with surplus energy to export to those with higher demand.

Taiwan, China carriers announce cross-strait cable
Chunghwa Telecom, Taiwan Mobile, Far EasTone Telecommunications, Taiwan International Gateway, and China United Telecommunications (China Unicom) have signed a memorandum of understanding for the joint construction of TSE-1, the first undersea cable directly linking Taiwan and China across the Taiwan Strait. The project aims to meet fast-growing demand for communications services between Taiwan and China, China Unicom Chairman Chang Xia-bing said. The 220 km TSE-1 will run from the coastal area of Danshui in northern Taiwan to Fuzhou, a city on the southeastern coast of China. The $33.8 million project is expected to be completed at the end of 2011.

Qatar cable project to be launched in April
The Qatar General Electricity and Water Corp (Kahramaa) has said the first phase of its $209.6 million submarine power cable project is to be launched in April, 2011. The cable will link the Ras Abu Aboud super substation with West Bay super 2 substation. Prysmian Cables was awarded the main construction contract in the fourth quarter of 2008. Construction was started in the first quarter of 2009.

Nexans wins contract for EstLink 2
Nexans has signed a 180 million Euro turnkey contract with Fingrid Oyj and Elering OÜ, the electricity transmission system operators in Finland and Estonia, respectively, to construct a second DC power link, EstLink 2, between the two countries. The EstLink 2 DC connection will deliver additional capacity of 650 MW between Finland and Estonia to provide one of the key reinforcements in the system as requested by the TSOs in the Baltic Sea region. Nexans will design, manufacture, and install the new 145 km DC subsea cable between Finland and Estonia. The turnkey contract includes civil works as well as the protection of the subsea cables by burying them in the seabed. The cable is an Integrated Return Conductor so only a single cable is required to create the 450 kV DC link. The project is scheduled to be ready for system testing in September 2013.

Submarine fiber optic cable market increased in 2010

The demand for submarine fiber optic cable grew 10% in 2010 as the traditional "boom and bust" market enters an uncharacteristic period of stability. This is the key finding of Technology Systems Corporation's just released analysis of the submarine cable industry, the Radar Screen Report.

Demand, based on the total amount of submarine fiber optic cable contracted for by developers of new projects, rose from just over 40,000 kilometers in 2009 to just under 45,000 in 2010. This marks the second year of moderate growth and is a trend that may continue for some time as market pressures keep demand from spiking or collapsing as it has in the past.

The report notes the need for suppliers to adapt to the new reality in the submarine fiber optic cable market that may see the end of the huge boom years, where demand sometimes surpassed 100,000 kilometers. On the other hand, new submarine fiber optic cable systems are still required to meet the exploding demand for Internet bandwidth. This will keep up a steady demand for new cable and prevent a repeat of the bust years that the industry has experienced when demand drops to almost zero.

TE SubCon begins GBI cable system and 40G upgrade

Gulf Bridge International (GBI), the Middle East's first privately owned submarine cable operator, and its cable system supplier, Tyco Electronics Subsea Communications (SubCom), an industry pioneer in undersea communications technology, are pleased to announce the start of marine operations on the GBI Cable System. This week, cable manufactured at the SubCom facility in Newington, Nh. began loading onto the Reliance Class vessel, RESPONDER. In the coming months, the ship will install the high-capacity GBI Cable System that has been specifically designed to provide greater connectivity, reach, and diversity to the entire Gulf region.

Scheduled to launch in 2011, GBI will be the region's most advanced subsea cable network, providing a capacity of 2.56 terabits per second. The network will offer double landings in Qatar and Fujairah (UAE) with branched landings in Iraq, Kuwait, The Kingdom of Saudi Arabia, Bahrain, and Oman and will provide onward connectivity to Europe, Africa, and Asia.

"We are thrilled to mark the commencement of marine operations for the GBI Cable System and truly look forward to the day when the completed system connects the Gulf region to the world, and the world to the Gulf region," said Mr. Ahmed Mekky, GBI's CEO. "We remain committed to our ultimate goal of supplying the most advanced broadband carrier services to telecoms operators from around the Gulf and beyond, enabling them to provide their customers with greatly needed capacity, diversity, and choice."

The GBI Cable System will include 4,750 km of cable, with SubCom deploying several state-of-the-art technologies, such as new dual-stage repeaters and wavelength monitoring units. The system will be configured as a self-healing ring in the Gulf.

Unlike a festoon network, this topology will provide greater protection from cable cuts resulting in a higher quality of service with minimum service disruption. In addition, the system powering will provide for additional layers of redundancy.

"We join with GBI in celebrating the first step in the installation process towards a completed system," said David Coughlan, president of TE SubCom. "The coming months will be exciting times for both our organizations as we deploy a system that is highly advanced, extremely reliable, and capable of having a significant effect on the entire region."

TE SubCon also announced it has been contracted to provide the first 40G upgrade in a system more than 9,500km in length. The use of SubCom's next-generation G4 SLTE enables the increase of cross sectional capacity by 100% to 1.92Tbps per fiber pair, a new record for trans-Pacific distance.

"This upgrade marks a significant milestone for both SubCom and its industry, as a long-haul upgrade from 10G to 40G is unprecedented, yet critical to the future viability of existing subsea systems," said David Coughlan, CEO of SubCom.

SubCom remains committed to assisting its customers in the optimization of existing system investments by migrating capacity from 10G to 40G to 100G data rates and beyond.

Pacific Fibre raises NZ$5.5 million

Pacific Fibre, who intend to build a fiber optic cable connecting Australia and New Zealand to the U.S., announced that they had closed their fourth round of financing, raising over NZ$5.5 million. The existing external investors all contributed to the subscription round, while San Francisco investor Peter Thiel's New Zealand investment vehicle Valar Ventures LP also entered the shareholder list.

Mr. Thiel, who co-founded and was CEO of PayPal, is committed to helping New Zealand technology companies through Valar Ventures. This is Valar Ventures' second investment in New Zealand, following a $4 million placement with Xero in late 2010.

Pacific Fibre also announced that New Zealand Trade and Enterprise (NZTE) is providing support by contributing to the cost of feasibility studies evaluating foreign

investment. NZTE's Strategic Investment Fund provides up to $250,000 in matched funding for feasibility studies when the project has good prospects of generating significant economic benefit for New Zealand.

"The capital investment involved with building an undersea cable and the subsequent creation of jobs would have a positive impact on our economy. Having a second cable is also likely to boost the overall competitiveness of our exporters, who increasingly rely on the internet as a channel to global markets," said Graham Matthews, NZTE's Director of Investment.

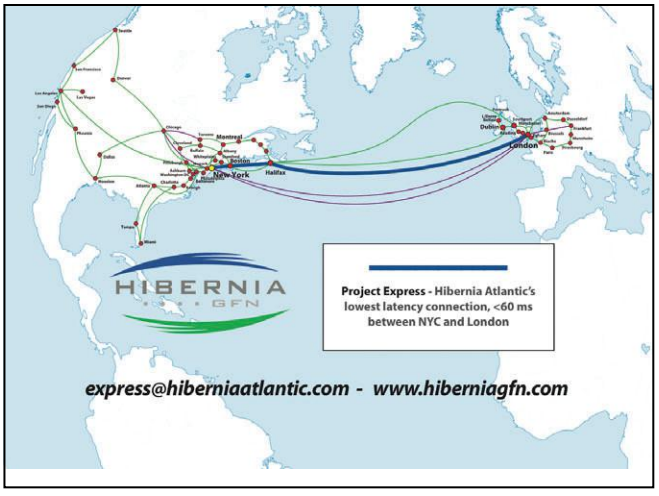
Pacific Fibre was founded in early 2010 and aims to build a new fiber optic cable between Australia, New Zealand, and the U.S. The company Directors and investors include Sam Morgan, Stephen Tindall, Rod Drury and David Kirk. The company is based in Auckland with an office in Sydney and is on track for the system to be operation by mid 2013.

Hibernia Atlantic achieves milestone for Project Express

Hibernia Atlantic has received a US$250 million financing commitment for Project Express, the lowest latency fiber optic cable system connecting the greater New York City area with London, from one of its vendors, Huawei Marine Networks Co., Ltd.

This transatlantic cable will be the first build of its kind in over 10 years and will offer financial clients of Hibernia's Global Financial Network (GFN), such as traders, global banks, and exchanges, connectivity with sub 60 milliseconds latency. Once completed, Project Express will be the fastest route across the Atlantic Ocean.

This new build is expected to be complete in the summer of 2012. Hibernia Atlantic has already secured its first new customers on the cable.



Nexans wins contract for Silphium cable

Nexans has been awarded a major contract by the Chinese company Huawei Marine Networks Co Ltd to supply submarine fiber optic cable for the high profile communications project – the Libya Silphium link across the Mediterranean Sea.

For the Libya Silphium project, which will connect Libya and Greece, Nexans is supplying 440 km of fiber optic cable. Huawei Marine is constructing the link on behalf of the Libyan International Telecom Company (LITC). It will cross the Mediterranean Sea, connecting Damah in Northern Libya with Chania, Greece and will have an initial capacity of 7 x 10 Gbps and a maximum theoretical capacity of 1.2 Tbps. The fiber optic cable will be installed at sea depths of down to 3,700 meters so it will only require relatively light armoring.

The Silphium system will provide route protection for Libya's existing international communication channels and also offer bandwidth improvement designed to satisfy increasing demand for multinational communications.

The cable is for unrepeatered fiber optic systems and will be manufactured at Nexans' factory in Rognan, Norway, with delivery in spring 2011.

"This very significant submarine cable contract in the Mediterranean Sea is the result of almost a year's careful planning between Nexans and Huawei Marine," said Tom Birkeland, Nexans vice president telecom and building cable division in Norway. "It reinforces the successful cooperation between the two companies developed over a number of high-profile projects such as the Hannibal link between Tunisia and Italy and the T-E project connecting the coastal cities of Libya, Tobruk and Emasaed."

Draka to supply subsea array cabling

Draka announces that it has been awarded the inter-array cabling contract for Gwynt y Môr offshore wind farm, off the North Wales coast, from RWE npower renewables Ltd. The total value of the contract is more than €25 million.

At 576MW, Gwynt y Môr will be one of the largest offshore wind farms currently in construction and is being built by RWE npower renewables. The project is a shared investment between partners RWE Innogy, Stadtwerke München, and Siemens. Once fully operational, energy generation from Gwynt y Môr is expected to be equivalent to the average annual needs of around 400,000 homes.

The Gwynt y Môr contract requires Draka to deliver approximately 148 km of three core 36 kV cable during 2012 and 2013, with a full range of cable accessories and logistical solutions. Production is expected to start in the second half of 2011.

Announcing the latest contract award, RWE npower renewables' Gwynt y Môr Project Director Toby Edmonds said, "We're very pleased to welcome Draka on board with the Gwynt y Môr development, to provide the core inter-array cabling for the project. We have spent many months working closely with potential suppliers on the optimum design of the array cable network, and we feel that Draka's expertise, flexibility, and focus will be an important asset to the success of the project."

Martin Dale, commercial director for the Draka Offshore Division, commented, "In the past nine months, Draka has won contracts for three major offshore wind farms, won a design contract for a fourth and has recently supplied subsea power cables for tidal and wave energy in Scotland."

Gwynt y Môr Offshore Wind Farm is being constructed 13 km off the North Wales coast, in water depths of 12 to 28 meters, and was granted approval by DECC (Department of Energy and Climate Change) back in December 2008.

Construction of the €2 billion Gwynt y Môr project began in November 2009 when work to prepare land at St. Asaph for the construction of a new 132/400kV substation was carried out by North Wales civil engineering company Jones Bros. Turbine foundation installation is expected to start in the fourth quarter of 2011 and expected to last for about two years.

NKT cables lands wind farm contract

NKT cables has signed a contract with the Dutch-German transmission system operator TenneT for the manufacture and delivery of a high-voltage submarine cable to the Riffgat Wind Farm located 20 km northwest of the island of Borkum in the Wadden Sea.

NKT cables will deliver 50 kilometers 155kV AC cable. The scope of services from NKT cables includes production and installation of HVAC submarine cable systems and accessories for the transmission system. Contract value is €80 million. The cable is to be produced in Cologne, Germany and is scheduled for 2012.

The capacity of the wind farm will be 108 MW. The submarine cable will connect to the transmission grid of TenneT at the substation Emden-Borssum, located near the German village of Pilsum.

As subcontractor, NKT cables has chosen Beluga Offshore Cable in Bremen, Germany for the laying of the submarine cables. The project extends over different water depths and has to meet the many environmental requirements coming from operating in Wadden Sea.

Nexans wins Skagerrak 4 work

Nexans has been awarded an 87 million Euro contract by Energinet and Statnett, the state-owned Transmission Systems Operators (TSOs) in Denmark and Norway, to deliver the subsea power cable for Skagerrak 4 (SK 4), the fourth HVDC power interconnector between the two countries. SK 4 is scheduled for completion by the end of 2014.

The new 700 MW SK 4 cable will improve security of supply in Denmark and Norway as well as contributing to an increased exchange of environmentally-friendly power with other countries via the common Nordic electric power market. In combination with SK 1-3, also delivered by Nexans, the new cable will raise the total capacity of the Skagerrak interconnector to 1,700 MW, facilitating the export of renewable energy (especially hydro-electric generation) produced in Norway as well as helping to stimulate an increase in wind power production in Denmark.

For the SK 4 project, Nexans will design, manufacture, and install the new 140 km subsea cable across the Skagerrak strait between the Jutland peninsula of Denmark and Norway. The 500 kV HVDC cable, to be produced by the Nexans facility in Halden, Norway, will be of the MIND (Mass-Impregnated Non-Draining) type and laid at sea-depths of up to 530 meters by Nexans' own cable-laying vessel, the C/S NEXANS SKAGERRAK. At the same time, Nexans will also install a separate fiber optic subsea cable produced by its factory in Rognan, Norway.

Global Marine to install cables for offshore wind farm

RWE npower renewables has announced the awarding of a multi-million pound contract to UK firm Global Marine Systems to install offshore export cables at Gwynt y Môr Offshore Wind Farm, North Wales.

At 576MW, Gwynt y Môr will be one of the largest offshore wind farms currently in construction and is being built by RWE npower renewables. The project is a shared investment between partners RWE Innogy, Stadtwerke Munchen, and Siemens. Once fully operational, energy generation from Gwynt y Môr is expected to be equivalent to the average annual needs of around 400,000 homes.

The offshore wind farm is being constructed 13 kilometers off the North Wales coast, in water depths of 12 to 28 meters, and was granted approval by DECC (Department of Energy and Climate Change) back in December 2008.

Global Marine Systems Energy, the energy unit of Global Marine Systems Ltd, was selected to carry out the subsea cable installation on the basis of its historical track record of successful cable installation and the significant amount of work within the offshore wind farm market over the past 10 years.

The Gwynt y Môr project represents a further significant expansion into the market for the company. Global Marine will apply its wealth of experience to installing the subsea power cables to take the electricity from Gwynt y Môr's two offshore electrical substations to underground transition pits on the shore.

Construction of the €2billion Gwynt y Môr project began in November 2009 when work to prepare land at St. Asaph for the construction of a new 132/400kV substation was carried out by North Wales civil engineering company Jones Bros.

Turbine foundation installation is expected to start in the fourth quarter of 2011 and is expected to last for approximately two years.

Offshore export cable installation is due to commence in 2012, with Global Marine already involved in the planning and preparation of activities for the project.

EIS begins for Hawaiian submarine power cable project

The Hawaiian Department of Business, Economic Development and Tourism (DBEDT) Energy Office has filed state and federal notices of intent to prepare a Programmatic Environmental Impact Statement (PEIS) for the Hawai'i Interisland Renewable Energy Program (HIREP). The PEIS will examine the program-level impacts of the development of up to 400 MW of wind energy on Maui County, the transmission of the energy to Oahu via an undersea cable, and the integration of that energy into Oahu's electrical grid.

The PEIS will incorporate a thorough analysis of overall impacts and benefits, but will not grant any development rights or privileges to a specific wind farm project. Instead, it will provide a framework, uniform policies, and a process for comprehensively deciding how project components should be integrated within the State's goal of 70% clean energy by 2030.

The PEIS is funded by the federal American Recovery and Reinvestment Act (ARRA) and has a scheduled completion date of April 2012. It will be conducted by AECOM Technical Services, Inc. (AECOM), a global provider of professional, technical, and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water, and government with approximately 52,000 employees around the world and approximately 200 professionals in Hawai'i.

Excerpts from

MUSINGS FROM THE OIL PATCH

By Allen Brooks, Managing Director

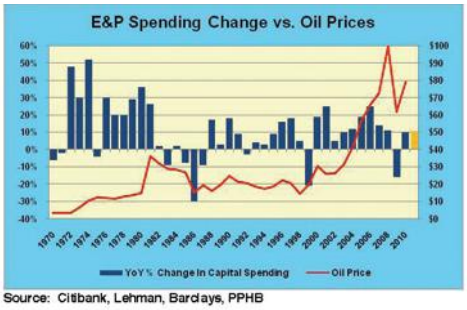
PARKS PATON HOEPFL & BROWN
ENERGY INVESTMENT BANKING, LP

From the January 4, 2011 issue

Year of robust industry capital spending

The annual Barclays Capital (BARC.L) survey of global exploration and production spending plans of oil and gas companies was recently released and its results signal a further healthy increase in expenditures, which should boost the revenues and earnings of oilfield service companies. The survey calls for a 10.8% increase in total global E&P spending to a record $490 billion, which follows on the estimated 10% increase in spending experienced in 2010. Growing optimism about a strengthening of the nascent economic recovery in the developed world, primarily the United States and Europe, combined with continuing rapid economic growth in developing economies underlies the strength in E&P spending.

The most interesting observation about the E&P spending survey results is that the period 2010-2011 mark only the third time since 1970 that the annual spending increase is flat with the prior year. The other two times were in 1977-1978 (20% both years) and 1993-1994 (4% and 3%). A characteristic of the two earlier periods is that each was marked by essentially flat crude oil prices. This time the industry is expecting crude oil prices to rise, but offset by weak natural gas prices. That could mean one of two conclusions – the spending increase either will be higher in 2011 than currently forecasted or crude oil prices are headed lower. One outcome is positive for the industry while the other is negative. Food for thought!



Source: Citibank, Lehman, Barclays, PPHB

Survey respondents expect higher oil prices in 2011

Oil and gas executives around the world continue to see healthy crude oil prices on the horizon. According to the survey, respondents expect the crude oil price (measured by the wellhead price for West Texas Intermediate) to average $77.32 per barrel in 2011, up from the $73.46 per barrel price indicated in the June 2010 survey and the $70.16 per barrel price in last December's survey. In response to a survey question, the most frequently cited price of crude oil that would trigger further increases in E&P budgets was $90 per barrel – a barrier that has already been pierced.

If we are to believe the forecasts of prominent commodity traders and the comments from several oil ministers attending the recent OPEC meeting, a $100 per barrel oil price cannot be ruled out for 2011. The difference seems only to be the question of when and for how long crude oil prices will remain at or above the century mark in 2011. Will $100 per barrel represent an average price for all of 2011, suggesting much higher prices at some point in the year as we are currently below the target, or will crude oil prices merely march slowly and steadily higher throughout the year to reach the target level, but resulting in a lower average price?

The debate over the future direction of crude oil prices has raged for much of this year. The debate has centered on identifying the primary impetus behind the steady rise in crude oil prices throughout 2010 in the face of continued weak economic activity and high unemployment throughout the developed world and a well-supplied oil market. This supposed economic disconnect has led to a debate over whether the rising crude oil price has been driven by the declining value of the U.S. dollar in global currency markets, or whether the price rise reflects fears about future oil supplies being insufficient to meet future demand despite a continued above-ground oil supply surplus. At times, the debate has focused on the role of commodity speculators, a topic hotly debated in 2008 prior to the collapse of crude oil prices in the wake of the global financial crisis. Then again, speculators are always a convenient scapegoat whenever commodity price movements can't be explained by conventional economic analysis.

Last week in his column in The New York Times, Nobel prize-winner and Princeton University economics professor Paul Krugman wrote that the recent rise in crude oil prices had nothing to do with commodity speculators or U.S. Federal Reserve monetary policy but had everything to do with accelerating economic growth globally. Mr. Krugman surprisingly failed to mention any contribution from the cold and snowy weather in the Eastern and Southern portions of the U.S. and across Northern Europe. He also failed to point out that a partial explanation for the fall in crude oil and refined product inventories in the United States is the annual tax planning strategies of oil companies designed to minimize the amount of inventory they hold at year-end when local governments levy inventory taxes. Falling inventories are normally experienced in December unless there is an unusual circumstance such as anticipated supply disruptions expected early in the new year.

The Barclays survey shows that the 2011 E&P spending increase globally will be driven by a 12.1% expected international spending hike. The strength of international spending dwarfs the 4.8% boost in Canadian E&P spending and is considerably stronger than the 8.1% increase in U.S. spending. It is important to note, however, the nearly $40 billion increase in international spending expected in 2011 is considerably more than all of Canadian spending, and represents about 45% of total U.S. anticipated spending next year. In other words, the importance of what happens in international markets cannot be overemphasized.

E&P focus switching to oil and liquids-rich natural gas

We know Canadian and U.S. E&P activity over the past several years has been driven primarily by drilling related to the exploding shale gas plays throughout the continent, although the emerging oil shales have also begun to impact drilling activity over the course of the past year. However, weak natural gas prices are forcing many operators to forego drilling beyond the

minimum activity levels needed to hold recently acquired leases. Despite weak natural gas economics, North American E&P spending is up as operators are finding many ways of securing capital to continue to play the "land grab" game. Operators, however, are actively switching their E&P focus to crude oil and liquids-rich natural gas drilling targets and away from dry natural gas prospects. Still, current economics makes it difficult to make money on natural gas anywhere but in the Marcellus and possibly the Eagle Ford gas shales. The problem with this liquids-rich drilling strategy shift is that it ignores the associated natural gas produced with the crude oil and natural gas liquids. So while the amount of natural gas produced per well may be lower than from dry gas wells, the volume has not yet been sufficiently lower to materially reduce the existing gas surplus, which would lead to higher natural gas prices.

Gas market could be full of surprises on supply side

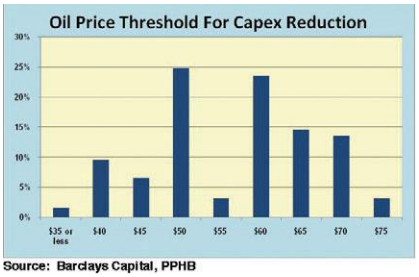
The current natural gas price outlook, as depicted by the forward curve of gas futures prices, suggests it will not be before 2013 that we see prices at or above $5 per thousand cubic feet (Mcf) on a sustained basis. That assumption rests on two considerations – first that gas production doesn't fall off more rapidly than expected as drilling slows, and secondly that gas consumption doesn't pick up materially along with the recovering economy. Another troubling consideration on the supply side is that producers have built, and continue to build, a backlog of drilled-yet-uncompleted wells that can be rapidly brought into production as gas prices rise (the question being the price level that triggers accelerated completion activity). Producers may also open the flow of wells that have been choked back in an effort to help reduce the gas surplus.

We feel safe in predicting that whatever producers suggest they will do to counteract low gas prices will not happen as everyone will assume that conventional wisdom doesn't apply to them. Therefore, producers will begin turning the valves and completing previously drilled wells before natural gas prices reach the threshold price everyone acknowledges is the trigger point for increased activity and production. The only true discipline is capital restraint, meaning that unless and until Wall Street is no longer willing to provide money for shale gas exploitation, producers will be hard-pressed to slow their activity despite acknowledging the poor economics associated with their decisions.

We chuckle at the comments from natural gas E&P company executives, stock analysts and investors long natural gas-oriented stocks that the long-term outlook for natural gas is healthy. That may truly be the case, however, we are reminded that the long-term is made up of many short-terms, and if those are not healthy, then stringing together a number of bad periods before arriving at a good period seems to be a recipe for failure. We jokingly refer to it as "over the horizon forecasting." By that we mean, things are going to be bad for as far as one can realistically see (to the horizon), but on the other side, everything is wonderful. This is usually a delusional forecasting model!

Price curve indicates increased spending next year

So what are the implications for producer actions relative to the Barclays E&P spending survey results? One question Barclays almost always asks is the willingness to increase or cut spending based on the changing level of commodity prices. What one gets is a central tendency for spending adjustments based on price sensitivities to higher or lower commodity prices. As we noted earlier, the budgets are being based on an average crude oil price for 2011 of $77.32 a barrel. Since February 2011 crude oil futures prices (as of December 27th) are nearly $91 a barrel and the average 12-month futures price curve is about $92.50, it would seem there is a strong likelihood of an upward bias to E&P spending next year. That is unless producers anticipate crude oil prices dropping next year due to economic, political or currency issues. With what we know about oil and gas company spending patterns, seldom are budgets increased during the first part of the year. Mid-year budget adjustments are generally the rule, so one should expect little additional spending until summer, at the earliest.



Source: Barclays Capital, PPHB

What we found interesting in the producer responses to the questions about reducing spending based on lower crude oil and natural gas prices was just how wide the central tendencies were. As shown for crude oil, a significant number of companies would reduce their E&P spending if prices were to fall to $60 a barrel, and even more if they fell to $50. But what is often missed in a chart such as the one above is the percentage of companies that would have cut their spending when crude oil prices fell to $70 a barrel or $65.

Another way to look at the spending reduction vulnerability is to find the point at which the cumulative percentage reductions are equal to 50%. In the latest survey, we could expect meaningful reductions in industry E&P spending by the time crude oil prices had fallen to about $60 a barrel, or some $30 a barrel below the current futures price. Another measure is to look at the 25% cumulative reduction percentage, which is somewhere between $70 and $65 a barrel. The point is to show that it appears there is considerable room for a downside move in crude oil prices before the industry significantly reigns in spending. This should provide some comfort for oilfield service companies who are being pressured to add capacity to their businesses. Often times the maximum amount of pressure for capacity additions occurs at peaks in activity and just prior to industry activity downturns. The timing of capacity additions can make or break industry pricing and in turn, oilfield service company financial returns.

Not surprising spending is rising at a moderate pace

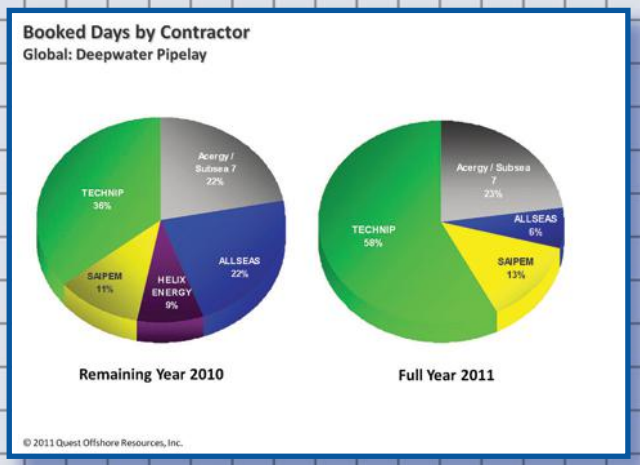
Another way of visualizing this relationship is to look at the longer term record of industry price assumptions when planning their budgets and then examining the actual average price for that particular year and the percentage increase in E&P spending plans. Following the recession of 2002, there was a small increase in E&P spending that reflected the general assumption of a relatively flat future crude oil pricing trend. As actual prices started rising faster than companies' expectations, spending increases also grew. Interestingly, the increase peaked in 2006 and the rate of increase in 2007 was less than half the prior year gain. Spending growth declined again in 2008, especially when the financial crisis hit. The impact of the 2008 credit crisis and the impact on the economy and the lack of industry access to capital markets translated into cut in E&P spending in 2009. With crude oil prices today moving higher amid expectations for further increases, it is not surprising that E&P spending is rising at a moderate pace.

When we examine spending and its sensitivity to lower natural gas prices, we see a similar pattern as displayed for natural gas prices. Interestingly, the greatest percentage of budget cuts will come when natural gas prices fall under $4.00/Mcf.

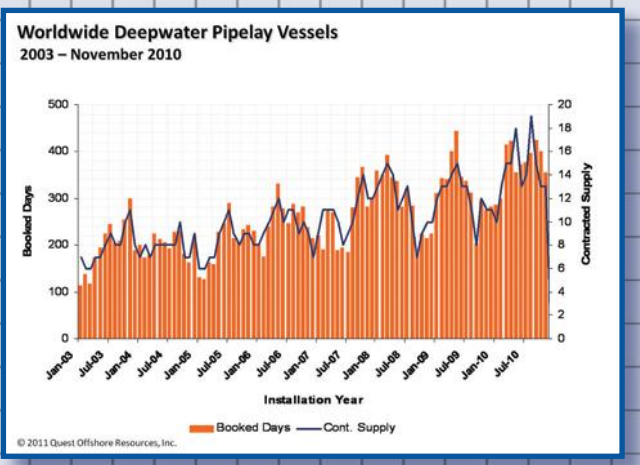
Offshore At-A-Glance

Quest Offshore Activity Report

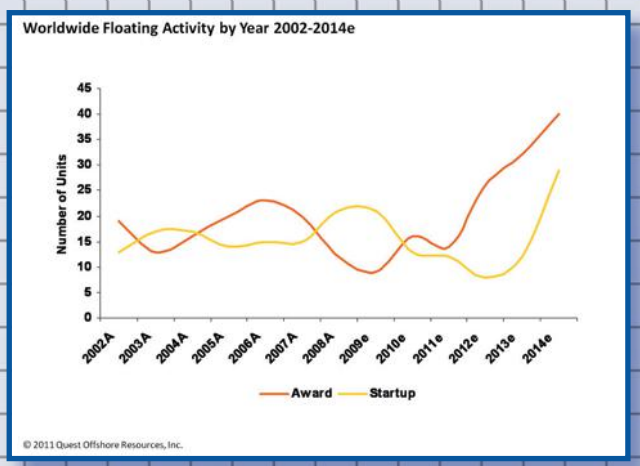
Deepwater Pipelay Booked Days



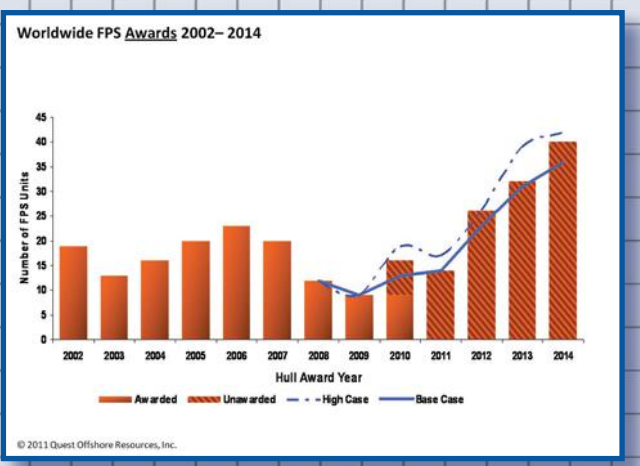
Deepwater Pipelay Vessels



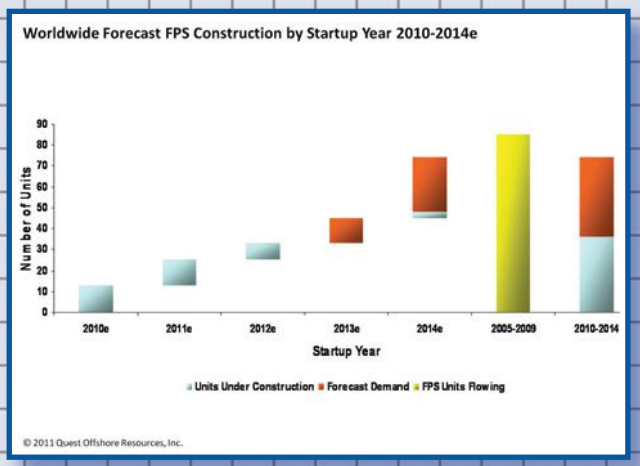
Floating Activity from 2002-2014



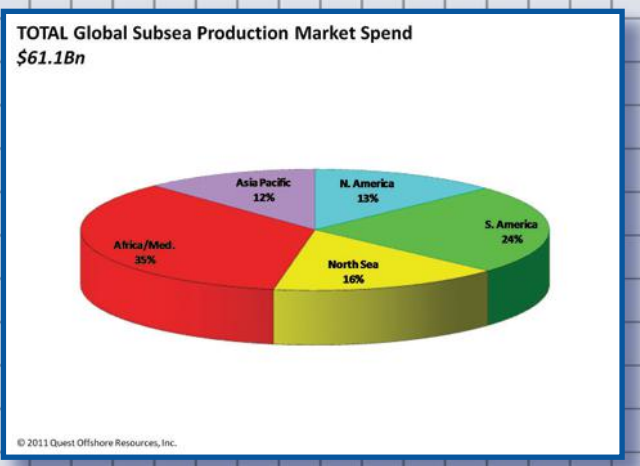
FPS Awards from 2002-2014



Forecast FPS Startup 2010-2014

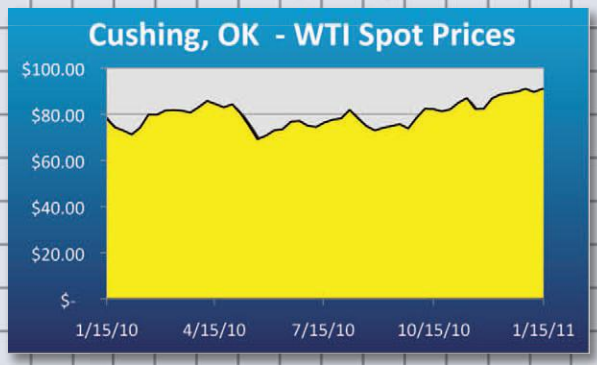


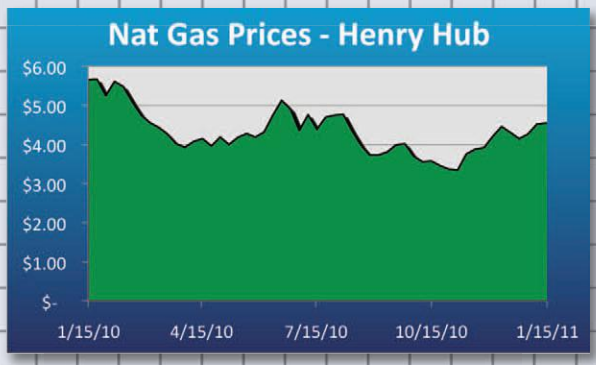
Global Subsea Prod. Mkt. Spent

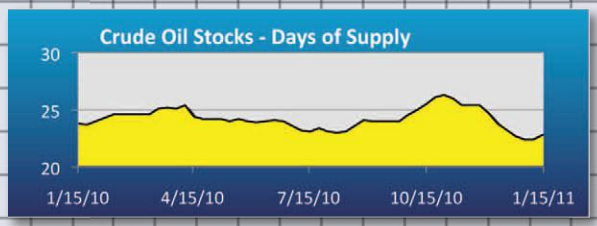


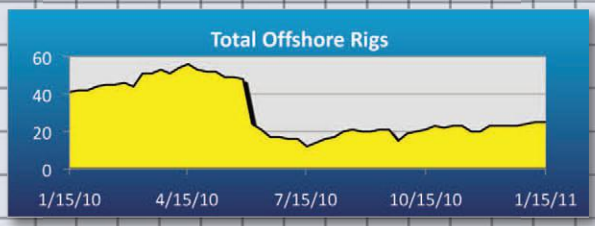
Oil & Gas Industry Trends

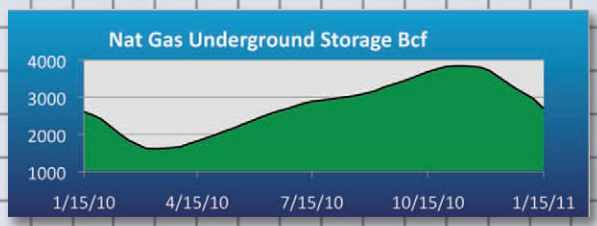
Monitoring the pulse of the US Offshore Oil & Gas Industry

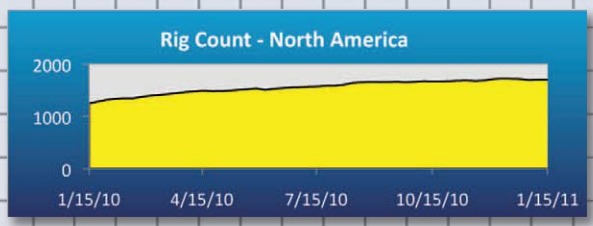










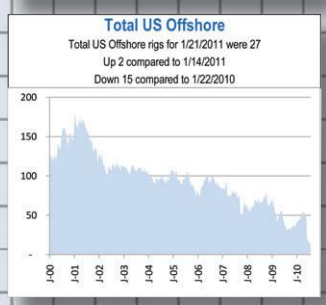


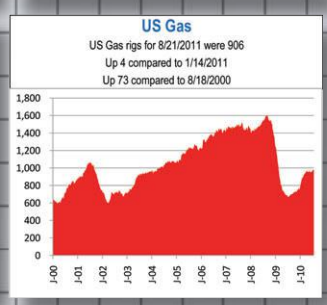
positive trend at least 3 weeks
changing trend < 3 weeks
negative trend at least 3 weeks

Baker Hughes Rig Report

North American Rig Report
January 21, 2010

Location	Week of 1/21	+/-	Week Ago	+/-	Year Ago
Land	1671	10	1661	445	1226
Inland Waters	15	1	14	1	14
Offshore	27	2	25	-15	42
U.S. Total	1713	13	1700	431	1282
Gulf of Mexico	27	2	25	-14	41
Canada	621	44	577	126	495
N. America	2334	57	2277	557	1777





Gulf of Mexico Data

Current Deepwater Activity

Operator	Area/Block	OCS Lease	Rig Name	Prospect Name	Water Depth(ft)
Shell Offshore Inc.	AC 857	G17565	H&P 205	Great White	7,811
Anadarko Petroleum Corp.	GC 726	G24179	T.O. DISCOVERER SPIRIT	Tonga	4,674
Anadarko Petroleum Corp.	GC 683	G18421	ENSCO 8500	Caesar	4,457
BHP Billiton Petroleum (GOM)	GC 654	G20085	T.O. DEVELOPMENT DRILLER I	Shenzi	4,383
BHP Billiton Petroleum (GOM)	GC 654	G20085	GSF C.R. LUIGS	Shenzi	4,337
Chevron USA Inc.	GC 640	G20082	T.O. DISCOVERER CLEAR LEADER	Tahiti	4,298
Shell Offshore Inc.	MC 809	G09883	H&P 204	Princess	3,800
Marubeni Oil & Gas (USA) Inc.	EB 579	G19025	ENSCO 8502	Falcon	3,453
Shell Offshore Inc.	MC 764	G08852	NOBLE DANNY ADKINS	Mars	3,283
Shell Offshore Inc.	MC 807	G07963	H&P 201	Mars b	2,945
Anadarko Petroleum Corp.	VK 826	G06888	NABORS P-10	Neptune	1,920
Chevron USA Inc.	VK 786	G10944	NABORS 87	Petronius	1,754
Stone Energy Corp.	MC 109	G05825	H&P 206	Amberjack	1,030
W&T Offshore, Inc.	EW 949	G21739	CAL DIVE Q-4000	Queen of Hearts	865

Deepwater prospects with drilling and workover activity: 14

New Deepwater Activity

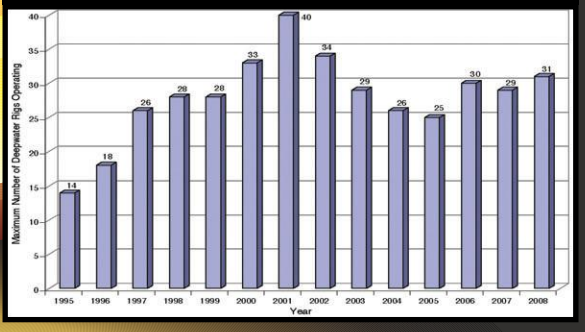
Operator	Area/Block	OCS Lease	Rig Name	Prospect Name	Water Depth(ft)
No activity since moratorium was lifted					

New Deepwater Activity as of Tuesday, January 18, 2011

Activity by Water Depth

Water Depth in Meters	*Active Leases*	*Approved Applications*	*Active*
0 to 200	*2,125*	*33,726*	*3,248*
201 to 400	*138*	*1,106*	*20*
401 to 800	*319*	*835*	*10*
801 to 1,000	*403*	*507*	*7*
1,000 & above	*3,390*	*1,638*	*26*

Rig activity by year



Activity by water depth Information current as of Tuesday, January 18, 2011

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

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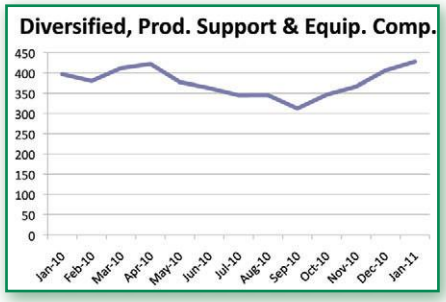
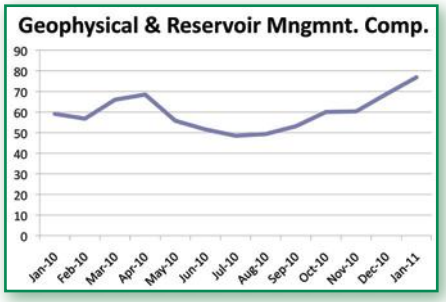
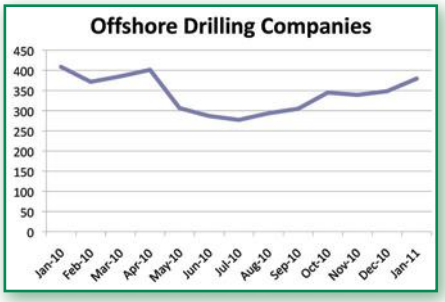
Monthly Stock Figures & Composite Index

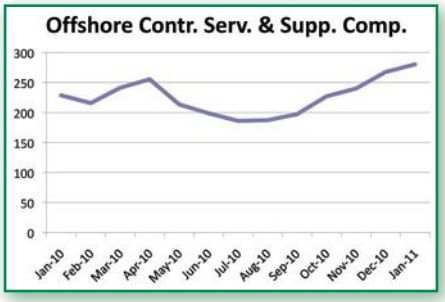


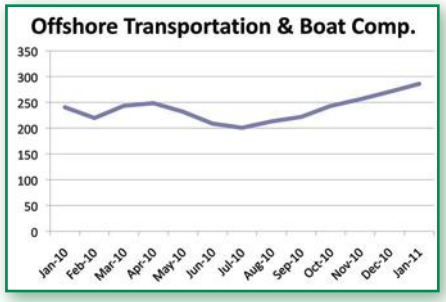


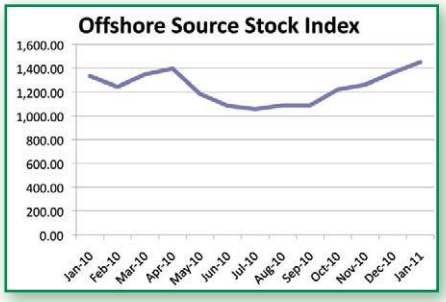


Industry Company Name	Symbol	Close *Mid-January*	Close *Mid-December*	Change	Change %	High 52 week	Low 52 week
Diversified, Production Support and Equipment Companies							
Baker Hughes, Inc.	BHI	59.58	55.46	4.12	7.4%	59.82	35.62
Cameron Intl. Corp.	CAM	52.23	49.55	2.68	5.4%	47.44	31.42
Drill-Quip, Inc.	DRQ	77.04	78.53	-1.49	-1.9%	76.40	40.38
Halliburton Company	HAL	39.99	40.27	-0.28	-0.7%	41.73	21.10
Tenaris SA	TS	46.49	47.14	-0.65	-1.4%	49.88	32.91
Newpark Resources, Inc.	NR	5.94	5.94	0.00	0.0%	8.81	3.60
Schlumberger Ltd.	SLB	86.91	74.32	12.59	16.9%	86.96	51.67
Superior Energy Services, Inc.	SPN	35.49	33.48	2.01	6.0%	35.99	18.02
Weatherford International, Inc.	WFT	23.93	21.16	2.77	13.1%	23.98	12.34
Deep Down, Inc.	DPDW	0.10	0.08	0.02	0.0%	0.29	0.05
Total Diversified, Production, Support and Equipment.....		**427.70**	**405.93**	**21.77**	**5.4%**	**431.30**	**247.11**
Geophysical / Reservoir Management							
Dawson Geophysical Company	DWSN	34.62	30.38	4.24	14.0%	34.70	20.05
Mitcham Industries, Inc.	MIND	11.15	10.49	0.66	6.3%	12.28	5.56
Compagnie Gnrale de Gophysique-Veritas	CGV	31.11	27.86	3.25	11.7%	33.39	16.42
Total Geophysical / Reservoir Management.....		**76.88**	**68.73**	**8.15**	**11.9%**	**80.37**	**42.03**
Offshore Drilling Companies							
Atwood Oceanics, Inc.	ATW	37.78	36.59	1.19	3.3%	38.53	23.71
Diamond Offshore Drilling, Inc.	DO	74.90	63.76	11.14	17.5%	104.37	54.70
ENSCO International, Inc.	ESV	53.85	52.25	1.60	3.1%	54.53	33.33
Nabors Industries, Inc.	NBR	22.52	21.97	0.55	2.5%	26.48	15.55
Noble Drilling Corp.	NE	38.09	35.12	2.97	8.5%	44.95	26.23
Pride International, Inc.	PDE	33.98	31.21	2.77	8.9%	34.11	21.51
Parker Drilling Company	PKD	4.34	4.39	-0.05	-1.1%	5.85	3.43
Rowan Companies, Inc.	RDC	35.25	33.79	1.46	4.3%	35.40	20.44
Transocean Offshore, Inc.	RIG	79.01	69.31	9.70	14.0%	93.24	41.88
Total Offshore Drilling.....		**379.72**	**348.39**	**31.33**	**9.0%**	**437.46**	**240.78**

Monthly Stock Figures & Composite Index







Industry Company Name	Symbol	Close *Mid-October*	Close *Mid-September*	Change	Change %	High 52 week	Low
Offshore Contractors, Services and Support Companies							
Helix Energy Solutions Group, Inc.	HLX	12.23	12.64	-0.41	-3.2%	17.00	8.38
Gulf Island Frabrication	GIFI	28.29	29.76	-1.47	-4.9%	30.56	14.18
Global Industries, Ltd.	GLBL	7.31	6.90	0.41	5.9%	7.33	4.05
McDermott International Inc.	MDR	20.54	19.80	0.74	3.7%	28.98	12.10
Oceaneering International	OII	74.89	73.80	1.09	1.5%	76.86	39.75
Subsea 7 SA	SUBC	25.09	23.32	1.77	7.6%	25.93	13.25
Technip ADS	TKPPY.PK	100.51	89.65	10.86	12.1%	101.00	56.65
Tetra Technologies, Inc.	TTI	11.53	11.65	-0.12	-1.0%	14.64	8.00
Total Offshore Contractors, Service and Support..……..		**280.39**	**267.52**	**12.87**	**4.8%**	**302.30**	**156.36**
Offshore Transportation and Boat Companies							
Seacor Holdings Inc.	CKH	104.44	102.34	2.10	2.1%	116.00	67.01
Gulfmark Offshore, Inc.	GLF	34.40	30.50	3.90	12.8%	35.66	23.27
Bristow Group	BRS	47.32	46.04	1.28	2.8%	48.63	28.32
PHI, Inc.	PHII	21.87	20.65	1.22	5.9%	24.10	13.15
Tidewater Inc.	TDW	56.32	50.30	6.02	12.0%	57.08	37.99
Trico Marine Services, Inc.	TRMA	0.13	0.14	-0.01	-7.1%	4.97	0.12
Hornbeck Offshore	HOS	21.43	20.67	0.76	3.7%	25.75	12.63
**Total Offshore Transportation and Boat ……..……..... **		**285.91**	**270.64**	**15.27**	**5.6%**	**312.19**	**182.49**
Total Diversified, Production, Support and Equipment		**427.70**	**405.93**	**21.77**	**5.4%**	**431.30**	**247.11**
Total Geophysical / Reservoir Management		**76.88**	**68.73**	**8.15**	**11.9%**	**80.37**	**42.03**
Total Offshore Drilling		**379.72**	**348.39**	**31.33**	**9.0%**	**437.46**	**240.78**
Total Offshore Contractors, Service and Support		**280.39**	**267.52**	**12.87**	**4.8%**	**302.30**	**156.36**
Total Offshore Transportation and Boat		**285.91**	**270.64**	**15.27**	**5.6%**	**312.19**	**182.49**
Total Offshore Source Index…		**1,450.60**	**1,361.21**	**89.39**	**6.6%**	**1,563.62**	**868.77**

Product Focus

The Inspection and Light Work Class ROV Explosion

By Bob Christ and Drew Michel

It's Not About the Vehicle, it's About the Sensors and Tooling

A basic tasking question for the vehicle is "How big?" The simple answer is, "Just big enough [and not more]".

For sensor delivery, all that is needed is fiber telemetry, power for the sensor and a physical capability to house the sensor for delivery to the environment.

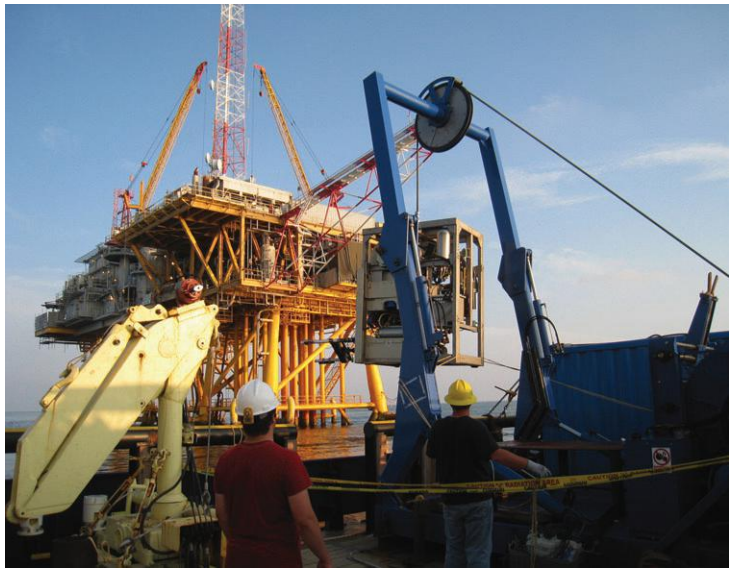


Figure 1. *MSROV with Integrated Flooded Member Detection Sensor*

Physical intervention tasks, however, are about the ability of the vehicle to muscle around payload and manipulate the on-site environment. Some underwater construction tasks, in fact, require a huge vehicle to carry the manipulators and tooling required to move heavy items around – but how often does a heavy lift operation happen in everyday routine offshore operations?

Considering that a free-flying ROV is by necessity a neutrally-buoyant vehicle, any extra weight on the vehicle will require an ever increasing amount of floatation to offset this increased weight. And that in turn requires more thrust to offset the drag of the increased floatation size, which requires increases the size/weight of the thruster... Get the picture?

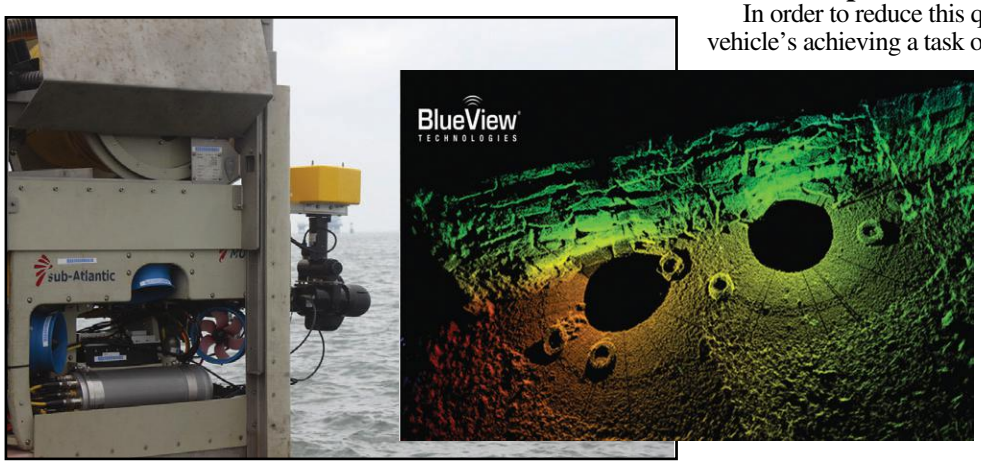


Figure 2. *MSROV with Integrated 3D Mapping Capability*

The Horsepower Wars

Most people outside of the subsea engineering community know little or nothing about ROVs. What emerged in the 1980s/90s was an effort by offshore oil company managers to obtain a means of quantifying the most capable vehicle for the job at hand. Some ROV company sales personnel responded to this by reducing the vehicle capabilities to a single metric – horsepower.

The problem with an ever-increasing horsepower rating is an ever-increasing support structure needed for this ever-increasing ROV design spiral.

Big ROV = Big LARS [launch & recovery system] and generator
Big LARS = Big deck
Big deck = Big boat
Big Boat = Big crew, more diesel, more insurance, etc.

What about the guy who just wants to turn a screw, check the bull's eye or sample the water column? Does he really need a Big ROV/LARS/Deck/Boat/Crew/etc.?

Further, the horsepower of the vehicle is but one of the many factors to consider in completing a field assignment. The vehicle horsepower rating is placed on the pump or the transformer at the vehicle (or wherever the manufacturer chooses to measure it as there are no established standards on the subject). Unfortunately, the problem persists as many oil company tenders still reference a minimum horsepower rating for the vehicle incentivizing manufacturers to crank up the horsepower – in many cases for no other reason than to pump up the vehicle specifications.

The (Aero) Hydrodynamic Wars

As the move to smaller vehicles progressed, some vehicle manufacturers attempted to reduce the measure of the vehicle's ability to fight vehicle and tether drag by borrowing a metric from their aircraft brethren – the thrust-to-weight ratio. For a neutrally buoyant vehicle, the measure of a its weight is irrelevant to the overall ability to overcome total system drag towards propelling the vehicle to the work site.

The proper measure of a system's ability to offset water currents is the total system thrust to total system drag. Drag is computed on all components that are free-flying (i.e., all components pulling against the vehicle, requiring offset by thrust) and is an easily derivable figure.

What's Important?

In order to reduce this question to its basic components for the vehicle's achieving a task offshore, this is what it's all about:

1. The ability of the vehicle to pull itself and its tether to the work site for delivery of tooling and sensors along with the vehicle being of sufficient size to accommodate same.
2. The ability of the telemetry system to transmit sensor data to the surface for capture and/or processing.
3. The ability of the vehicle's onboard tooling to complete the scope of work for the task.

The power that is needed to achieve these factors is the back-in quantity to achieve the above three components, which brings us back to, "How big?".

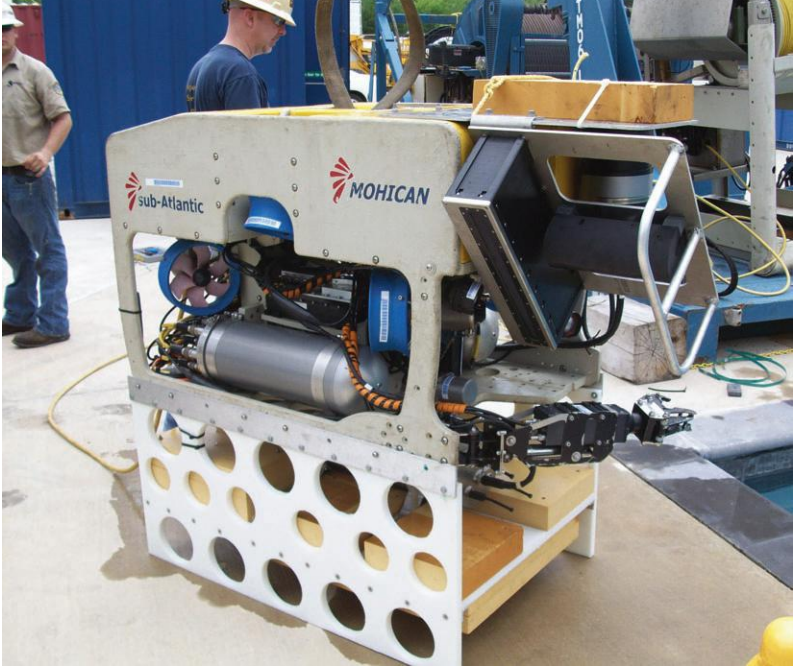


Figure 3. *MSROV with Integrated multibeam and survey skid*

Description of ROVs by Size Category

Remotely operated vehicles (ROVs), as used in the offshore oil & gas industry, can be generally described as tele-operated free-swimming tethered robotic underwater vehicles in most cases, surface-powered. These are used in a variety of applications from diver support to heavy marine subsea construction. The market is substantially segmented into four broad categories based on vehicle capabilities:

1. Observation Class ROVs (OCROV) – those vehicles from the smallest micro-ROVs to a vehicle weight of 200 pounds. These vehicles are generally smaller, DC-powered inexpensive vehicles used as either backup to divers or as a diver-substitution for general inspection tasks. Vehicles in this classification are generally limited to depth ratings of less than 1,000 feet of seawater (fsw) due to the weight of power delivery components and one atmosphere pressure housing, which impose limitations on the vehicle size (to allow for maintenance of neutral buoyancy, and thus the ability to swim). The horsepower rating of these vehicles is generally less than five.

Figure 4. *Example of OCROVs*

2. Mid-sized ROVs (MSROV) – vehicle weight of 200 pounds to vehicles weighting up to 2,000 pounds. These vehicles are generally a deeper-rated version of the OCROVs with sufficient power delivery components and pressure housings capable of achieving deeper depths over longer umbilical lengths. These also are generally all-electric vehicles with some hydraulic power for small manipulator and tooling package options. The horsepower rating of this class ranges from approximately 10 hp to about 100 hp. This classification is also referred to as Light Work Class ROVs.

Figure 5. *Example of MSROV in Caged TMS*

3. Work Class ROVs (WCROV) – vehicles in this category are generally heavy electro-mechanical vehicles powered by high-voltage (>3,000 volts) AC circuits from the surface to the vehicle. The power delivered to the vehicle is typically changed immediately to mechanical (hydraulic) power at the vehicle for locomotion and all manipulation and tooling functions. The horsepower classification of these vehicles is 100 hp and above (the substantial jump in power requirements is accounted for through loss in efficiency of electro-mechanical thrust, versus simple electronic locomotion).

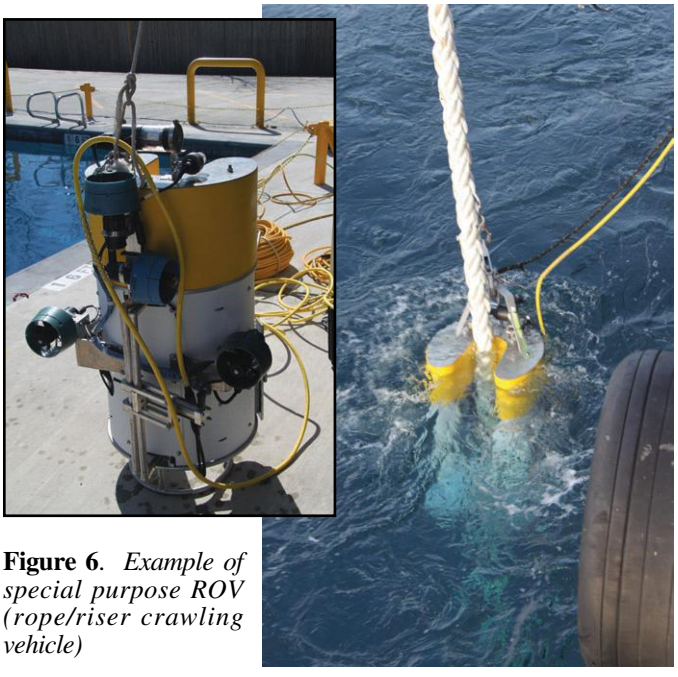


Figure 6. *Example of special purpose ROV (rope/riser crawling vehicle)*

4. Special Purpose ROVs – vehicles in this category are designed and built with a specific purpose in mind (e.g., free-swimming

converting to some other purpose). The vehicle shown in Figure 6 is the SeaTrepid patented rope and riser crawling hybrid (swimming and crawling) vehicle.

The general difference between the OCROV and MSROV is the power transmission and depth rating. The MSROV and WCROV differ in the size of hydraulic power-pack and the horsepower rating. Both the MSROV and the WCROV are deep-rated vehicles and both can be delivered to deep work sites. The WCROV, however, can perform heavy tasks that the MSROV is incapable of achieving due to the muscle difference.

ROV services are subdivided based on a number of factors including the primary versus supporting role of the job, equipment footprint, and duration of assignment.

Primary versus Supporting Role – An example of a primary function for an ROV is any diver-less operation such as platform inspection, deep water remote intervention, pipeline survey and any other function where a diver is not present in the water or at the job site. A supporting role would be as a diver backup function such as for a tool delivery vehicle, diver support as backup and/or diver monitoring or monitoring of diver-installed tooling.

Larger ROV spreads require a larger footprint and higher support requirements. Whereas the OCROV can simply plug into the vessel's standard 110/220 VAC power source, the MSROV and larger WCROV spreads require independent high-voltage/high-service power sources. The OCROVs can be hand-launched over the vessel bulwarks while any number of LARS require modification in order to get the larger MSROV and WCROV vehicle from the deck into the water and back again in all sea states without damage to equipment and danger to personnel. Further, to deliver the vehicle to deep work sites, the use of a Tether Management System (TMS) is preferable in order to manage the soft tether from the depressor weight (i.e. heavy weight holding the vehicle steady at the work site) to the vehicle. An inexpensive substitution to the TMS is a simple clump weight (to isolate the total tether drag from simply the clump weight to the vehicle). A TMS with a separate electrical and/or hydraulic system essentially requiring two controls systems (one for the vehicle and one for the TMS) in the water doubling the complexity.

The two types of ROV assignments are broadly defined as "Contract" and "Call-out" work. Contract work involves long-term (greater than 6 months duration) assignments which generally involve [and cost-justify] integrating the vehicle into the work platform with the requisite detailed and complicated mobilization. An example of a contract job would be a drill support assignment whereby a complete section of the rig is dedicated to the ROV spread. Another would be a dedicated ROV vessel with the LARS and control system integrated into the superstructure of the vehicle. Integrating an ROV spread into a vessel of opportunity can be a very expensive and time-consuming proposition undertaken only for jobs that will allow for mobilization cost amortization over a longer period (lowering per-work-day mobilization costs).

Call-out work involves short-term (less than 6 months) assignments whereby minimal integration work is performed into the vessel of opportunity due to its limited duration. The exception to this would be a fully-integrated ROV vessel performing short-term work.

The cost of mobilizing a WCROV spread can be substantial. The LARS must be moved with special wide-load road permits, the work package (vehicle, TMS, LARS and winch with umbilical) weighs in excess of 100,000 pounds on deck, the spread is up to four vans (Control, Work, Generator and Survey – in addition to the work package spread). Quite often, special bracing of the deck must be added (perhaps with substantial naval architectural costs...) in order to distribute the load across the vessel structure. The cost of mobilizing an OCROV spread is simply hand-carrying the cases on to the vessel of opportunity and plugging it into the vessel's power.

Most mobilizations require several days of working out equipment issues in the field (normally described as "Tweeking the Spread") in order to achieve optimum equipment configuration and to troubleshoot loose components (from the package being jarred while transported over the road). This problem is multiplied as the complexity of the equipment increases. In short, mobilizing a WCROV spread on a new vessel of opportunity for a short-term assignment is seldom worth the trouble and expense. The best way to justify a WCROV spread for call-out work is to have a dedicated vessel with the ROV spread permanently integrated.

ROVs by Market Niche

The inland work is the realm of the OCROV and MSROV, but unless it is a construction project (requiring heavy-lift WCROV capability) it is call-out work.

The offshore marketplace is generally populated with larger exploration and production companies requiring heavy WCROV equipment. In most cases, a smaller ROV would be more than adequate to perform the scope of work for the assignment but the engineering section of these E&P companies traditionally pay more for their ROV services and often do not object to the higher cost structure.

The OCROV to MSROV is capable of performing "The 95% Solution" at a substantially lower cost structure than the larger (and much more costly) WCROVs. The nature of the call-out business is short-term and very profitable work. The upside to the call-out business is there are not many players allowing for more aggressive pricing. The downside of the call-out business is the lack of any predictably sustainable work levels. It is, for the most part, either feast or famine.

Is It An "ROV Boat" or a "Vessel With ROV Capabilities"?

In the Gulf of Mexico (GoM) marketplace, boat companies are continuing to push for more integrated ancillary services in order to increase vessel utilization. The initial boat company entrant into WCROV market in the GoM formed a subsidiary in 2007 and went directly to becoming an ROV primary contractor. That was/is very ambitious as ROVs are outside of the vessel company's core competency. Other vessel companies have purchased the ROV assets, but have chosen to treat the ROV as part of the vessel spread (a similar marketing treatment to the vessel's crane). One senior executive of a large vessel company even termed the WCROVs aboard their vessels as "Bling-Bling," an analogy it to women's jewelry.

MSROVs and WCROVs, however, have a symbiotic relationship with vessels. Time will tell as to which party (vessel operator or ROV operator) will remain on top as the predominant primary contractor.

The Most Valuable (and Weakest) Link

ROVs are easily manufactured with common industrial components. The value in this business is the ability to field a job consistently with high service quality. And that means having top-notch experienced and qualified field technicians getting results for the customer. ROVs run the full gauntlet of technologies from electronics to hydraulics to fiber optics and computer network engineering. Since the vehicle is only making money when it is working, the ROV technician must be its pilot, mechanic, electrician and computer operator. And he must understand vessel operations as

the vessel crew may or may not understand the operation being fielded.

Just as the offshore vessel captain works his way up through the ranks, it takes a full two years to break in a minimally-qualified ROV technician. A qualified technician makes the difference between a successful job and a failure. They are worth their weight in gold and, of course, are well paid indeed.

The problem with operating a call-out ROV business model is the financial requirement to maintain a trained staff of technicians during times of decreased business. The shallow answer to this is to use 100% contract labor (so as to make labor a completely variable cost). This approach has some substantial pitfalls in maintaining service quality. When things go wrong in the field, a loyal staff of company-trained and tested representatives tend to work through the problems much more doggedly than do contractors. Oftentimes, a job where problems develop and the company resolves them efficiently to finish the job strongly leaves a excellent and lasting impression. And customers tend to identify the company as the field representatives operating the job (i.e. the supervisor and technical staff in the field). Loyalty is key – and that favors company employees.

Sensors for OCROVs and MSROVs

Most MSROVs contain the capability to field fiber optic telemetry for either (or both) sensor packages and vehicle telemetry. Once fiber is installed, the vehicle becomes a gigabit- capable sensor delivery platform limited only by the sensor size and power requirements.

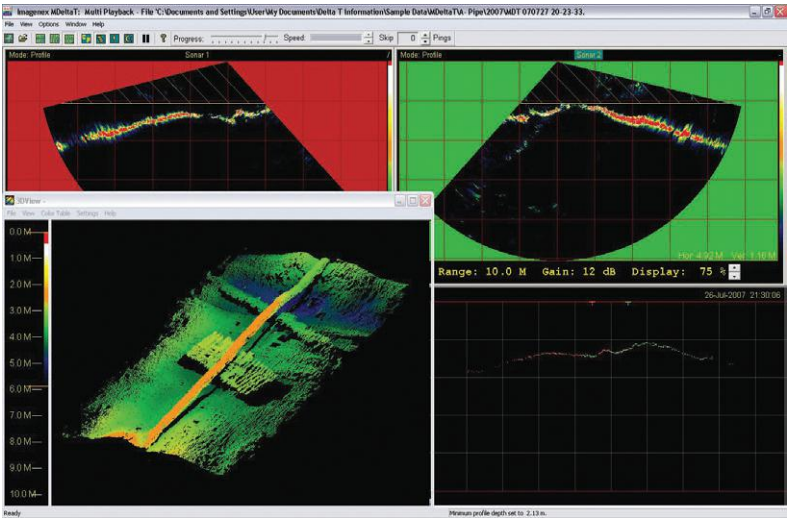


Figure 7 – *Dual-head multibeam pipe profiling sonar on MSROV*

Tooling, Manipulators for OCROVs and MSROVs

When you strip out all of the hype surrounding the large WCROVs, what you are left with is a pump to drive a hydraulic tool. The mission is about the pump or the electrical actuator to drive the tooling and intervention package. Very small vehicles are capable to integrating high-torque electrical turning actuators. Also, a 50 hp electrical MSROV vehicle has a sufficient power budget to drive a 20 hp hydraulic pump.

Figure 8. *MSROV with light-duty grinder*

Instead of specifying the vehicle then identifying the available tooling pump, the proper decision tree should be to start with the mission/tool then build back towards the pump, vehicle, control system and finally to the generator. You will be surprised at how small the vehicle really can be.

Conclusion

OCROVs and MSROVs are rapidly gaining in both capabilities and industry acceptance as the end customer continues to gain experience on this technology (and the information on its use continues to be disseminated). As the gaming generation continues to enter the workforce and machines replace people in the hazardous environment of the deep ocean, it seems clear that ROVs will proliferate.

Look for more punch in continually smaller and cost-effective packages as the technology develops.

About the Authors

Bob Christ is the President of SeaTrepid International LLC – US-based worldwide provider of OCROV and MSROV services to the oil & gas industry. He is co-author of "The ROV Manual" (published through Elsevier in 2007) with Bob Wernli and is an alumnus of Oceaneering's ROV program. Bob also co-founded VideoRay (manufacturer of small OCROVs) in 1999. Bob lives with his wife and two children in Covington, Louisiana.

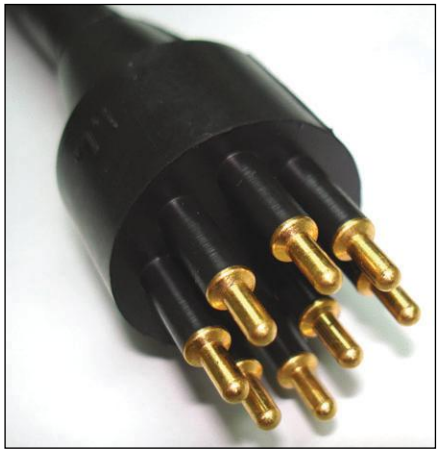
Drew Michel has 44 years of experience in technical and executive positions in the marine technology industry. He is a Marine Technology Society (MTS) Fellow (and President-elect of the Society), a senior member of the Institute of Electrical and Electronic Engineers and for 19 consecutive years chair of the MTS ROV Committee and co-chair of the annual Underwater Intervention Conference. He is on the National Visiting committee (board) of the Marine Advanced Technology Education Center, and served on National Academy of Sciences and various other committees. He is the recipient of the Lockheed-Martin Award for Ocean Science and Engineering, was selected by Engineering News Record as an honoree for Outstanding Engineering Achievement and was inducted in October 2009 into the Offshore Energy Center Hall of Fame. Michel retired from his last full-time executive position in early 2001 and now uses his homes in Houston, Texas, and Belle River, La., as bases from which he consults on projects worldwide.

SEA CON® Supports the ROV Industry with Solutions

Remotely Operated Vehicles (ROV's) have been in operation for many years. The ROV has developed into large work class vehicles and dredgers, which support the installation and operation of subsea oil and gas fields, high specification inspection vehicles with high technological sensing and video and very small, portable inspection and surveillance vehicles. As ROV technology has evolved, SEA CON® has been the leader in providing connection solutions for all types of today's ROV's.

In the early years, the SEA CON® 55 Series dominated the market and is still one of the leading connectors used on ROV's today. Over the years, as the number of ROV suppliers has increased, SEA CON® has seen that many ROV manufacturers have differing requirements for connection solutions. The highly reliable and robust MINI-CON range provides small diameter, high density connectors with up to 203 contacts and pressure ratings of up to 20,000 psi (approx. 45,000ft/13,700m) and gives flexibility with different contact sizes suitable for varying power requirements of up to 50 amps.

55 Series



WET-CON

Other ROV applications have required wet pluggable connectors such as SEA CON®'s WET-CON and Micro WET-CON Series. In addition, SEA CON® has provided many alternative solutions within these two connector ranges to suit specific customer requirements including different material choices for the bulkhead connector such as stainless steel, aluminum and titanium. The WET-CON/Micro WET-CON series utilizes SEA CON®'s molding experience to the extreme and while standard pressure ratings are up to 20,000 psi (approx. 45,000ft/13,700m), optional pressure ratings are also available.

CS-MS

SEA-MATE range

SEA CON® has always supported the ROV industry with connector solutions. In recent years SEA CON® has seen the need to develop specialized solutions to meet specific customer needs which has resulted in new connector ranges being produced including the CS-MS and SEA-MATE series.

In addition to the ROV manufacturers, SEA CON® has seen new requirements from both instrument and sensor companies as the specification and demands increase for the use of both Optical and Ethernet communications for High Definition systems.

MINI-CON fiber optics

OPTI-CON

Once again SEA CON® has supported these requests with a range of optical products, including the MINI-CON, CS-MS and OPTI-CON series of optical and hybrid connectors. The performance of these connectors is impressive, providing less than 0.5dB optical loss while still maintaining pressure ratings of up to 20,000 psi (approx. 45,000ft/13,700m). While most of SEA CON®'s connectors are capable of transmitting Cat 5 Ethernet communications, SEA CON® has developed Ethernet solutions in both the HUMMER and Micro WET-CON ranges for CAT 6 Ethernet applications.

In addition to the varied connector requirements that ROV manufacturers place on suppliers, SEA CON® has also seen various philosophies being adopted for cabling systems. As a result, SEA CON® provides the majority of its connector ranges with the option of molded to cable, or terminated to oil filled hoses. While there is an option for cable or oil filled hose on the connection system, the connection from the ROV to the surface (tether or umbilical) remains cabled and SEA CON®'s experience extends by also being able to offer solutions for these highly critical connections.

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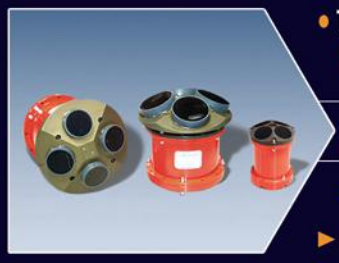

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CONFERENCE NEWS

Neil Rondorf, SAIC Maritime kicked off the day.

Advanced ocean energy technologies Premiered at Cambridge Conference

For the second year in a row, over 125 professionals from all over the world gathered at the innovative Microsoft, New England Research and Development Ctr. in Cambridge, Ma. Representatives from seven countries either presented or attended (Canada, Scotland, England, Ireland, Norway, France, Brazil), which brought a worldly view of what possibilities lay ahead for the emerging U.S. Ocean Energy industry.

UMass Dartmouth' Chancellor, Dr. Jean MacCormack, stated in her opening remarks that, "we all know energy will be a challenge for this century, but the ocean offers us resources that are close if we can harness them. The economic impact with the jobs we can create will be important for our region, and the University of Massachusetts Dartmouth is committed to developing the technologies needed."

Faculty and students from nine different universities and research organizations participated with peer-reviewed presentations on tidal, wave, offshore wind, environmental assessments, and novel ideas from student lab and field work. (Represented were: Universities of Rhode Island, Massachusetts at Dartmouth and Amherst, and Edinburgh; Florida, Stevens and Massachusetts Institutes of Technology; Woods Hole Oceanographic Institution).

"There were so many great ideas put forth during the day, said John Miller, New England MREC Director, "I thought the presentation by Jeff Dusek of MIT, titled, 'Touch at a Distance: Bio-Inspired Pressure Sensing for Energy Extraction' was really innovative." The team studied how fish are actually propelled through certain vortices with little to no effort and researchers are trying to mimic that motion to produce energy from currents.

Having presenters from research, development, and industry provided an excellent opportunity for all attendees to learn about the breadth within the ocean energy sector. CurveWater, LLC presented a novel turbine for current power, and Oscilla Power, Inc. premiered their grid scale wave generation device.

Rich Chwaszcsewski, of SAIC Maritime, discussed the need for test sites and capabilities for device validation and gear demonstration, which would provide game changing assistance to technology developers in the U.S. Eric Siegal of NortekUSA discussed the need to optimize spatial and temporal velocity measurements for tidal power. James Churchill of WHOI discussed results of tidal flow studies for possible placement of underwater turbines near three well-known navigational passageways; Cape Canal at the Massachusetts Maritime Academy dock; Hull Gut located in Boston Harbor; and at the Westport Island Bridge in the Sheepscot River in Wiscasset, Maine.

As with any new venture, the future is in the fresh ideas of the students. That is why New England MREC supports summer research by students. Students at the University of Edinburgh in Scotland and the University of New Hampshire were able to showcase their Summer 2010 research projects and receive valuable feedback from colleagues and peers.

To further enhance the technical sessions field trips were organized for attendees and speakers to visit Alden Labs Hydraulic testing facility in Holden, Ma. and URI's Ocean Engineering Lab in Kingstown, Ri.

The 3rd Annual New England MREC Technical Conference is going to be held during the same timeframe (November 2011) at a location to be announced.

The New England Marine Renewable Energy Center is part of UMass Dartmouth. It is an economic development organization that reaches out to all stakeholders to bring ocean energy to New England. This is accomplished through research, development, demonstration, and outreach.

For more information, visit www.mrec.umassd.edu.

URI Tour: Steven Grilli shows a group of engineers from France's IFREMER and ocean energy POLE MER how the URI wave/tow tank can be used to simulate water flow and waves to test hydrokinetic devices

Introducing a Modular Seafloor Communications Network

A pre-engineered, expandable system that can be deployed (and redeployed) anywhere in water depths of up to 3,000 meters.

The Offshore Communications Backbone (OCB)

CSnet's Offshore Communications Backbone (OCB) consists of a network of power and fiber optic cables and sensor ports connected to a surface communications buoy. The OceanNET™ buoy, was designed and built by Maritime Communication Services MCS, a subsidiary of Harris Corp. and serves as the command control and data backhaul for the OCB.

Expandable, Adaptable, Portable

- Each OCB or networked array of OCBs can be deployed to service multiple clients ...or dedicated to a specific project.
- *Once the mission(s) are completed, the OCB can be moved to a new location. The OCB is particularly suited to remote areas or areas located far offshore.*
- Suited both for long-term and short-term projects

Cost Effective

- The OCB represents a proven network module that has been designed, constructed and tested, eliminating upstart time and cost
- Each OCB module is expandable and can be configured to accommodate large or small applications at a predictable cost
- Networks that will ultimately be cabled to shore may be deployed and operated via the OceanNET satellite telemetry system while cable routes are still being negotiated

Typical Projects Served by the OCB

- Oil & gas exploration and site assessment
- Equipment, pipeline, reservoir monitoring activities
- Scientific ocean observing systems
- Tsunami and seismic warning systems
- Pipeline and infrastructure security monitoring

Finally, an End-to-End Service Provider

CSnet and its partners CSA International, Inc. (CSA), Ocean Specialists, Inc. (OSI) and Maritime Communication Services, Inc. (MCS) offer an end-to-end solution, providing system design and construction, site survey and selection, permitting, environmental impact and assessment, installation as well as ongoing operation and maintenance services.

OCB delivers the data collected to a 24/7 staffed Network Operations Center (NOC) for quality control, processing and forwarding to end-users *around the globe*

CSnet™ *In Strategic Alliance with:*

MCS
MARITIME COMMUNICATION SERVICES
www.mcs.harris.com

OSI
Ocean Specialists, Inc.
A Continental Shelf Associates Company
www.oceanspecialists.com

CSA
CSA International, Inc.
A Continental Shelf Associates Company
www.csaintl.com

CSnet™
Modular Seafloor Communication Networks

For more information contact:
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CSnet International, Inc.
3270 Highway A1A, Suite 201
Melbourne Beach, Florida 32951
Telephone: 321-327-7915
www.CSnetIntl.com

New Panther XT Plus

A more powerful ROV than any other of its class on the market has been launched by top manufacturer, Saab Seaeye.

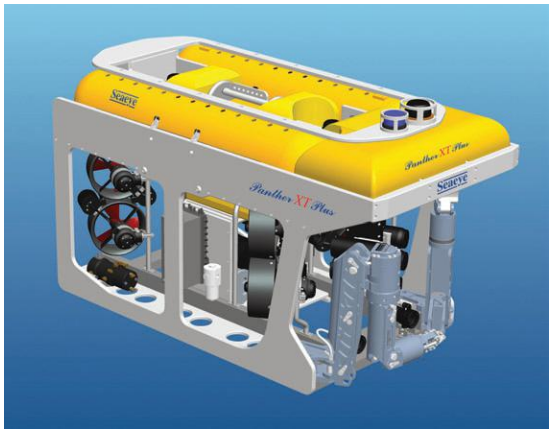
The Panther XT Plus, rated for operation to a depth of 1,500 m, is the latest addition to the successful Panther range – and with two systems already sold for delivery in the first quarter of 2011, this latest version is generating considerable interest in the ROV market.

The new, advanced ROV gives operators about double the horizontal thruster power compared with the Panther XT, which makes it the most powerful ROV in its class with over 50% more thrust than its nearest competitor. Its power-to-weight ratio is also over twice its nearest competitor, providing exceptional response and precise control.

Packed with 10 powerful thrusters, not only can it swim over 30% faster than anything else of its type, but it can hold steady in strong cross currents, making it an ideal vehicle for survey work.

Having 10 thrusters in hand also brings peace of mind to operators working to a tight deadline or in difficult conditions by offering a reassuringly high degree of redundancy.

In addition to unrivalled thrust performance, the front end of the Panther XT Plus has been redesigned to accommodate industry standard seven-function position feedback manipulators, providing the operator with heavy-duty power and precise control allowing faster completion of complex manipulator tasks.



To accommodate the larger and heavier manipulator arms and provide additional capacity to fit further tools and sensors, the vehicle payload has been significantly increased over the standard Panther XT.

For the ROV operator, another significant advantage of increased power found in the new light-work ROV is an ability to carry a greater range of tooling options for a wider range of tasks, including work, observation, and survey — all in a small footprint.

This need for less deck space, around a quarter of an equivalent hydraulic vehicle, together with fewer crew and lower vehicle cost, gives an overall lower cost of ownership that lies behind the success of the long-established Panther range, a design concept that can match an hydraulic equivalent in most work tasks, including drill support, IRM, survey, and some construction tasks.

For more information, visit www.seaeye.com.

Hyperlite portable hyperbaric chamber

The SOS Hyperlite portable hyperbaric chamber is a vital life saving equipment to treat pressure-related illnesses such as decompression sickness, for which there is no other remedy. This equipment is designed for advanced and technical diving, for emergency response units and especially for use in remote locations.

The unit has now benefited from a major upgrade that incorporates innovative braiding technology. The expertise has been developed in a Joint Venture with RFD Beaufort Ltd., leaders in the field of inflatable life saving technology.

The 2010 model is one third lighter, more durable, has a higher pressure rating, and packs into one case rather than two. Fully operational within 10 minutes, the patient can be treated on-site, or be transferred under pressure during treatment to a nearby medical center, depending upon circumstances.

The new unit continues to be built to internationally recognized medical device standards and remains the only non-metallic folding pressure vessel with such approvals. It is widely in use by the U.S. military and Coast Guard and by other military, emergency services, and dive teams in many countries around the world

For further information contact Paul Selby at +44 (0) 845 263 8155 or by email at paul@hyperlite.co.uk.

Bluefin Robotics and Harvey-Lynch team to Increase AUV sales and operations in the Gulf of Mexico

Bluefin Robotics Corporation, a leader in the design and manufacturing of Autonomous Underwater Vehicles (AUVs), has announced a regional partnership with Harvey-Lynch, Inc., a subsea equipment solutions provider in Strafford, Texas. Under the agreement, Harvey-Lynch will promote and sell Bluefin products in Texas, Louisiana, Alabama, Mississippi, and Florida with a focus on the Gulf of Mexico market. The agreement highlights the emergence and maturity of AUVs as a cost-effective and capable tool for use in a variety of subsea engineering projects.

The partnership comes on the heels of Bluefin's 2-year effort to expand its business domestically and internationally into the commercial survey market.

Phoenix Delivers saturation diving system to U.S. Navy

Phoenix International Holdings, Inc. (Phoenix) designed, developed, and delivered a portable, 6-man, 1,000 foot depth capable, saturation diving system to the U.S. Navy. The Saturation Fly-Away Diving System (SAT FADS) was procured by the Naval Sea System Command's Office of the Supervisor of Salvage and Diving (SUPSALV) and delivered to the Naval Experimental Diving Unit (NEDU), Panama City, Fl. SUPSALV and NEDU are currently conducting manned certification testing of the system, and successfully deployed divers out of the diving bell pier-side on December 2, 2010.

SAT FADS will provide a critical saturation diving capability to support Navy salvage and recovery operations around the world. The system is designed to be deployed using military or commercial aircraft and commercial over-the-road tractor trailers and can be installed on any suitable commercial vessel of opportunity.

SAT FADS will support 6 divers to depths of 1,000 feet sea water (fsw) for 30 days. The entire system requires 40 ft. x 70 ft. of deck space and consists of five major components: a main deck decompression chamber, a 3-man diving bell, the bell handling system, a control van, and two auxiliary support equipment vans. Living quarters are located in the decompression chamber. System testing will continue through additional operational evaluations, a series of manned dives pier-side, and culminate with a 1,000 foot deep ocean saturation dive in 2011.

Phoenix was the prime contractor responsible for the design, fabrication, integration, and unmanned testing of the system. The system has been designed and fabricated to Det Norske Veritas and NAVSEA manned diving system certification requirements. Assistance from our subcontractors was vital to the completion of the system: Silvan Industries, Inc.; Caley Ocean Systems; Val-Fab, Inc.; TrimMaster; OceanWorks International; Highstar Industrial Technologies; General Dynamics Information Technologies; Unique Hydra (Pty) Ltd.; MOOG Components Group Halifax Operations; Cortland Fibron BX Limited; Amron International, Inc.; and Divex Ltd.

For further information, visit www.phnx-international.com.

Bluefin AUV combines extraordinary synthetic aperture sonar data with high navigation accuracy

Bluefin Robotics, a leader in the design and manufacturing of Autonomous Underwater Vehicles (AUVs), announced the successful testing and demonstration of the first AUV with a fully integrated commercially available synthetic aperture sonar (SAS). The PROSAS Surveyor, manufactured by Applied Signal Technology, Inc. (AST), provides a 1-in. x 1-in. resolution out to a 200-meter range—performance significantly better than most sonars used on AUVs today. The Bluefin-12 AUV combines this impressive SAS data with navigation accuracy usually better than 0.1% of distance traveled to provide an advanced capability for many undersea applications.

"The vehicle performance was superb, and our customer was very impressed with the data quality," said Ian Wegener of Seismic Asia Pacific, Pty. Ltd., Bluefin's representative. "I am confident that our successful demonstration will result in a highly favorable evaluation. This system will open up new opportunities for subsea survey."

The AST PROSAS Surveyor was integrated into the standard Bluefin-12 AUV for the purpose of a rapid proof-of-concept demonstration. Bluefin required only 9 months to design, test, and deliver the vehicle with the new payload, proving the efficacy and flexibility of Bluefin's modular design. In its current SAS configuration, the Bluefin-12 can operate for up to 12 hours at 200 meters depth. Pressure-tolerant battery packs can be rapidly swapped out on deck, and subsystems can be serviced in the field thanks to the modular free-flooded architecture of the vehicle—an integral design element of Bluefin AUVs. The system also includes a comprehensive set of processing and analysis tools specifically for the PROSAS Surveyor, which allows the operator to efficiently classify contacts. Database capabilities allow for further examination of multiple views of an object, yielding better classification decisions, and provide a central repository of all classification information. Future production Bluefin-12 SAS vehicles will carry a smaller, more compact version of the PROSAS Surveyor, including onboard data processing and offer power options for increased endurance and capability.

The Bluefin-12 SAS vehicle will continue its evaluation through the first half of 2011.

For more information visit www.bluefinrobotics.com.

UTS buys two ISE Manipulators

Underwater Technology Services (UTS), Singapore has purchased two ISE 7-function heavy duty manipulators and one 5-function heavy duty manipulator, together with ISE's control system ACE for its new Remotely Operated Driller's Tool (RODT).

The ROV is designed for drill ship support. Each 7-function ISE Magnum manipulators comes with a proportional control pack for adjustable pressure and flow control as well as rotating jaws. The 5-function arm comes equipped with a larger jaw opening. All Magnums have a maximum lift capacity of 454 kg. and all equipment is rated to a depth of 3,000 meters. All Magnums have a maximum lift capacity of 454 kg.

The RODT is the first ROV for the newly formed ROV division of UTS. Combining ISE's manipulator and control systems, together with the experience of Lynn Dates, UTS' ROV & tooling design manager, the RODT offers advanced functionality and reliable field supportable performance.

Ranger Offshore acquires second sat system

Ranger Offshore, Inc. announced that it has acquired its second portable saturation diving system. This ABS class system is a 200 m seawater depth rated, 12-man sat- system, and includes a 3-man diving bell, a launch and recovery system, hyperbaric rescue chamber, stores, workshop, spares and control van. The portable saturation diving system is currently in transit to the Gulf of Mexico and is expected to be ready for deployment during the fourth quarter of this year.

Bill Lam, President and CEO, said, "We are pleased to announce the addition of this new saturation diving system to our portfolio of client offerings and services. This acquisition further demonstrates Ranger's commitment to deploy capital strategically as part of our expansion into a more integrated full-service marine contractor operating within the Gulf of Mexico and in selected

New 12-man sat system, including 3-man diving bell, HRC, and LARS.

contractor operating within the Gulf of Mexico and in selected international markets, and well-positioned to meet the needs of our clients."

Global Marine Systems announces international distributors for Predator ROV

Global Marine Systems has announced four new international distributors for its Inspection Class ROV, the Predator. Atlantas Marine Ltd will distribute Global Marine's ROV in the UK and Ireland, while Ocean Green will distribute the Predator across Chile and Peru. Altop Industries Ltd will distribute it across India, and Shanghai Enou Technology Co. Ltd will market the product in China.

Global Marine's 300 m-rated Inspection Class ROV system Predator is designed and manufactured at its Portland facility in Dorset, UK. A state-of-the art, portable system, built using cutting-edge technology, the Predator was developed to meet the ever demanding markets for rugged and reliable underwater viewing and survey systems.'

The Predator uses the latest high-reliability technology designs for maximum operating efficiency in shallow-water inspection and surveying jobs for the full spectrum of subsea and underwater industries, and was built by subsea engineers with practical, hands-on experience.

Hydroid signs SPAWAR Contract

Hydroid, Inc., a subsidiary of Kongsberg Maritime, announced that it has been awarded an $8.4 million cost-plus-incentive fee contract from SPAWAR to provide Littoral Battlespace Sensing (LBS) Autonomous Undersea Vehicles (AUVs) and associated technologies.

The ultimate end user is the Naval Oceanographic Office (NAVOCEANO), who acquires and analyzes global ocean and littoral data and provides specialized and operationally significant products and services to all elements within the Department of Defense.

Hydroid will provide SPAWAR with REMUS 600 AUVs equipped with technologies for meteorological and oceanographic data collection, as well as the technologies for processing and disseminating of these data. Hydroid's technology is capable of measuring a large variety of environmental parameters and will produce accurate and crucial environmental data that will play a critical role in support of worldwide Navy requirements.

The contract, being managed by SPAWAR San Diego, Ca. is a Cost Plus Incentive Fee and Firm Fixed Price competitive contract, with incentives, options, and a ceiling of approximately $77 Million. The work will be performed at Hydroid's headquarters in Pocasset, Ma., and the Engineering Development Model (EDM) phase is expected to be completed by March 2012. If all options are exercised, deliveries of LBS-AUVs will continue through 2017.

Cygnus gauge lost and found, introduces new gauges

Lamnalco, the leading international terminal operator has recently retrieved a Cygnus Underwater thickness gauge from the seabed at -50 msw in the Black Sea, where it had been laying since it was lost during an underwater operation nearly 3 years earlier.

The gauge was sent to Cygnus' distributor and authorized service center in the UAE, Unique Systems FZE, for inspection where it required only a new battery to return it to full operation.

Cygnus Underwater, the original diver-held thickness gauge, has long been a standard tool for divers carrying out thickness gauging. The instrument is pressure rated to 300 m depth, which exceeds the maximum depth for diver safety. The Cygnus-Pioneered Multiple Echo tech-

New ROV mountable thickness testing systems

nique is employed to ignore coatings and gives only accurate, error-checked measurements and is used for checking metal thickness of ships, offshore structures, subsea pipelines, pilings, jetties, piers, dock gates, and bridge footings.

Cygnus has also introduced two newly designed ROV Mountable Thickness Testing Systems. Both units incorporate the Multiple Echo thickness testing technique. One unit (hand machined from Delrin) has been pressure tested to 2,000 m and the other (handed machined in stainless steel) to 4,000 m for use on medium to Work Class ROV's. The gauges are fitted with a safety pressure relief valve and a securing eye. Thickness measurements can viewed at the surface using CygLink software to display on a computer screen; Cygnus Topside Repeater unit; TSR's Video Overlay facility to superimpose on a monitor screen or a video recording or user extracted into third party software applications.

For more information, visit www.cygnusinstruments.com.

IRobot® Seaglider

The iRobot® Seaglider™ is a shallow and deep-diving UUV designed for missions lasting many months and covering thousands of miles. Seaglider measures temperature, salinity, and other quantities in the ocean, sending back data using global satellite telemetry. More than 120 Seaglider UUVs have been delivered to customers worldwide, including the U.S. Navy, government agencies, and research organizations.

The iRobot Seaglider gathers data for a fraction of the costs of traditional manned research vessels and moored instruments. Seagliders can be operated for several hundred dollars a day versus traditional methods that cost tens of thousands of dollars a day. During a mission in the Northeast Pacific, Seaglider 144 propelled itself for 292 days, covering 5,528 km (3,435 miles) through the water, more than half the pole to equator distance (or about the distance between Boston and Paris). Operating independently, without any intervention from its operators for repair or cleaning, Seaglider 144 averaged a speed of just over 0.75 km per hour (0.5 mph), pausing data collection only a few minutes about every 9 hours to send back its data via satellite. During this mission, the Seaglider maintained the gasoline equivalent of over 30,000 miles per gallon from its high-energy Lithium batteries.

The Seaglider achieves continuous, uninterrupted and autonomous missions for as long as 10 months at a time. Seaglider achieves minimum power consumption and maximum efficiency by propelling itself by effecting buoyancy to provide thrust for descent and ascent through the ocean. A small shift in buoyancy coupled with a small shift of the vehicle's center of gravity and a stable, low-drag, hydrodynamic shape enables the Seaglider to effortlessly dive and glide while activating sensors at pilot designated intervals to collect data.

The Seaglider operates efficiently from littoral zones to open ocean, able to dive and collect data in waters as shallow as 15 m and to depths up to 1,000 m. No alteration of the glider is required to enable the operation or collection of a continuous stream of data from one environment to the other. This breakthrough enables researchers to study shallow water and deepwater phenomena that occur during the same deployment, allowing the of study areas like the drop off across the continental shelf and the phenomena that occur at this transition.

For more information, visit www.irobot.com.

Outland Technology introduces the UWS-3310-ac/dc

Outland Technology, Inc. introduces its newest system, the UWS-3310/dc. It is a portable console with a 12-in. sunlight readable monitor, SD-DVR, in a suitcase. It can be powered with 12 to 24 VDC, 100 to 240 VAC, or 50 to 60 Hz. Take it anywhere in the world!

Outland has sold 1,788 complete diver video packages in their 26 years in business. Outland Technology has also sold more than 112 ROVs since introducing the original "Outland 1000" in 2000.

For more information visit www.outlandtech.com.

EdgeTech delivers advanced deep tow systems

The EdgeTech 2400 Deep Tow systems provide high-resolution deep-sea surveys using co-registered side scan sonar and sub-bottom imagery. Additionally, as of 2010, optional bathymetry data are available on these systems. Survey companies and research institutes use the EdgeTech Deep Tow systems to map pipe routes and search for precious metals such as manganese nodules. The systems provide high-quality, three-dimensional images of the seafloor and subterranean layers.

The two EdgeTech Deep Tow systems, DT-1 and DT-2, have operational depths of 3,000 m and 6,000 m respectively and can operate on a fiber optic or coaxial cable up to 10 km long. The systems are made of modular slab construction using specialized plastic framing and stainless steel joints that combine to provide a robust vehicle that is easily configured, virtually maintenance free, and able to withstand the rigors of deep ocean survey work.

The deep tow systems are fitted with EdgeTech's Full Spectrum® CHIRP Processing, enhancing long-range resolutions through improved signal-to-noise ratios. The sub-bottom, side scan sonar, and swath bathymetry capabilities are integrated into one tow body along with a host of other oceanographic scientific instruments that provide the users a complete picture of the underwater environment. Additionally, affiliate ORE Offshore provided the acoustically activated emergency cable cutters on the deep tows.

Divex's Dirty Harry provides protection in U.S.

International diving equipment technology company, Divex, announced it has secured a contract to provide its Dirty Harry Contaminated water diving system to a U.S. government law enforcement agency. The systems are to be utilized by the technical recovery dive unit to ensure diver safety and protection while conducting recovery operations in nuclear, bio, and chemical environments.

Divex, headquartered in Aberdeen, UK, was the successful supplier of the equipment after satisfying its client's need for a system that could provide the highest levels of safety and protection for diving in contaminated situations. "Dirty Harry", launched in 1998 [which at the time was acknowledged worldwide as a quantum improvement in divers safety], provides its users with both respiratory and skin protection from a wide range of contaminants. Each two-diver system consists of drysuits, dry gloves with lockrings, Ultrajewel Reclaim helmets, umbilicals, and an exhaust control panel.

Existing users of the system include Italian Fire Brigade, Japanese Maritime Self Defence Force, Turkish Navy, Indian Navy, and Israeli Navy, who use their systems during recovery offshore, inshore and onshore in environmental situations such as chemical spills into waterways, at sewage plants and outfalls, and at nuclear cooling ponds.

For more information, contact Divex's Sales Manager, Graeme Clark at +44 (0)1224 740145 or email at gclark@divexglobal.com.

Forum Energy Technologies announces software release – VMAX 2.0

Forum Energy Technologies, Inc. (FET) announced that its Subsea Solutions business has released VMAX 2.0, an extensive upgrade to its existing VMAX Project Simulator software. VMAX is used by operators, service companies, and engineering firms to run simulations of complex situations in a subsea environment. This is especially useful in situations where expensive assets are deployed or spread rates are substantial. In deepwater, where remote operated vehicles (ROVs) and specialty tooling are used to perform complicated tasks, simulation increases the probability of success.

VMAX 2.0 allows ROV operators to design and validate engineering designs with procedures for on-site rehearsal and instant feedback prior to Systems Integration Testing. This helps reduce costly engineering change orders and improves operating margins.

VMAX 2.0 is powered by SIMTEK Engine™, a proprietary software development kit for offshore simulation developed entirely by VMAX Technologies, a product line of FET, which can be used to develop other types of simulators useful in pipe-lay, on-deck operations, vessels movement, and crane operations. SIMTEK Engine is commercially available for licensing.

As laid cable survey on the BALTIC 1 Wind Farm is completed by SUBMAGNETIX

The entire cable survey was completed without breakdown. The data collected were of a very high standard. The survey system was mobilized within 24 hours. The cable survey, including data processing, was carried out by two Innovatum technicians per shift. They operated both the ROV and the survey systems.

SUBMAGNETIX was set up in June 2010 as the survey division of INNOVATUM Ltd. to provide a cost-effective, compact, and complete inshore and shallow water survey service for all sub-marine cables and sub-marine steel pipelines.

The survey spread includes a Saab Seaeye Falcon ROV; a Smartrak cable, and a pipeline tracking system. The surface equipment consists of the ROV controller and the Innovatum iPSS Integrated Portable Survey System, which is housed in two rack- mounted cases.

For more information, visit www.submagnetix.com.

Adaptive Methods announces launch of net penetration equipment

Adaptive Methods, developer of advanced sensor systems, announced the release of its fishing net penetrator, called NET PEN. The NET PEN provides the means for an Unmanned Underwater Vehicle (UUV) to cut through nets and continue on its mission. The internal-mounted NET PEN is adaptable to a wide range of vehicle sizes. It is intended to mount within a UUVs nosecone without affecting existing equipment (e.g., forward-looking sonar arrays) and integrates with existing UUV power and propulsion systems to detect, deploy, penetrate, and retract upon contact with a net. External hull-mounted NET PEN is also available, which will ensure unencumbered net penetration for UUVs with larger protruding surfaces such as masts, snorkels, etc.

For more information, visit www.adaptivemethods.com.

Bowtech technology enables University of Plymouth to quantify seabed flora and fauna

Bowtech LED-1600 lamps (b) have been deployed in surveying potential offshore renewable energy sites to characterize the habitat and monitor how the benthos (organisms living in, on, or near the seabed) are affected by these developments.

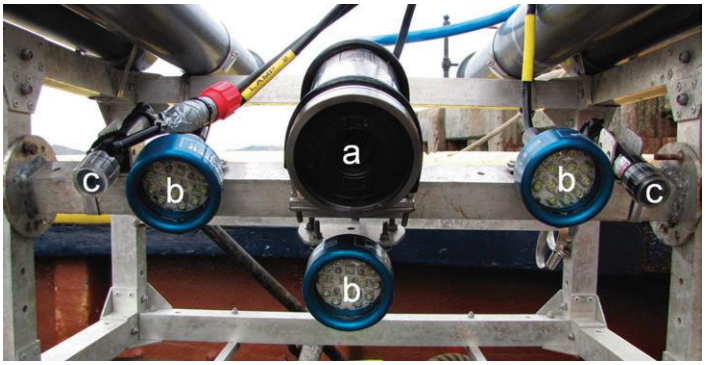
Bowtech Products supplied the HD camera and LED lights for the project and also designed and supplied the topside control system and umbilicals specifically to meet the project requirements

The Marine Institute at Plymouth University, jointly with Peninsula Research Institute for Marine Renewable Energy (PRIMaRE), have developed and published a new survey method using an HD camera mounted on a towed "flying array" allowing them to quantify the seabed and the associated flora and fauna in adverse wave and tidal conditions over heterogeneous habitats (from sandy, pebbly flats to challenging boulder fields and rocky ledges).

Previous methods using bottom towed sledges, SCUBA divers, or ROVs were inappropriate due to cost and practicality. It was necessary to develop a method that was cost-effective, relatively non-destructive and suitable to work over a range of habitats, as future sites proposed for marine renewable energy that are located over a range of habitat types may displace fishing activity acting as pseudo Marine Protected Areas.

The methodology is based on a high-definition video camera, and LED lights and laser scale markers (c) mounted on a "flying array" that maintains itself above the seabed grounded by a length of chain, thus causing minimal damage. Samples are taken by slow-speed tows of the gear behind a boat. The HD video and randomly selected frame grabs are analyzed to quantify species distribution. The equipment was tested over two years in Lyme Bay, UK (25 m depth), then subsequently successfully deployed in demanding conditions at the deep (>50 m) high-energy Wave Hub site off Cornwall, UK, and a potential tidal stream energy site in Guernsey, Channel Islands (1.5 ms−1 current), the first time remote samples from such a habitat have been achieved.

For more information, visit www.bowtech.co.uk.



BlueView delivers high-res "gap-filling" sonar to Hydroid for Atlas Elektronik UK UUV system

BlueView Technologies delivered a new sonar to Hydroid Inc. as part of an Atlas Elektronik UK project for the UK Ministry of Defence (MoD). The Capability Concept Demonstrator (CCD) project, conducted on behalf of the Defence Equipment & Support Programmes & Technology Group, will enable the MoD to understand the capabilities that recent commercial and military UUV technology maturity could bring to future MCM operations. The new 2.25 MHz sonar (MB2250) was integrated into a Hydroid REMUS 100 UUV section to provide high-resolution 2D and 3D imagery for side scan gap-filling and target identification in the region directly below the UUV typically associated with side scan coverage gaps. The Atlas Elektronik UK Classiphi software fuses the BlueView gap-filling sonar data with the side scan sonar data gathered by the REMUS 100 to provide seamless imagery across the entire swath.

BlueView was selected by the Atlas and Hydroid team to create a fully integrated UUV sonar system that delivered identification level imagery and increased area coverage. "The imagery and data delivered by the BlueView 3D MicroBathymetry sonar are impressive, and the single-pass coverage area is nearly doubled to dramatically improve coverage rates," stated Kevan Murphy, the technical lead on the CCD programme at Atlas Elektronik UK.

Graham Lester, director of Hydroid Europe said, "The combination of the new BlueView 3D sonar, Hydroid REMUS 100, and Atlas Classiphi post-processing software delivers a unique new autonomous seabed survey capability. Based on the success of the demonstrations, the UK MOD has now contracted with Hydroid to equip a Royal Navy REMUS 100 vehicle with the MB2250 sonar."

For more information, visit www.blueview.com.

Non Kink™ strong tether fiber optic cable (STFOCTM)

Under contract for the U.S. Navy, Linden Photonics has developed a proprietary miniature optical fiber cable that offers high tensile strength and crush resistance at a fraction of the cost of competing technologies. Extruded technology and high-performance resins allow for cable diameters generally ranging from 0.7 mm to 4 mm with tensile strengths from 50 lb. to >350 lb. Developed originally for use with the Navy's Mk48 "wire" guided torpedo, the lightweight, small diameter cable is ideally suited for use with tethered ROVs or AUVs. In addition to its unique mechanical properties, the STFOC cable jacket is also extremely impervious to moisture and oxygen, chemically stable, and capable of operating at up to 250°C.

As part of a collaborative effort with some of the world's premier companies involved in fiber optic security and oceanography, Linden has developed several variants of its original STFOC that are virtually unkinkable. This non-hockling fiber optic cable combines all of the best features of the original STFOC, including extreme tensile strength, crush proof, and barrier properties, while adding a protective secondary layer that provides fish-bite resistance.

If a cable loops back on itself and creates a kink, the fiber can break and this results in expensive down time. STFOC Non-Kink™ uses a proprietary design to improve its flexibility and provide a cable that is virtually impossible to kink.

For more information, visit www.LindenPhotonics.com.

DNV 2.7-3 Certification issued for IWOCS reel drop test

Radoil, Inc. an ISO 9001:2008 design and manufacturing company is pleased to announce that it has received DNV 2.7-3 Certification for the successful Drop Test that was completed on a newly designed IWOCS reel.

The DNV Drop Test involved loading the 120-in. W x 227-in. L x 138.5-in. H reel frame with 62,619 pounds (28,403.5 kg) of weight and dropping it 2.75-inches onto one corner. The frame's load path welds were mag-particle and ultrasound tested pre- and post-drop for any failures, and the frame dimensions were re-inspected to ensure no structural damage or distortion had occurred. The test was performed in front of DNV and customer inspectors and passed successfully.

As deepwater drilling and production work has become more sophisticated and expensive Radoil has become one of the world's primary suppliers of deepwater reels. For working rigs in 12,000 feet of water 150 miles from the nearest land, tools and equipment must be as dependable as possible. Radoil designs, constructs, and tests its equipment to the highest standards.

Radoil has had a longstanding relationship with DNV and has several products that have received DNV Type Approval.

For more information, visit www.radoil.com.

December 13-15, 2011 Houston, Texas

Subsea Survey IRM

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CDL delivers first TOGS-NAV systems to SMD

First deliveries of the CDL TOGS-NAV have been received by SMD at their state-of-the-art facility in Wallsend, England. The first two systems were delivered in October on an accelerated schedule as part of a major contract awarded to CDL earlier this year.

SMD, one of the world's leading ROV manufacturers, specified the TOGS/NAV system as a standard fit to each of 20 QX-Ultra work class ROVs to be delivered to Subsea 7 / i-Tech in the next 18 months. The award is CDL's single largest order to date for the relatively new system that was launched early in 2010 and provides further evidence of CDL's position as a major force in the supply of navigation and inertial solutions to the oil and gas sector.

The unit itself is a leap forward in the provision of an integrated navigation solution for ROV systems, providing Heading, Pitch and Roll, Depth, and DVL data in a single compact housing. At the heart of the unit is CDL's already successful TOGS (Tiny Optical Gyro System) — this is combined with Valeport's miniIPS (0.01% accuracy) depth sensor and RDI's industry standard Workhorse Navigator DVL to complete a powerful tool for subsea navigation.

Commenting on the award, Kevin McBarron, MD at CDL said, "The decision by both Subsea 7 and SMD to commit to the TOGS-NAV system for this contract is welcome justification for the effort and inward investment CDL have made in recent years in developing the next generation of navigation systems for the subsea oil and gas industry. The timing of this contract coincided with the opening of our office in Rio de Janeiro and was an important factor for both SMD and Subsea 7. Our commitment to the region continues with full support and calibration facilities available for our clients from this month."

CDL is a major supplier of inertial navigation and attitude sensing technology. Its systems play an important role in providing surface and subsea positioning and navigation services for clients worldwide operating in the oil and gas, renewables, defense and marine markets. CDL has offices in Aberdeen, Houston, and Rio de Janeiro.

For more information, visit www.cdltd.net.

New Echoscope® availability in Europe and Asia

A recent order placed by Nautikaris BV completes a trio of Coda Echoscope® purchases by some of CodaOctopus' key international distributors. As well as Cadden (France) and Sea and Land Technologies (Singapore and Malaysia), Nautikaris (Netherlands) last month confirmed an order for an Echoscope 3D real-time sonar.

While Nautikaris has an immediate requirement for the Echoscope®, with a contract for Fugro, the 3D real-time sonar system will become a prominent feature in the company's equipment portfolio. Confident of strong demand for the unparalleled 3D visualization provided by the Echoscope®, Nautikaris is now able to offer a completely new service to its customers, especially those in the dredging, hydrographic survey, and harbor authority sectors.

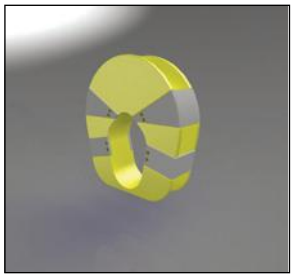
Evaluation of the Echoscope® included two 2-week trials in the Port of Ijmuiden and in the province of Zeeland (Netherlands), large parts of which lie below sea level. The trials

were organized by Rijkswaterstaat, the Dutch national water management agency, and involved many key industry members, including representatives from Fugro. The Echoscope® was deployed to survey dams and canals, locate wrecks, and to visualize complex underwater structures and materials.

"We have been aware of the invaluable benefits that the Echoscope® can bring to underwater projects since we saw it demonstrated a few years ago," said Cor Beemster, sales manager at Nautikaris. "The improvements in definition offered by the new dual-frequency model and the undeniable demand for this quality of 3D visualization means that now is the right time for us to make the system available to our clients."

For more information, visit www.codaoctopus.com.

New synthetic rope thimble



DCL's Engineered Solutions' "WORKHORSE" Synthetic Rope Thimble (SRT) is designed for use with the new HMPE ropes and is the first, and only, product on the market to accommodate the loads that the HMPE synthetics were designed to bear.

Distribution is provided by DCL Mooring & Rigging in New Orleans, La. and Southwest Ocean Services in Houston, Tx.

DiveTracker

The Desert Star DiveTracker units (Sport & Scout) have been around for over a decade, aiding in diver navigation. They are used for recreational diving, sport diving, and instrument recovery. A small transmitter is attached to the anchor line, buddy diver, or instrument and begins pinging when it's turned on. The divers carry a receiver with them and when they're ready to return to the target, the device is turned on. Using the receiver, the divers are able to navigate directly back to the target within arms' reach. These units have been commercially sold for many years through Desert Star. They are super easy to use and optimized for the task of relocation.

One customer reports, "My dive buddy was also very impressed when we came back to the swim step of the dive boat 7 out of 7 times over the two day dive trip. At one point we had a lively discussion in 35-ft. of water as to where the boat was anchored. He was really surprised when we followed my direction and came directly back to the boat. We would have had a long surface swim, in current, had we gone the direction he wanted to follow."

For more information, visit www.desertstar.com.

Dive-Trak Pro subsea marking and relocation system

The Dive-Trak Pro is the next generation of diver marking and relocation equipment. Using the latest in underwater acoustic technology, the Dive-Trak Pro allows divers to mark targets with the ATT-400 underwater transponder and relocate them up to 750 meters (2,250 ft.) away using the DTI-300 diver interrogator. While most underwater marking and relocation system use active acoustic technology to locate targets underwater, the Dive-Trak Pro uses a coded-based system that provides range and bearing to the marked target. Using this approach, a diver can accurately relocate an underwater target within 1 meter (3 ft.) with a minimum amount of bottom time.

Small and self contained the ATT-400 acoustic transponder activates once it is placed in the water and will remain covertly operational for up to 6 months. In addition, the ATT-400 can be programed to mark and relocate eight different locations simultaneously.

The DTI-300 is a small battery operated transponder interrogator that provides accurate range and bearing to the ATT-400 transponder. In additional, an internal electronic compass assists the diver in navigating to the marked location. A LCD display provides navigation data to the diver while sealed switches allow the diver access to control functions of the unit.

For more information, visit www.rjeint.com.

New 66 Series

SEACON (europe) Ltd is pleased to announce the release of a new range of underwater electrical dry-mate connectors to enhance the existing 55 Series. The new 66 Series of reverse gender connectors enable power to be applied to the bulkhead connector yet still be safe to use. Manufactured utilizing tried and tested methods and materials this new range also incorporates shorter locking sleeves to ensure easier mating capability.

Other key features also include:-

- Industry standard compatibility
- Proven sealing technology
- Heavy duty stub acme threads
- Fully interchangeable with SEA CON® 55 series bulk head mounting dimensions
- Pressure rated blanking caps available

The 66 Series is currently available in two shell sizes, 16 and 20 with two configurations (8#16/13#16); however more configurations will be added to the range if required.

For further information, contact SEACON (europe) Ltd at +44 (0) 1493-652733 or e-mail sales@seaconeurope.com or visit www.seaconeurope.com.

Jet Edge, Chukar Waterjet

Water jet technology companies Jet Edge and Chukar Waterjet will showcase the latest innovations in portable and undersea ultra-high-pressure water jet cutting and water blasting technology at Underwater Intervention.

As leaders in the ultra-high pressure waterjet industry, waterjet

manufacturer Jet Edge and its applications partner Chukar Waterjet have developed numerous water jetting tools crucial to the under operations, workboat, and shipyard industries, including undersea waterjetting equipment, portable waterjet cutting machines, precision waterjet cutting systems, ultra-high pressure water blasting tools, and electric and diesel-powered waterjet intensifier pumps. Most recently, in emergency response to the Gulf oil spill, the two companies partnered to develop the first-known waterjet intensifier pump capable of operating at depths below 5,000 feet. BP used the subsea waterjetting system to blast away hydrates that were clogging a containment system.

For more information, visit www.chukarwaterjet.com.

Birns launches new Doubly-Safe Chamber Light-LED™

BIRNS, Inc. have more than a half century of experience in creating trusted innovations for the commercial diving and subsea markets. Now this industry leader has introduced the next generation of LED illumination to its renowned lines of high-performance area lights for PVHO applications.

Part of BIRNS new-for-2010 "L" series, the BIRNS Doubly-Safe Chamber Light-LED™ provides brilliant 5200K white light illumination with a 50,000 hour rated lamp life for pressurized helium/oxygen use in submarines, diving bells, and decompression chambers. This versatile, new 121 lumen LED light features the exclusive BIRNS Doubly-Safe dual helium release method—making the entire front of the light its own helium release valve—in addition to its trusted stainless steel release mechanism.

The BIRNS Doubly-Safe Chamber Light-LED™ comes complete with six different interchangeable lens options, to seamlessly adapt to a wide range of lighting applications, from bright to ambient illumination. (Lenses come in clear, frosted, blue and blue frosted, red, and red

frosted.) Plus, this unique system has a superior heat-sink design to keep it operating safely and efficiently. In fact, like many of the company's products, the BIRNS Doubly-Safe Chamber Light-LED™ meets and/or exceeds all applicable, stringent Det Norkse Veritas, Lloyd's of London, and Underwriters Laboratories requirements.

With a low profile — 80 mm (3-1/8-in.) overall length, it's lightweight — 1.1 kg (2 lb. 6 oz.) and can be easily mounted on a variety of ceilings or structure walls. Crafted from rugged MIL-A-8625 black anodized 6061-T6 aluminum, it operates on 12 volt AC/DC and consumes only 1.6 watts.

For more information, visit www.birns.com.

Divers discover historic shipwreck off New England coast

Almost 200 years to the day after her sinking, a couple of Connecticut SCUBA divers revealed they had discovered the remains of what appears to be the USS Revenge. When the ship went down in January 1811 she was captained by Oliver Hazard Perry, who later become a celebrated war hero. Perry gained notoriety for his bravery during the Battle of Lake Erie in the War of 1812. Perry became famous for his proclamation, "We have met the enemy, and he is ours". He is also renowned for flying a flag emblazoned with the words, "don't give up the ship", which is a symbol still in use by the U.S. Navy today.

At the time of her demise, the Revenge was performing important hydrographic survey work in the shallow waters of Long Island Sound. Shrouded in thick fog on that cold winter morning the schooner ran aground on a reef near Watch Hill, Rhode Island. Perry was court martialled for the sinking, but exonerated during trial when blame was fixed on the ship's pilot who had assured the captain he was quite familiar with local waters.

Recreational SCUBA diver Charles Buffum called his friend and diving partner Craig Harger and asked if he'd be interested in searching for a shipwreck. Harger jumped at the chance. The pair enlisted the help of another buddy, Mike Fournier, to assist in the operation. Their first step was to acquire a metal detector. After picking up a JW Fishers Pulse 8X detector, the trio loaded their gear into Charlie's 20-foot boat and set off for Rhode Island. From the book's description of the grounding, they had a good idea where to begin their search. Using the Pulse 8X, they located a small cannon. The divers later determined the small cannon first discovered was a carronade, a type of cannon developed in the late 18th century. Lighter and shorter than a long gun, the carronade could be used on upper decks, and more could be mounted. This gun was well-suited to the broadside battles fought by sailing ships of the day. The lower muzzle velocity of the weapon's round shot was intended to create many deadly flying wood splinters when striking a vessel.

For more information, visit www.jwfishers.com.

Class V torque tool adapter

Seanic Ocean Systems is pleased to announce the delivery of another API 17D Class V adapter for use in all Class V interfaces.

The adapters design is ideally suited for any subsea application that requires 2,000 to 5,000 ft.-lb. of torque. The Class V adapter has both latching and non-latching configurations that are available in the design.

Seanic Ocean Systems has also developed a subsea drill to support the growing platform decommissioning and salvage market worldwide. It combines innovative technology with standard ROV interface capabilities.

For more information, visit www.seanicusa.com.

SeaLite® Sphere - the perfect replacement for halogen lights

DeepSea Power & Light has introduced the SeaLite® Sphere, the perfect replacement for halogen lights on ROVs, submersibles, and offshore structures.

DeepSea's 250 watt halogen Multi-SeaLite® earned its place as the most popular light used on ROVs by providing years of reliable service to customers worldwide. Now, DeepSea has developed an LED light that is directly interchangeable and offers all of the performance advantages of LED technology.

The new SeaLite® Sphere can be fitted with the same variety of connectors as the halogen Multi-SeaLite® and comes standard with the same mounting bracket that has been used successfully for years with the Multi-SeaLite®. The SeaLite® Sphere also works with the same power and dimming inputs, so that it is a plug and play replacement for existing Multi-SeaLites® ... or any other halogen lights currently being used on a vehicle.

Containing 32 high-power LEDs, the SeaLite® Sphere is more than twice as bright as a 250W halogen light while using about 40% less input power. It provides plenty of light when needed and can be dimmed when less light is desired. The SeaLite® Sphere can be dimmed using simple phase control or variable voltage, the same way that halogen lights are dimmed.

The unique compact spherical housing design is close to the optimum shape for pressure tolerance. As a result, the standard SeaLite® Sphere housing is rated to 6,000 m depth, providing increased confidence even when working at shallower depths.

To learn more about the SeaLite® Sphere, visit www.deepsea.com.

OCEANS '11 MTS/IEEE KONA

Sept 19-22, 2011
Hilton Waikoloa
Big Island of Hawai'i

Oceans of Opportunity: International Cooperation & Partnerships across the Pacific

Important Dates

Abstract Deadline: 22 April 2011
Final Paper Deadline: 15 July 2011
Early Bird Rooms: 01 August 2011
Online Registration: Mid-April 2011
More information on our website:
www.oceans11mtsieeekona.org

Call for Papers

In addition to the regular session topics you have come to rely upon, such as underwater acoustics, military oceanography, offshore technology, and ocean vehicles, OCEANS '11 will feature these special themes:

- Coral Reefs: Nearshore to Deep Ocean
- Aquaculture: Tools and Techniques
- Ocean Energy: Renewable Energy for the Future
- Ocean Acidification: Ocean Chemistry in a Changing World
- Ocean Exploration: Science and Technology Frontiers in the Pacific
- Ocean Pollution: Environmental Management in the Global Ocean
- Long Time Series Observation: From the Keeling Curve to HOTS
- Marine National Monuments: Marine Stewardship for the 21st Century
- Partnerships across the Pacific: Collaborative Ocean Research
- Marine Geology and Geophysics: The Science of New Pacific Islands
- Maritime Security: Preparedness, Response and Recovery for the Marine Environment

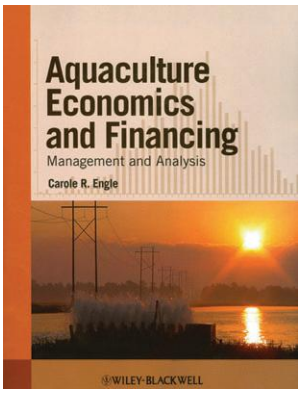
For information on exhibiting see the website or send inquiries to Sue Kingston
s.kingston@ieee.org | (310) 937-1006

MTS www.oceans11mtsieeekona.org IEEE OES

Media Reviews

Aquaculture Economics and Financing

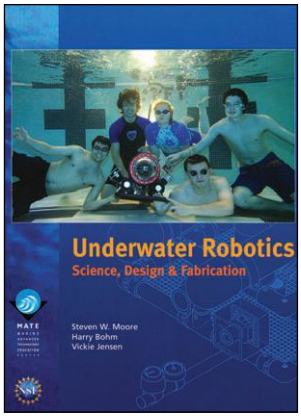
Management and Analysis



Aquaculture Economics and Financing provides a detailed and specific set of guidelines for using economic and financial analysis in aquaculture production. By discussing key issues, such as how to finance and plan new aquaculture business; how to monitor and evaluate economic performance; and how to manage capital, labor, and business risk, the book helps aquaculture professionals, researchers, and students with important information applicable to a wide range of business decisions. Chapters address each stage of developing an aquaculture business, including financing, marketing, and developing a business plan to manage cash flows and analyze financial statements. Each chapter includes a detailed example of practical application taken from every-day experience. Written in straightforward terminology facilitating ready application, the book is an essential tool for analyzing and improving financial performance of aquaculture operations. **This book can be ordered from www.seacatalog.com.**

UNDERWATER ROBOTICS

Science, Design & Fabrication



Underwater Robotics by Dr. Steven W. Moore, Harry Bohm, and Vickie Jensen introduces students, educators, and other aspiring inventors to subsea technology. This exciting resource provides the information needed to design and build underwater vehicles. It also encourages bright young minds to consider a career in the world of underwater robotics. The textbook is written for advanced high school classes or college and university entry-level courses. Each chapter begins with a true scenario that sets the stage for the ocean science, physics, math, electronics, and engineering concepts that follow. The final chapter features step-by-step plans for building SeaMATE, a basic shallow-diving ROV. The 850-page informative text is enhanced by hundreds of photos, illustrations, and diagrams of underwater vehicles. In addition, the textbook includes a discussion of subsea vehicle development, resource appendices, an extensive glossary, and a complex index. **This book can be ordered from www.seacatalog.com.**

Calendar

February 7-9, 2011:
Arctic Technology Conference
Houston, TX
www.artictechnologyconference.org

February 22-24, 2011
Underwater Intervention 2011
New Orleans, LA
www.underwaterintervention.com

March 14-18, 2011:
5th EGO Meeting and Glider School
Telde, Gran Canaria, Spain
www.ego2011.plocan.eu

March 15-16, 2011:
3rd Annual Decommissioning & Abandonment Summit
Houston, TX
www.eyeforenergy.com

March 16-18, 2011:
NortekUSA Technical Symposium
Newport, RI
www.nortekusa.com

April 5-7, 2011:
Ocean Business
Southampton, UK
www.oceanbusiness.com

April 25-29, 2011:
U.S. Hydro 2011
Tampa, FL
www.hydrographicsociety.org

May 2-5, 2011:
Offshore Technology Conference
Houston, TX
www.otcnet.org/2011

June 6-9, 2011:
Oceans '11 IEEE
Spain
www.oceans11/ieeesantander.org

June 14-16, 2011:
Seawork International
Southampton, UK
www.seawork.com

October 4-6, 2011:
OTC Brazil
Rio de Janiero, Brazil
www.octnet.org

People & Company News

Andrew Way has been named vice president of services for GE Oil & Gas, a business within GE Energy. He will be responsible for leading continued growth of the business' equipment repair, maintenance, upgrade, and remote monitoring and diagnostics capabilities across all segments of the oil and gas industry.

IEEE OES has recognized **Donald E. Barrick** as a Fellow of the Institute of Electrical and Electronics Engineers. Dr. Barrick is the Founder, President and Principal Engineer of CODAR Ocean Systems, Ltd. (COS).

Foster Marketing Communications has hired **Bob Lytle** as Account Supervisor in the firm's Houston office. Lytle has more than 30 years of experience in marketing communications and comes to Foster Marketing from The Quest Business Agency, where he was an Account Supervisor and Creative Director for the past 14 years. **Chris Wilks** has been promoted to Marketing Associate. Wilks has been with Foster Marketing since April 2010 and has been charged with expanding the company's presence in the alternative energy markets as well as assisting with its leading oil and gas niche.

InterMoor, an Acteon company, has announced the opening of its new 24-acre facility in Morgan City, La. The ISO 9001:2008 approved site contains a fabrication facility that includes two fabrication buildings, both with capabilities to design and produce comprehensive offshore mooring systems, subsea foundations and equipment. This facility has nearly 1,300 ft. of waterfront access. InterMoor has also named **Ross Landry** Subsea Operations Manager and **Sarah Kawas** Business Development Manager - Latin America


Landry


Kawas

HB Rentals, a Superior Energy Services company, has opened a second district office in Pennsylvania and has named **Brian Chilton** Regional Operations Manager for the northeast United States.


Chilton

Bluefin Robotics, a leader in the design and manufacturing of Autonomous Underwater Vehicles (AUVs) has moved its facilities to the Fore River Shipyard in Quincy, Massachusetts. The company has unified its Cambridge headquarters and East Boston marine operations site to the 553 South Street location.

U.S. Secretary of Commerce Gary Locke named Capstone Turbine Corp. Executive Vice President **Jim Crouse** to a national advisory committee that will promote U.S. exports of renewable energy and energy efficient technologies. The 29-member Renewable Energy and Energy Efficiency Advisory Committee will advise Locke on the development and implementation of programs and policies to help expand the competitiveness of the U.S. renewable energy and energy efficiency industries.

GlobeNet, an international wholesale provider of submarine capacity and a wholly owned subsidiary of Oi, appointed **Antonio Belli** as the company's director of sales and marketing. Belli joins GlobeNet with over 20 years of executive-level telecommunications experience. GlobeNet owns and operates a submarine cable network connecting the Americas.

RBR a leading provider of products and services to the water quality and oceanographic markets has announced the appointment of **Mike Penny** to the position of Sales Representative and the opening of RBR's west coast satellite office in Victoria B.C., Canada.

Seatronics, an Acteon company, has entered a master services agreement with **Oceaneering International Inc**. Under the agreement, Seatronics' rental inventory will be enhanced by a range of ROV tools belonging to Oceaneering's Deepwater Technical Services (DTS) division. DTS's extensive equipment catalogue includes various torque tools and test jigs, the flying lead orientation tool (FLOT), the linear valve override tool (LVOT), caliper tools, the Subsea Intelligent Display, hot stabbing equipment, gasket tools, cleaning tools, cutters and the GTO dredging systems.

Schilling Robotics, LLC announced that it has formally opened a new support center in Singapore and has commenced construction of another support center in Brazil that will open in April 2011. This international expansion of Schilling's product support services into key offshore oil and gas regions will provide customers with the ROV industry's most comprehensive support available on a global basis. The support centers in both Singapore and Brazil will be in partnership with FMC Technologies and will be located in FMC facilities.

CSA International, Inc., a marine environmental consulting firm, recently promoted **Tony R. Martin** to Global Marketing Manager from his previous position of International Permitting Specialist in the Permitting Department. In this new role, Mr. Martin will work with the marketing department to oversee the business development efforts for CSA's seven distinct business lines. Mr. Martin has over 18 years of U.S. and international experience in applied marine and freshwater ecology.

Tritech International has appointed a U.S. Business Development Manager to its sales team. **Angus Lugsdin** joins the team having spent over 12 years in the subsea industry.

Nautronix has announced the appointment of **Gavin Duncan** as the new Director of Engineering. Gavin joins the company with over 20 years experience in the oil and gas industry, mainly in subsea production and intervention with senior technical roles at Aker Solutions and Expro.

Tritech International has promoted **Andrew Seaton** to Customer Support Manager. **Bill Smith** joins Tritech with over 20 years' experience in the offshore industry.

Advanced subsea technology company MCS Kenny, part of Wood Group Kenny, has appointed **Steven Bernard** as vice-president of riser delivery, based in Houston, to promote and further develop the company's expertise and experience in all aspects of riser delivery management.


Bernard

Titan Specialties, a leading provider of perforating and cased-hole logging technology, announced that it has signed an agreement with **Promperforator, LLC**, to distribute Titan products in Russia, Turkmenistan, Kazakhstan, Azerbaijan, Belarus, Ukraine, Uzbekistan, Armenia, Kyrgyzstan, Moldova, and Tajikistan.

NETmc Marine, designers and manufacturers of digital video recorders to the offshore market, have recently appointed agents in the USA and Singapore to sell their 73fifty DVR, Hi Definition Inspector DVR, Video Overlays and Integrated Diver Video Systems. **Fast Forward**, based in Louisiana USA will cover the Gulf Coast of America and **Advanced Marine**, based in Singapore will support Malaysia and Indonesia.

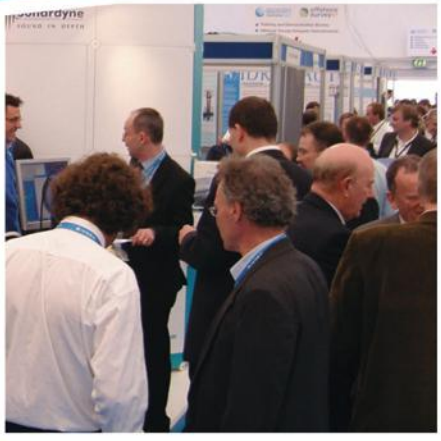
ocean business 2011

The hands-on ocean technology exhibition and training forum

National Oceanography Centre, Southampton, UK • 5 – 7 April 2011

The hands-on ocean technology exhibition incorporating in-classroom and on-water demonstrations and training sessions.

Over 300 companies exhibiting
4,000+ visitors expected to attend



Find out more… www.oceanbusiness.com

For information contact:

Telephone: +44 (0)1453 836363

Email: info@intelligentexhibitions.com

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In partnership with: AMSI

Hosted by: National Oceanography Centre, Southampton, University of Southampton and Natural Environment Research Council

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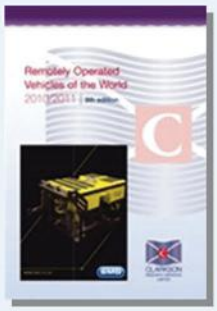
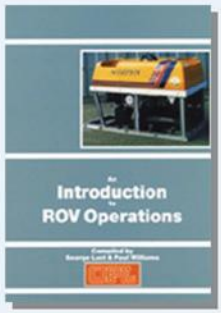
Wenger Men's BATTALION III DIVER
Swiss quartz movement
Water-resistant to 200m (660 ft.)
Further details available online.

Price: $195.00
Sale Price: $136.50



Remotely Operated Vehicles of the World - 9th Edition
Details for over 460 ROV's in operation and under production. 482 pages.
Further details available online

Price: $405.00

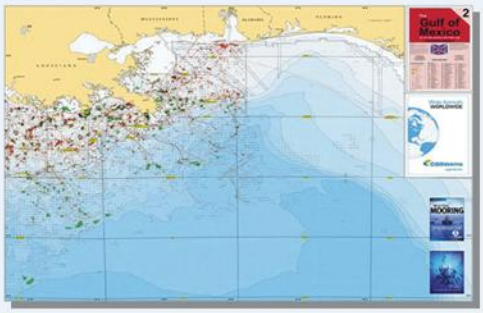


Introduction to ROV Operations
Drilling operations, drilling rigs
ROV systems overview
Further details available online

Price: $126.00

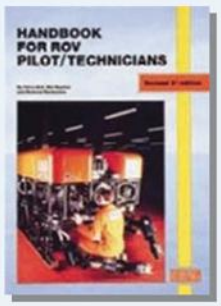
Handbook for ROV Supervisors
Practical information for ROV Supervisors including Management Principles, Leadership, Teamwork, Safety Assessment, Communications
Further details available online

Price: $180.00



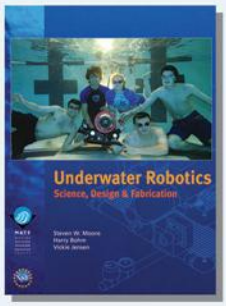
GOM Map
Available on CD, with the ability to 'zoom in' and 'zoom out' of specific areas of interest. After finding the area of interest, you can export the contents for use in presentations, proposals, or personal use tools. Details oil & gas pipeline data, lease block details, wells, platforms, and locations of major cities and ports.

Price: $450.00



Handbook for ROV Pilot and Technicians
Essential Skills and Knowledge for ROV Pilot/Technicians. Includes Inspection, Intervention, Construction, Cable Laying, MCM, ROTV, and an appendix of useful technical data.

Price: $180.00



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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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E-mail: info@ixsea.com
Website: www.ixsea.com

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iXSea is part of the iXBlue group, built around companies, well known for their continuous innovation. iXBlue is able to combine its unique technologies, products, systems and services from across its subsidiaries to provide the kind of solutions that cannot be found anywhere else in the industry.

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P.O. Box 730
White Marsh, VA 23183-0730
Toll Free: (800) 447-4804
E-mail: jherbert@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 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 (CTG)
869 Ward Dr. Santa Barbara, CA 93111-2920 USA
Tel: (805) 683-1431; Fax (805) 683-4862
E-mail: marketing@sonatech.com
Website: www.sonatech.com
K.Ruelas, pres.; R. Franklin, v.p., nav & range sys;
M. Shaw, v.p., sonar & transducer sys;
M. Rockwood, sales/marketing

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.

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Nygardsviken 1, 5164 Laksevag, Norway
Tel: +47 56 11 30 66, Fax: +47 56 11 30 69
E-mail: info@saivas.no
Website: www.saivas.no
Contact: Gunnar Sagstad

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SWITCHES

Hydracon Company Inc
Anaheim, CA USA
Tel: 1 714 281 2460, Fax: 1 714 281 1199
E-mail: alex@hydracon.com
Website: www.hydracon.com
Contact: Alex

Hydracon manufactures custom underwater devices. Examples include: switches proven worthy to NAVSEA testing and capable to 10,000 psi ambient, scuttle valves used on AUVs. "New Technology" switches feature abundant overtravel, fast response, low hysteresis, high reliability. Applications: Naval Defense, Power facilities, Deepwater Oil & Gas, Dredge systems. Many products are shown on the web site www.hydracon.com

SEACON Advanced Products, LLC.
1321 Nelius Road, P.O. Box 767
Bellville, Texas 77418 USA.
Tel: (979) 865-8846
Fax: (979) 865-8859
E-mail: sales@seacon-ap.com
Website: www.seacon-ap.com

SEACON Advanced Products, LLC., manufactures a wide variety of versatile and robust switches to suit a number of applications. These include Limit, Positive Action and Proximity switches in a range of materials including Titanium, Plastic and Stainless Steel which can be supplied in varying load capacities up to 7 amps and pressure rated to 10,000 psi. To further aid simplicity, our proven range of Modular Proximity Switches have been integrated with the Micro WET-CON electrical wet-mate connector making this switch a very modular component that is easily installed and replaced in the field, but without compromising reliability.

TRANSDUCERS

International Transducer Corp.
A Division of Channel Technologies Group (CTG)
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Website: www.itc-transducers.com.com
K. Ruelas, pres.; Art Cambell, v.p.; Jon Monroe, sales & mktg.; E. Kuntsal, 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, sidescan arrays, OEM and end-item products for commercial and military applications.

UNDERWATER THICKNESS GAUGES

Cygnus Instruments, Inc.
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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.

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Tel: + 44(0)1935 426000, Fax: +44(0)1935 426522
E-mail: info@atlantasmarine.com
Website: www.atlantasmarine.com
Contact: Charlie Foll

Atlantas Marine are the award-winning supplier of the Videoray range of portable ROV's, together with sonars from Tritech and Blue View Technologies, and also the larger ROV range manufactured by Deep Ocean Engineering. We provide consultancy, support and training for most underwater inspection tasks. In addition we provide a range of navigation and safety equipment to the commercial shipping market, which includes electronic navigation systems (ECDIS), voyage data recorders, long range tracking systems (LRIT) and portable pilot navigation systems (PPU's).

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

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
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Tel: +1 619 450-4000, Fax: +1 619 450-4001
E-mail: Info@SeaBotix.com
Website: www.SeaBotix.com

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

Sub-Atlantic
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Tel: +44(0)1224 798660, Fax: +44(0)1224 798661
E-mail: sales@sub-atlantic.co.uk
10642 West Little York, Suite 100
Houston, Tx, 77041-4014, USA
Tel: +1 713 329 8730, Fax: +1 713 329 8299
E-mail: sales@sub-atlantic.com
Website: www.f-e-t.com

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.

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Patterson, LA 70392
Tel: 985 395 0996
Fax: 985 395 0995
Website: www.ssirovs.com
Contact: Wolfgang Burnside

Utilizing the knowledge gained with over a hundred combined years of actual offshore ROV operations, SSI has designed and constructed the TRV005 ROV System. A totally new concept, this larger, rugged, Inspection ROV comes with standard features that many would consider optional, plus a 1 year warranty on subsea components, 5 years on console and true 24/7 support. SSI also refurbishes older ROV Systems, from simple upgrades to the extreme.

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E-mail: brian.luzzi@videoray.com
Website: www.videray.com
Contact: Brian Luzzi

VideoRay, the global leader in Micro-ROV technology has more than 1,400 Remotely Operated Vehicles (ROVs) deployed globally. Starting at just US$5,995 and weighing just 8 pounds, VideoRay is ideal for surveys, offshore inspections, search & recovery, homeland & port security, science & research, fish farming, and other underwater applications. VideoRay is currently available on the General Services Administration (GSA) schedule.

UUVS

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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

DeepSea Power & Light
4033 Ruffin Road
San Diego, CA 92123 USA
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E-mail: sales@deepsea.com
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E-mail: km.camsales.uk@kongsberg.com
Website: www.kongsbergmaritime.com
Contact: Bill Stuart

Kongsberg Maritimes's Camera Division in the UK has been designing and manufacturing underwater cameras for over 30 years and is the recognized market leader in supplying underwater imaging technology to the offshore oilfield industry. It also has a 20-year history in supplying the international naval defense sector, with special camera systems.

SIDUS Solutions, Inc.
San Diego, CA Office:
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Houston, TX Office:
Tel: (281) 596 7568, Fax: (281) 596 7578
E-mail: info@sidus-solutions.com
Website: www.sidus-solutions.com

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

WINCHES, HANDLING & CONTROL SYSTEMS

Hawboldt Industries
220 Windsor Road
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E-mail: dan.gibson@hawboldt.ca
Website: www.hawboldt.ca
Contact: Dan Gibson

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WINCHES - UNDERWATER

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Ocean News & Technology

2011 EDITORIAL CALENDAR

January/February
Editorial: Inspection & Light Work Class ROVs, Offshore IRM
Distribution: Underwater Intervention
Deadline: January 14th
Product Focus: Diving Equipment & Buoyancy Materials

March
Editorial: Defense & Naval Systems, Oceanography & Meteorology
Distribution: NACE • Future Naval Forces • Ocean Business • Offshore Survey
Deadline: February 18th
Product Focus: Navigation, Mapping & Signal Processing; U/W Batteries

April
Editorial: Offshore Technology, Maritime Security
Distribution: U.S. Hydro • OTC • Maritime Security Expo-EJ Kraus
Deadline: March 11th
Product Focus: Connectors, Cables & Umbilicals

May
Editorial: AUVs & Gliders, U/W Imaging & Processing
Distribution: Oceans '11 IEEE Spain • UDT Europe
Deadline: April 15
Product Focus: Cameras, Lights & Imaging Sonars

June
Editorial: Ocean Renewables, Ocean Observing Systems
Distribution: EnergyOcean11 • Sea Work Int'l • MAST France
Deadline: May 13th
Product Focus: Tracking & Positioning Systems

July
Editorial: Work Class ROVs, Subsea Fiber Optic Networks
Deadline: June 17th
Product Focus: Subsea Tools & Manipulators

August
Editorial: Coastal Engineering, Aquaculture & Marine Resources
Distribution: AUVSI • Offshore Europe • Oceans MTS/IEEE
Deadline: July 15th
Product Focus: Buoys & Monitoring Instrumentation

September
Editorial: Offshore Wind
Distribution: OTC Brasil • AWEA/Offshore Wind • MTS Dynamic Positioning
Deadline: August 19th
Product Focus: Multibeam & Side Scan Sonars

October
Editorial: Offshore Communications, Environmental Assessment & Monitoring
Distribution: LAGCOE • SPE-ACTE • Offshore Communications • MAST Americas • Clean Gulf • International Workboat
Deadline: September 16th
Product Focus: Acoustic Modems, Releases & Transponders

November/December
Editorial: Ocean Mapping & Survey, Subsea Telecom
Distribution: Subsea Survey/IRM
Deadline: October 28th
Product Focus: Workboats & Special Purpose Subsea Vehicles

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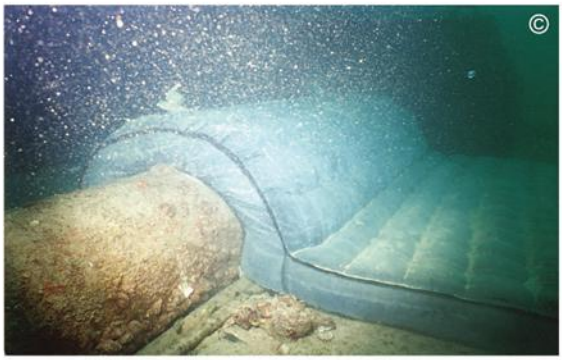

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