Cable Laying with Portable Turntables • Scientific Deck Machinery • Cables, Connectors, Power

MARINE TECHNOLOGY REPORTER

January/February 2012 www.seadiscovery.com

Subsea Salvage

The Quest to Raise LW170

The Halifax Project to Recover WWII Treasures

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The Halifax Project

Image: Bomber Command Museum Of Canada.

On the Cover

Pictured on this month's cover is an amazing feat of engineering from Elastec/American, its oil spill clean-up and separation system that exhibited an oil recovery rate of 4,670 gpm, with an efficient 89.5% oil to water recovered.

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Making Connections in Harsh Environments

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See Story on page 24

Rhonda Moniz *is an ROV Pilot/Engineer, Diving Safety Officer, and Underwater Cinematographer. She has also worked over the past 20 years, as a lead Science Diver and Diving Instructor. Moniz is founder and Director of Operations for Benthic Exploration, a company specializing in marine technology including ROV, AUV, Side scan, and sub-bottom profiling technology. She has been involved in a number of expeditions around the globe including several as ROV Pilot and Engineer for Dr. Robert Ballard. She has served as the lead science diver and underwater cinematographer for the University of Massachusetts – Marine Science and Technology Campus, and the University of Rhode Island. She has worked as the underwater Director of Photography for the Virginia Institute of Marine Science, Museum of Natural History in New Mexico and has acted as Science Advisor for the underwater-segment for "Evolution" an eight hour PBS series for NOVA. She has also worked on several Discovery Channel productions. She is currently principle investigator for Rescue 57, a project off the coast of Ireland to locate and raise a WWII Halifax Bomber. A documentary and companion book will be included in this project. She has worked as an Open Water SCUBA Instructor and has attained Master Instructor Rating with the Professional Association of Diving Instructors.*

See Rhonda's Blog twice each week on www.SeaDiscovery.com

See Story on page 32

Jack Shepherd *is the architectural and industrial product manager for Macton, Oxford, Conn. For more information: Tel: (203) 267-1500 x231; Email: jshepherd@macton.com; Website: www.macton.com*

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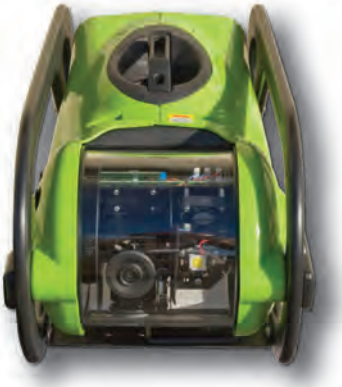
SeaBotix



PART:

Little Benthic Vehicles

VIEW:

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Late last year in New York the X-Prize Foundation held a ceremony to award the top three prizes in its **$1.4m "Wendy Schmidt Oil Cleanup X Challenge."** To be quite honest, before receiving the invitation, I was none too familiar with either the X-Prize Foundation or Wendy Schmidt, and I was leaning toward skipping the ceremony in lieu of shoveling out from under a heavy work load. I'm happy that I went.

The $1.4m "Wendy Schmidt Oil Cleanup X Challenge" was a direct result of the Deepwater Horizon blowout and resultant oil spill in the Gulf of Mexico. The X-Prize Foundation is well versed in running high-profile contests, some offering up to $10m in prize money. In this contest it was Wendy Schmidt who stepped to the plate to fully fund the contest which bore her foundation's name. From an initial field of hundreds, 10 teams from around the globe made the final cut to develop and deliver a faster, more efficient means to remove oil from water. The 10 finalist teams – each of which travelled to New York for the awards ceremony – then had to demonstrate their cleanup systems individually during field testing over a 10-week period in the summer of 2011. Ohmsett – the National Oil Spill Response Research & Renewable Energy Test Facility – in Leonardo, NJ, which is the largest outdoor saltwater wave/tow facility in North America, served as the testing ground. While the full story and results are found starting on page 18, the performance from the winning team — Elastec/American Marine from Illinois — was startling, as this innovative company tapped its talented team to re-engineer its existing system to nearly triple the amount of oil that can be removed from water efficiently, to 4,670 gpm.

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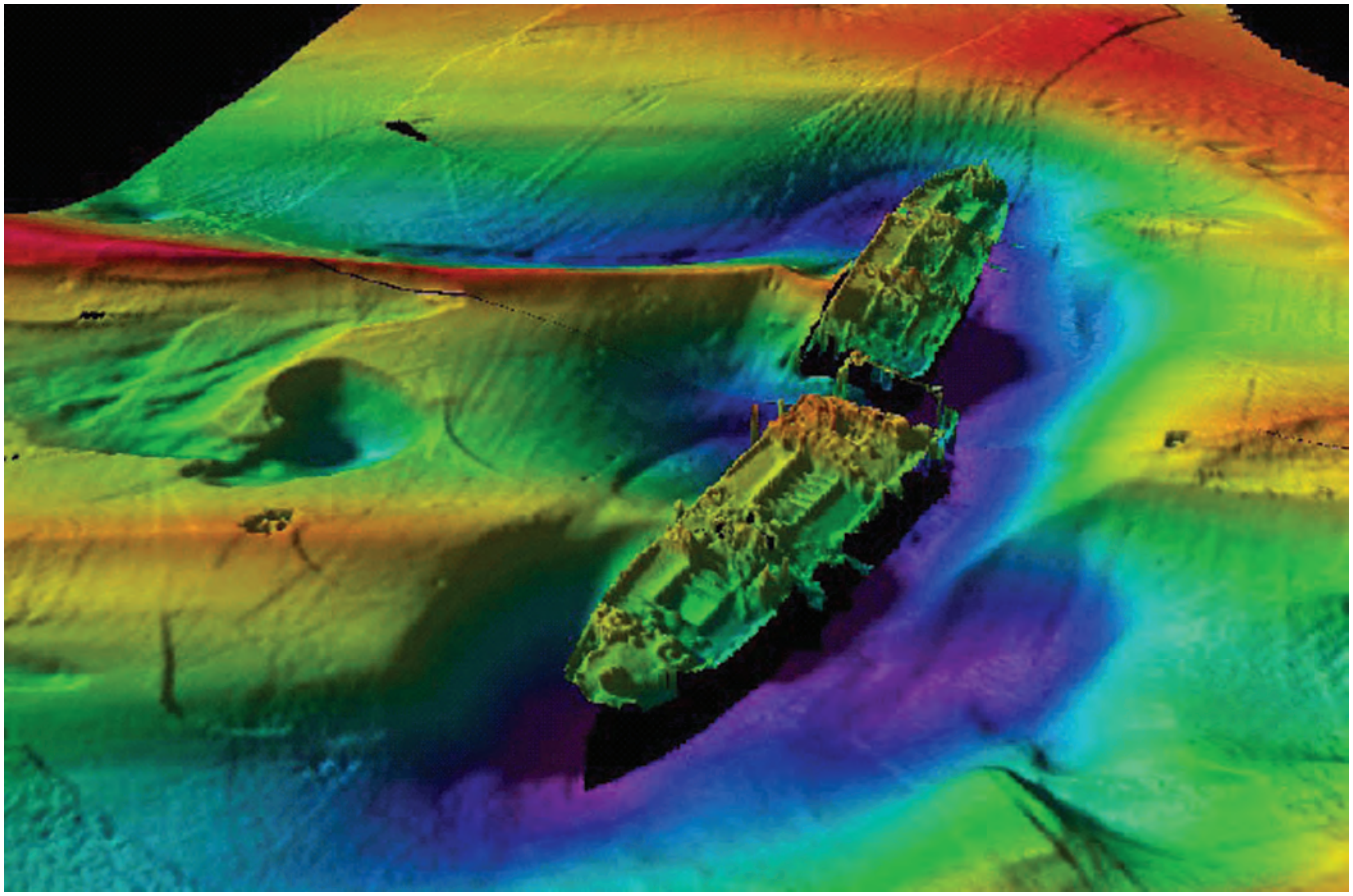
ADUS Invests in RESON SeaBat Multibeam Echosounder

The Scottish based company ADUS added a SeaBat 8125-H Multibeam Echosounder to its range of sonars. ADUS uses the SeaBat to collect high-resolution data of sea bed structures. By investing in the SeaBat 8125-H, ADUS will benefit from new beam forming modes such as FlexMode which enables ADUS to collect more dense data over areas with wrecks, offshore wind turbines, or pipelines.

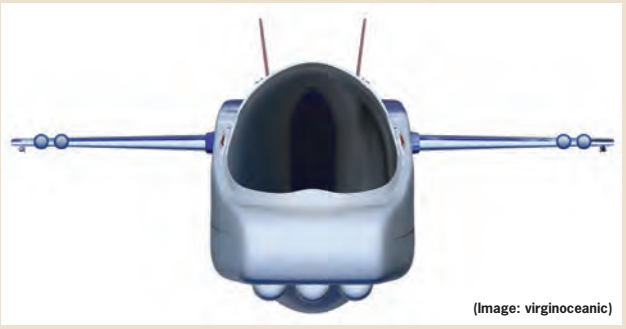
Within its specialist survey capability, ADUS can collect and visualize multibeam sonar data on shipwrecks which are an environmental hazards as they contain oil, explosives, nuclear material, or other potentially toxic materials. The new hybrid version, the SeaBat 8125-H, can with a unique and highly advanced data processor, ensure that ADUS is able to collect the necessary high-resolution multibeam data which is necessary for them to perform a visualization of the presumed environmental hazards of shipwrecks. RESON provides quality underwater acoustic hardware and software solutions.

SeaBat 8125.



Blogs @ SeaDiscovery.com

Virgin Oceanic Designs New One-Person Submarine



(Image: virginoceanic)

Excerpted from a post by Rhonda Moniz

Virgin Oceanic's new submarine will carry one crewmember, weighing in at 8,000 lbs. the sub is designed to dive to depths of 37,000 ft., while cruising at between 2.2 and 3 knots. It can descend or ascend at a rate of 350 fpm, and provides life support for up to 24 hours. It is made with the latest in composite technology and a completely unique flying wing to literally fly within the ocean environment. Adventurer **Steve Fossett** had intended to complete the first solo dive to the depths of the Mariana Trench. **Sir Richard's**, a close friend and fellow explorer of Fossett commissioned the sub in an effort to finish what Fossett set out to accomplish. The pressure in the ocean is 14.7 pounds per sq. in. for every 33 ft. we descend. At the bottom of the deepest trench ambient pressure exceeds 1,000 atmospheres. The sub is equipped with a quartz dome that will need to withstand 13 million pounds of pressure, the weight of three space shuttles. Designed by **Graham Hawkes**, it is the only piloted craft in existence that has 'full ocean depth' capability. Once fully descended, the submarine's hydroplanes (the equivalent of wings for submarines) and thrusters will allow it to 'fly' up to 10km over the ocean floor while collecting video and data. A dive to the bottom of the Marianna trench and back is estimated to take about five hours. The mission of the sub over the course of the next several years will be to explore the deepest parts of the Earths five oceans. Piloted by Chris Welsh, co-founder and pilot, the first in the series of dives will be to the Mariana Trench at a depth of 7 miles. The second dive will be piloted by Sir Richard Branson, who will pilot the sub to the bottom of the Puerto Rico Trench, a depth greater than 5 miles.

Portable Turntables Provide Speed & Flexibility to

Turn it Around Fast

By Jack Shepherd, Macton Corporation

Your company finishes a cable laying job on the east coast and then needs to get the vessel to the west coast to start the next project. That means a lengthy voyage and lots of downtime, when the company isn't making any money. Fortunately, new technologies are about to change all that. Portable cable-laying turntables can be removed from the current vessel, disassembled and shipped to the new location across the country. When the turntable arrives, it's easily reassembled on another vessel at the new location, and you're back in business, turning weeks of downtime into just days and lost profits into increased revenue.

Underwater cable is manufactured in one of two ways. It is either laid in a stationary shipping basket or laid in a shipping basket placed on a turntable. If the cable is laid on a stationary basket, there is a twist put in the cable with each wrap. When the cable is laid, it has to be dispensed in the opposite rotation to take the twist out of the cable. If a turntable is used in the manufacture of undersea cable, then one must also be used when the cable is laid. Otherwise, there will be a twist imposed on the cable as it's dispensed from the shipping basket. The cable manufacturer dictates the manufacturing process.

Portable turntables arrive at a job site disassembled. The wheeled base assembly and the turntable itself are manufactured in pie sections that are bolted together on the vessel or barge. The wheeled base assemblies allow for rapid leveling of the base as a whole, as opposed to leveling each individual wheel set. The number and size of the supporting wheels is determined by the diameter and load capacity of the turntable. The design of the wheel

Cable being installed from turntable.

base allows the load to be equally distributed to the deck beams of the vessel. Once the wheel base is installed and leveled, the center post is mounted to the wheel base. Rolled heavy-duty crane rail track is then positioned on the wheel sets, and the pie-section turntable is fastened to the center post and track. The entire installation process takes just two to three days. The openness of the deck and frame design allows easy access to all turntable components for maintenance.

Save Time, Money

Traditionally, turntables for laying underwater cable are permanently mounted on vessels or barges. However, this limits a marine contractor's flexibility when it comes to how it uses equipment. Vessels and barges with permanent turntables can only serve a single purpose, and must be moved to the next job site, whether that's just down the coast or halfway around the world. The portable turntable solves this problem and provides added flexibility and cost-savings. All the contractor needs to do is rent a "vessel of opportunity" at the job location, which simply has to have adequate space on the deck for a turntable. The turntable itself is disassembled and removed from the vessel at the last job site and shipped by truck to the next job location, where it will be installed on the waiting vessel. The disassembly process takes only two to three days.

The portability option also allows the contractor flexibility with the purchasing and renting options for a vessel. No longer does the shipping company need to buy or rent a turntable-specific vessel. Any vessel with a deck surface large enough to hold the required turntable and cable reel will be sufficient. This alternative enables the contractor to rent, buy or lease a vessel that is much less expensive.

Turntable Specs

A recently delivered portable turntable was manufactured with a diameter of 39 ft. and a 500 metric

ton capacity. Larger turntables are available with capacities in excess of 2000 metric tons. Purchasers should look for manual controls and reversible variable speeds, although motor parameters, overloads, ramp speed, minimum and maximum speeds, and other variables are controlled by a commercially available speed drive systems. A traction wheel drive system imposes the driving force onto the drive ring. Two 10 hp tropical duty electric motors positioned 180 degrees apart power the turntable. The variable speed control of the drive system allows the operator to precisely match the turntable speed with the cable laying rate. While electric drives are typically more efficient to operate, a hydraulic drive option is also available.

A quick disconnect on the tethered control pendent allows the system to be operated locally for system check out and startup or remotely from the control room during cable laying operations.

Manufacturing turnaround is relatively quick, and turntables have been delivered to customers in as few as seven weeks. However, a typical manufacturing time including delivery is about 12-14 weeks.

First Hand Experience

Underwater cable is commonly used by two industries today: telecommunications and electric power. A new third market is emerging, however, for which a portable turntable is ideal: alternative energies, in particular, offshore wind. Because the total length of cable needed to reach an offshore wind turbine is relatively short, it can be laid in one piece from a portable turntable with a minimum of expense and time. Durocher Marine is a division of Kokosing Construction Company, Inc., based in Cheboygan, MI. Durocher recently used a portable turntable to lay cable for an offshore wind project in New York state.

"We install sub-marine cables, both power and fiber optic," said Project Manager Jack Breininger. "We just installed a cable across Long Island Sound and one between St. Thomas and St. John."

The company conducts jobs on both the east and west coasts of the US, in addition to the Great Lakes, the Caribbean, and Central and South America. The Long Island Sound project looked to be another routine job for the company, said Breininger. "The supplier buys the cable and we install it with barges," he said. "We have cable plows to bury

it and everything else that we need."

"Normally, you can coil the cables in a tank, and the shorter ones they deliver the cable on a reel," Breininger said. "We didn't find out until the 11th hour that it wasn't coilable, so we were under a lot of pressure to get a turntable."

"Normally on something like that we'd rent the turntable from the cable manufacturer or another company. We looked at the cost of renting one, but when you rent equipment, the cost is sometimes a lot more expensive than you anticipate," he said.

"Most turntables are one piece so they have to be barged and the cost is very expensive. On this project, we decided to purchase one of our own, for this project and for future projects," Breininger added.

To accomplish its goal, Durocher conducted an Internet search for a specialized industrial turntable and found a company with a novel approach. "We discussed making one that was truckable," said Breininger. "Our work can be on the east coast or the west coast, so it's not feasible to barge it or ship it. Shipping a turntable that's not a containerized load—it becomes a time issue. You're looking at a month or a month and a half for it to get there, and you're looking at $300-400,000 (in shipping costs)."

Durocher's new, portable turntable made getting it across the country much less expensive. "It completely disassembles into pieces small enough to be trucked," said Breininger. "If you were to truck it, you're looking at about $16,000-20,000" a substantial savings over shipping by boat through the Panama Canal.

"The turntable operated on the job as specified," Breininger said. "We only had two or three days to put it together. Once it was assembled, we had one day to test it, and the next day we were laying cable with it."

Landmark Contract to Rapp Hydema, Triplex for New Australian RV

"Down Under Deck Machinery"

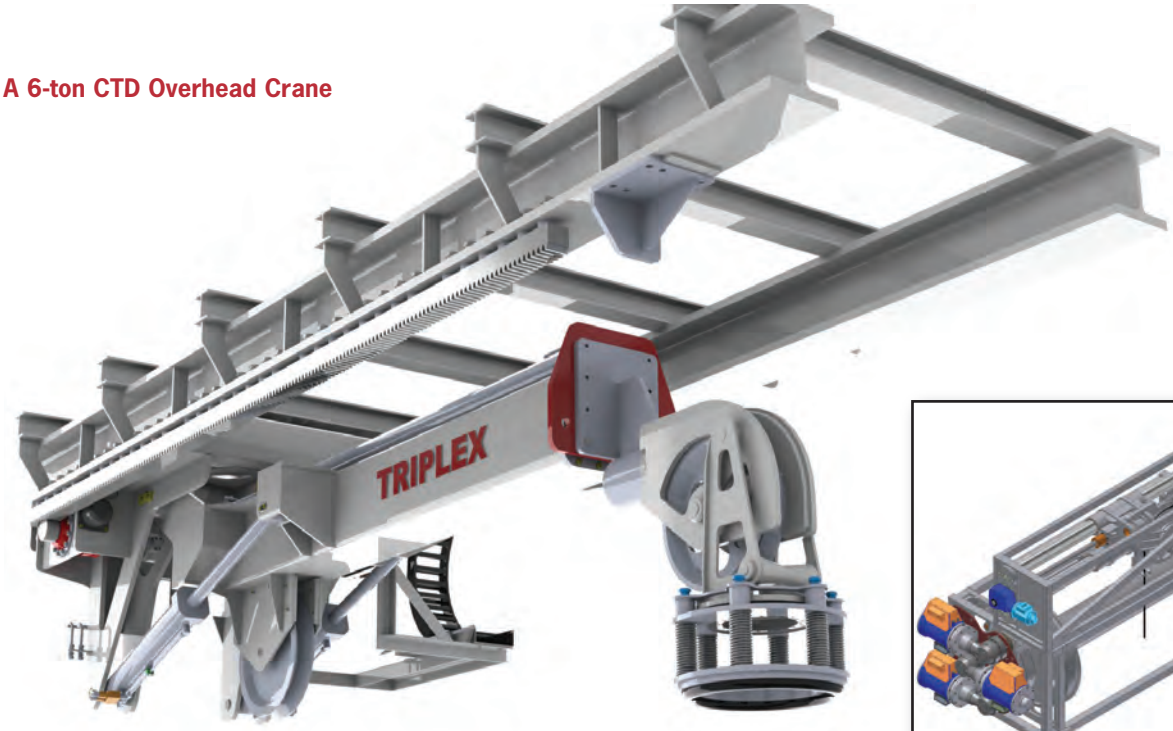
Rapp Hydema and Triplex won a landmark deck machinery contract for Australia's Commonwealth Scientific and Research Organization (CSIRO). CSIRO selected Teekay Holdings Australia and Sembawang Shipyard Pte Ltd. to carry out the design, build and commissioning of the vessel. Sembawang and Teekay appointed RALion (a joint-venture between Alion Science and Robert Allan LTD) to carry out the vessel basic design. The new vessel, named the Investigator, is scheduled for mid-2013 delivery. The consolidated deck -and handling machinery package is due for delivery in 3Q 2012.

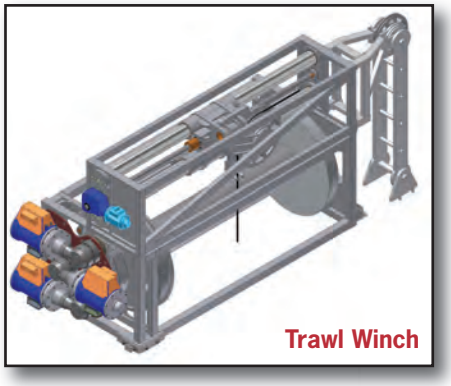
Rapp Hydema teamed with Triplex to win the contract. Project management at Rapp Hydema said that the contract apparently comprises "the most comprehensive and largest-scale research system ever delivered."

Following interactions between Teekay, Sembawang and the designer throughout last year, Rapp Hydema staff travelled to Washington, D.C. in May 2011 for an introductory and clarification meeting. Subsequent interactions occurred in Europe, Singapore and Australia during the spring and summer.

Ultimately, Rapp staff executed comprehensive analysis of dynamic loads in order to identify related drag forces and available payloads. Given the mission of working at extreme water depths (wire and cable holding capacity from 6000-8800m), this proved no small task. All deck machinery systems will be designed for ambient operating temperatures of -30°C to + 45°C. Machinery is also subject to approval under the rules for Lifting Appliances in LRS for operations in up to Sea State 6. Throughout the deck machinery package, redundancy in powering and standardization of parts are characteristic.

A 6-ton CTD Overhead Crane





Trawl Winch

(Graphic courtesy of Allon Science)

R/V Investigator

The scientific research winch package includes six different winches with lifting capacities of 3.1 to 37.6 tons for a giant piston corer operation at extreme water depths. On the fisheries side, there are two Rapp TWS 7590E-T90 trawl winches, each with 35 tons of first-layer line pull. A net drum with dividers for the sweep lines is also included, along with two smaller utility winches.

Symbolic of the scale of the deck machinery package, the new vessel will include no less than three winch rooms—and yet even with such accommodations, space issues have posed a great challenge. Approximately 180 tons of deck and handling machinery, with an installed-power footprint of 1800 kW, has posed special challenges in design. In close cooperation with SSPL/Teekay and RALion, Rapp staff are continuing work on best possible options for operational lay-out, wire-routing and weight-reduction approaches.

The CSIRO contract allows Rapp and Triplex to showcase latest technologies. Among others, the electric winch package features VFDs (variable-frequency drives) of the AFE (Active Front End) type. Drive voltage is 690-volt AC, 3-phase, 50 Hertz. Given the challenges of Arctic-Antarctic operations, winches are to be placed below decks in order to reduce corrosion and ice-ups. Another newer technology aboard will be an Active Heave Compensation (AHC) package; Rapp has provided this technology to several customers in recent years, especially in the ROV and offshore oil sectors. The winches are also equipped with Rapp's electrically-driven, electronic synchronized level wind systems, for easy adjustment and change in the spooling pitch.

Rapp is also providing its patented liquid-cooled motor, a technology which earn it the Offshore Technology Conference innovative technology award last year, to power some of the winches. Finally, Rapp is providing its latest mission-specific upgrades of its long-running PTS Pentagon winch control technology, in the Research C-Bus version (for the scientific winch package management) and Fisheries C-Bus (for the fishery winches suite). The Pentagon management system offers tension control and auto-rendering features, among various others.

The Triplex side of the package is similarly impressive in its scope with the special focus on efficient and safe handling of the different scientific packages. A 30-ton telescopic corer boom, a Multi-Corer Pipe Handler, Corer Pipe Davits, a 20-ton Aft A-Frame with 170-degree stroke and a 6-ton CTD Overhead Crane are just the highlights. There are two substantial power units, totaling 180kW, and two pair of Towing Booms (fore and aft) as well.

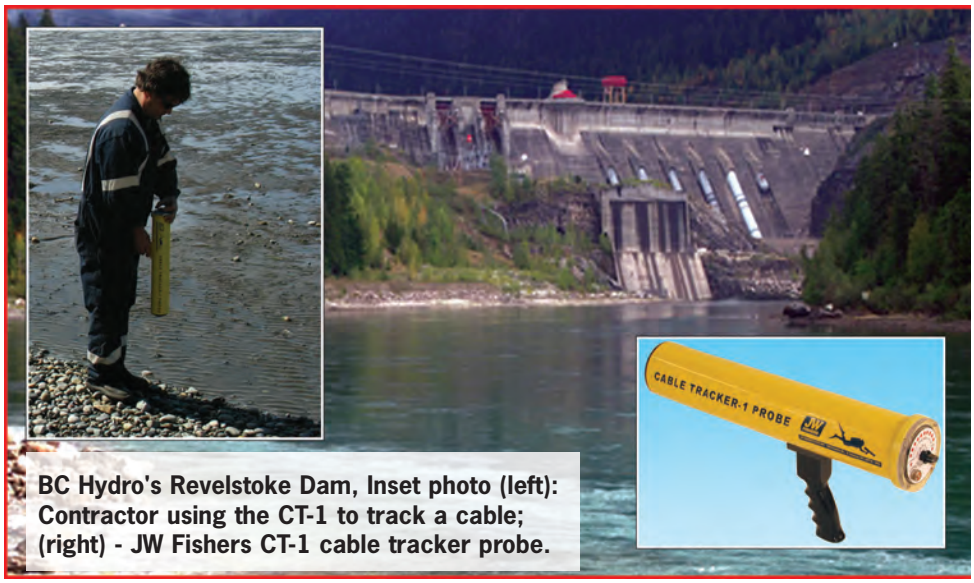
Energy Companies Power-Up

Subsea Search Equipment

Statiol, a leading energy company in oil and gas production, recently expanded its operations by purchasing the South Riding Point Storage and Transhipment Terminal on Grand Bahama Island. A primary objective of the acquisition is to strengthen Statiol's market and trading position in North America. The company plans to invest $200m, half of which will be spent on upgrades at the facility. A significant portion of that money is being used to hire contractors to perform the work. One contractor already on the job is Belgian based Jan de Nul Group. The EPC project (engineering, procurement, & construction) includes removal of an existing pipeline, and the fabrication and installation of a new 42-in. line which will be connected by a spool and riser to an offshore loading platform. One of the tools Jan de Nul is employing is JW Fishers SeaOtter-2 ROV to monitor and inspect the removal of the old line and installation of the new one. The SeaOtter, a highly maneuverable underwater vehicle equipped with two high resolution cameras, allows engineers to watch the construction work from a topside support vessel, and to view it from any angle.

Canada's energy industry is most widely characterized by its hydroelectric plants, but the country also has a budding nuclear industry. Atomic Energy of Canada Ltd (AECL) is a federal corporation charged with the responsibility of managing the country's nuclear program. AECL markets and exports its products and services, which include building nuclear facilities as well as providing maintenance, diagnostics, and waste management. The major R&D effort is carried out at Chalk River Laboratories (CRL). A primary focus of the lab is to develop, support, and advance CANDU nuclear reactor technology. There is also a strong commitment to ensuring that operations at the site have a negligible impact on the health and safety of employees, the public, and the environment. As part of this effort, environmental scientists at CRL are using Fishers DV-1 drop video system to monitor the river's ecosystem. The DV-1 has a high resolution camera mounted in a watertight housing depth rated to 500 feet, and is equipped with two powerful 100 watt lights. Topside the camera connects to the VRM-1, a control console with built-in flat screen ultra bright display and a digital video recorder. Using this system scientists can view and record the activity of marine life, and health of the vegetation, around the drains that output cooling water from the facility.

Another nuclear facility using underwater search equipment is the Nine Mile Point Nuclear Power Station in New York. One of units there had been taken offline to upgrade and replace motors, valves, and seals. Before returning it to service, a FME (foreign materials exclusion) procedure was implemented to minimize the possibility of any foreign material entering the facility. Divers using JW Fishers Pulse 8X underwater metal detector searched the area around the intake pipes that bring in cooling water. Scouring the site with this powerful, commercial grade detector allowed divers to



BC Hydro's Revelstoke Dam, Inset photo (left): Contractor using the CT-1 to track a cable; (right) - JW Fishers CT-1 cable tracker probe.

locate every piece of metal in the area, ensuring no metallic debris will be sucked into the plant.

Northern California Power Agency (NCPA) is using an underwater camera system at their facilities. NCPA owns and operates several power plants, including two geothermal units and several hydroelectric units, in a 96% emission-free generation portfolio. The agency is using Fishers DV-1 drop video system to perform inspections at their hydroelectric plants. The drop camera allows the company to perform visual inspections of the dam face, trash racks, tailrace, concrete piers, the headworks, and to check for erosion under the sluiceway aprons. Inspections can be done by company personal as the need arises, eliminating the need to schedule around the availability of an underwater survey crew.

Another hydroelectric company using underwater search equipment is BC Hydro in British Columbia, Canada. BC Hydro operates 30 hydroelectric facilities and 3 natural gas fueled thermal power plants. Recently the company acquired one of Fishers CT-1 cable tracking systems. The cable tracker has the capability of finding and following both live and de-energized power cables, on land and underwater. It can also locate faults and breaks in cables. According to a company spokesman, the CT-1 was supplied to one of the BC Hydro's contractors, commercial diving company CANPAC, who used the CT-1 to locate and track a transmission cable from the point of entry into a lake, across the lake, and out the other side.

www.jwfishers.com

"X" Marks the Spot *(Oil Spill Clean Up)*

Industrial disaster is often the impetus for innovation, and the maritime world is no exception. Last year, in the wake of one of the worst oil pollution disasters in history, the X-Prize Foundation and Wendy Schmidt stepped up to fund a $1.4m competition to find a more efficient means to clean oil.

– By Greg Trauthwein, Editor

Last year in a high-profile ceremony in New York City, the X Prize Foundation announced the winners of the $1.4 million Wendy Schmidt Oil Cleanup X CHALLENGE. Two teams Elastec/American Marine from Illinois, the Grand Prize ($1m) winner, and the second place ($300,000) team, NOFI from Tromsø, Norway, innovated and outperformed more than 350 entry submissions from around the world, far exceeding the rigorous standards outlined in the competition. (*Note: The third-place ($100,000) prize was not awarded, as none of the other finalist teams met the baseline requirements)

The X Prize Foundation is a non-profit organization with the lofty ambition to help solve the world's engineering challenges by creating and managing large-scale, global incentivized competitions. In this competition, the Deepwater Horizon blowout and resulting oil spill in the Gulf of Mexico led the foundation and philanthropist Wendy Schmidt – who personally funded the prize purse – to create the $1.4m Wendy Schmidt Oil Cleanup X CHALLENGE.

This competition in particular highlights not only the drive for prize money, rather the true innovation that emanates from academia, as well as the halls of corpora-

tions, large and small. In the case of team Elastec/American, taking the quantum leap from a floating, spinning utility bucket to the creation of the world's fastest and most efficient oil spill recovery system was the investment of innovative minds, a talented workforce and the lure of the X-Prize competition.

The Mission

The X-Prize foundation targeted oil spill clean-up technology in the wake of Deepwater Horizon, challenging entrepreneurs, engineers and scientists worldwide to develop innovative, rapidly deployable, and highly efficient methods of capturing crude oil from the ocean surface. The 10 finalist teams – each of which travelled to New York for the awards ceremony – then had to demonstrate their cleanup systems individually during field testing over a 10-week period in the summer of 2011; the teams were overseen by an panel of judges as they demonstrated their technology's ability to recover oil from the sea-water surface Ohmsett – the National Oil Spill Response Research & Renewable Energy Test Facility – in Leonardo, NJ, which is the largest outdoor saltwater wave/tow facility in North America.

The qualification to be considered for a top prize was stringent, as teams had to demonstrate an Oil Recovery Rate (ORR) above 2,500 gpm, with an Oil Recovery Efficiency (ORE) of greater than 70%. Only Elastec/American Marine and NOFI were able to exceed both goals, with **Elastec/American creating a system that exhibited a staggering Oil Recovery Rate (ORR) of 4,670 gpm, with an efficient of 89.5% oil to water recovered; , and NOFI exhibiting an average ORR of 2712 gpm with an average ORE of 83%.**

Left:
The Winning Team: Elastec/American
Team Leader: Don Johnson
Team Location: Illinois, USA
Team Members:

- **Donnie Wilson**
- **Jeff Cantrell**
- **Stewart Ellis**
- **Charles Storey**
- **Brian Orr**
- **The Glosten Associates, Inc.**

The Winning Team

Elastec/American Marine, a manufacturer of oil spill and environmental equipment known for innovation in machinery design, is a self-funded, privately held Midwest corporation that has grown to become one of the largest manufacturers of oil spill equipment in North America. The company, which started over 20 years ago as just an idea, has grown into a 100+ workforce that has gained a global reputation for its technological innovations. In the X-Prize competition, Elastec/American Marine reached more than three times the industry's previous best oil recovery rate tested in controlled conditions.

Team leader Don Johnson is manager of the Elastec/American Marine Aluminum Boat Division, and has 30 years experience in the design and manufacture of recreation vessels. He was embedded at the Deep Water Horizon event as an onshore facilitator representing Elastec/American Marine for the In-Situ burn task force.

To know the Elastec/American Marine Team story, it is essential to start from the beginning of the company. Elastec/American was started by Donnie Wilson and Jeff Cantrell, started as any other Southern Illinois oilfield service company. From the start it was their innovation

that earned them a solid reputation, as oilmen with a problem with machinery design would come to see them. “They would draw out a design on a napkin and say 'Can you build this?'" Wilson said. “We're still doing that - solving problems.”

Elastec/American holds two international patents and six domestic patents on its products, and it got its start in the business of oil recovery systems after responding to a small, local oil spill. The equipment being used wasn't doing the job very well, and Wilson said he asked Cantrell to throw him a five-gallon plastic bucket to help in the recovery. Luckily Jeff’s aim was off that day, and the wind caught the bucket and blew it into the spill on the water. The wind continued to turn the bucket and Wilson noticed that as the bucket turned, oil stuck to the side of it, leading them to their first invention of oil recovery equipment. So it began.

That bucket spawned the company’s barrel skimmer. Never satisfied with the “norm” Wilson and Cantrell continued their pursuit to design and deliver an even more efficient skimmer apparatus, and in 1990 it obtained the first of many patents for innovation in the field of pollution control equipment.

Fast forward to April 20, 2010: the Transocean drilling rig, Deepwater Horizon, exploded. This event was immediately devastating as 11 crewmen were killed. The rig sank two days later. As information was being gathered, it was not known how much, if any, oil was being leaked into the Gulf of Mexico. By Saturday, April 24th an oil leak was reported near the sunken rig. Over the course of the coming months it became the largest oil spill in U.S. history. Elastec/American Marine was contacted on the morning of April 26, with a request for Hydro-Fire Boom, a request that led to Wilson and Cantrell personally driving a truck loaded with equipment toward New Orleans. While all the resources and options were being gathered and assessed for managing the response, the U.S. Coast Guard announced it would conduct a test using fire resistant boom to burn the oil floating on the water’s surface. The boom they selected was Elastec/American’s Hydro-Fire Boom. The test was a success and the Coast Guard then authorized controlled burning as a response tool. This is the first time that the technique of burning oil on water in a large scale incident has been proven – reducing the impact on the shoreline and sensitive ecosystem of the Gulf coast. By the time the well was capped a record 411 burns were conducted with some lasting up to 12 hours. In addition to supporting the controlled burning Elastec/American Marine supplied approximately 180 skimmers and 100 miles of containment boom to assist BP and other responders in their cleanup efforts. When it came time to devise a solution for the X-Prize Foundation Contest, the challenge was daunting. “I felt that to pick up 2,500 gallons per minute was not that difficult, but the thing that most technologies have to overcome is the ability to pump and handle that volume.” said Brian Orr, Welding & Fabrication, Elastec/American.

“I knew that they (the Elastec/American team) had the capacity and the mental wherewithal, it was mainly the short amount of time we had to design and build it,” said Don Johnson, Team Leader. “Picking up 2500 gpm is easy, actually, you can pick it up, it’s the separating it and picking it up cleanly that is the challenge.”

The resulting system was a derivation of the company’s

Elastec/American Team members inspect the equipment, which was put to the test at Ohmsett – the National Oil Spill Response Research & Renewable Energy Test Facility – in Leonardo, NJ, which is the largest outdoor saltwater wave/tow facility in North America.

barrel skimmer. **Dubbed the Disc Groove Skimmer**, it utilized a series of special discs instead of a barrel, dramatically increasing the surface area for oil collection and allowing the team to increase the RPMs to meet (and as it turns out, drastically exceed) the 2,500 gpm challenge. Donnie Wilson, Co-Founder and CEO of Elastec/American, summarized: "This is the biggest oil skimmer we've ever built,"

"When we started, it seemed like a really big challenge; we'd started down one path that didn't work, then we tried another path, and then we eventually came out with this Disc Groove Skimmer," said Charlie Storey, Research & Development.

"Everyone like it, and it looked like a really good concept, but until we actually got it out there in the oil and tested it we really didn't know. When we put it into the oil and tested it, and we saw how much oil it really did pick up, we were impressed, and we knew we were on to something."

Team Elastec partnered with Glosten Associates, Inc., a long-tenured and well-respected naval architecture and marine engineering firm, for the project. Glosten provided vessel engineering, mechanical system design, and operations support throughout the aggressive 45 day development process, integrating Elastec's Grooved Disk recovery technology into a sophisticated and robust recovery system. This system, a U-shaped aluminum hull outfitted with the ingenious collection and separation systems, achieved the incredible oil recovery rates. Elastec/American Marine and Glosten are currently developing this combination of collection and Grooved Disk recovery technologies into several derivative designs, including a compact, easily deployable oil-recovery package expected to be commercially available shortly.

Awards Ceremony participants included Wendy Schmidt, President, Schmidt Family Foundation and Title Donor of the Wendy Schmidt Oil Cleanup X CHALLENGE; David Lawrence, Executive Vice President, Exploration and Commercial, Shell Upstream Americas; Dr. Peter H. Diamandis, CEO & Chairman, X PRIZE Foundation; Robert K. Weiss, Vice Chairman & President, X PRIZE Foundation; and Cristin Dorgelo Lindsay, Vice President, Prize Operations, X PRIZE Foundation. The $1.4 million Wendy Schmidt Oil Cleanup X CHALLENGE is the fourth competition awarded by the X PRIZE Foundation.

www.xprize.org

Competition Results
Wendy Schmidt Oil Cleanup X Challenge

Team	Comb MEAN ORR	Comb MEAN ORR	Calm MEAN ORR	Wave MEAN ORR	Wave MEAN ORR	Wave MEAN ORR
1 Elastec	**4670**	**89.5**	4706	88.9	4633	90.1
2. NOFI	**2712**	**83**	2958	91.9	2466	74
3. Koseq	2065	87.9	2311	98.2	1818	77.6
4. OilShaver	2007	90.7	2008	92.6	2006	88.8
5. Crucial	1888	71.3	2149	79.7	1626	62.8
6. Lamor	1413	92.5	1362	91.4	1465	93.6
7. Vor-Tek	2269	57.3	3014	72.1	1525	42.5
8. OilWhale	1021	42.8	1557	44.6	485	41
9. PPR	962	92.1	1045	96.9	878	87.3
10. Voraxial	693	49.2	941	63.9	445	34.5

Meet the Elastec/American Team

Don Johnson, Project Manager is the manager of Elastec/American Marine's Aluminum Boat Division and the Team Leader for the Wendy Schmidt Oil Cleanup X CHALLENGE.

Donnie Wilson, CEO is co-founder and CEO of Elastec/American Marine. He started his first company at the age of 17 as a pipeline welder and fabricator in the O&G industry in the Illinois Basin.

Jeff Cantrell, VP of Operations is co-founder and VP of Operations for Elastec/American Marine. During the 2010 Gulf Oil Spill, Jeff was instrumental in the deployment and field operations for the In-Situ burn task force.

Brian Orr, Welding & Fabrication has more than 15 years experience in welding and mechanical fabrication.

Charles Storey, Research & Development manages Elastec/American Marine's R&D department. He also has background in the industrial cleaning of coal fired power plants and oil refineries.

Jerome Riley, Special Projects Manager As supervisor for American Marine's boom product line in Cocoa, Florida, Jerome was instrumental in the transfer and management of the manufacturing process from Cocoa, Fla.

Stewart Ellis, VP of Sales and Marketing has more than 30 years experience in the international oil spill recovery industry, including affiliations with European oil spill equipment manufacturers.

The semi-submersible Songa Delta rig at Coast Center Base, near Bergen, Norway, for regular five-year maintenance in November 2011.

Cluster of Subsea Excellence in

Bergen, Norway

The Hanseatic trading city of Bergen, on the edge of the Norwegian North Sea, has a long maritime tradition. From shipping to aquaculture to offshore oil and gas, this is a city whose economic identity is defined by its ties to the sea.

By Clare McIntyre

The city of Bergen is by far Norway´s largest port, with more than 13 million metric tonnes of cargo transported to and from Bergen in 2010. Bergen is also the country´s largest center for aquaculture and marine science research, and is home to the Institute of Marine Research and an active marine science research center at the University of Bergen.

In addition, since the 1970s, Bergen has been a region of focus for Norway´s offshore oil and gas industry, given its strategic location close to several of Norway´s most important North Sea oil and gas fields. While Stavanger remains the Norwegian oil industry´s administrative hub, the Bergen region has established itself as a key operational base - today, the Bergen region is home to 60% of Statoil operations for the Norwegian Continental Shelf (NCS).

In particular, the Bergen region today is a leader in the field of subsea technology – companies here compete and collaborate to drive the development of new solutions for subsea oil and gas operations.

This expertise was formally recognized in 2006, when Bergen was selected as home to a Norwegian-government sponsored subsea innovation cluster.

A recent tour invited international marine-industry journalists to visit the cluster and learn more about its activities and ambitions.

Cluster Development

The Bergen cluster is part of a government investment in 12 regional groupings designated as Norwegian Centers of Expertise (NCE). Known as NCE Subsea, the Bergen cluster´s activities support innovation, increased capacity and internationalization. Because the Bergen region has specific strengths in after-market activities, NCE Subsea is also highly specialized, focussing on maintenance, modification and operations (MMO).

The cluster is jointly administered by Innovation Norway, SIVA (the Industrial Development Corporation of Norway), and the Research Council of Norway.

One hundred and twenty-four companies and organizations are members of the NCE Subsea network, which is led by a board representing the entire Bergen region, as

Inside Framo Engineering´s large new facility at Horsøy, near Bergen, Norway.

well as most of the key players in the Norwegian offshore and subsea sectors. Statoil, Aker Solutions, FMC, Coast Centre Base and the research organization SINTEF Petroleum Research are all included on the board, which is led by Chair Mr. Tove Ormevik, OIM at Skarv FPSO for BP. The cluster benefits from the presence of the many large oil and gas companies in the Bergen area. Companies like Aker Solutions, FMC, Statoil and DNV have a major presence here, alongside local companies with international reach such as Framo Engineering and DOF Subsea. Many of these companies are today expanding their presence and facilities in and around Bergen.

The financial infusion that comes with being named an NCE has also helped the cluster to develop: the cluster organization receives 5 million NOK per year ($900,000 US) from the Norwegian government, for 12 years. NCE Subsea also benefits from project funding to supplement its operating budget.

Thanks to this support from the Norwegian government and additional contributions by members, the cluster organization itself is not profit-driven. But it is very clearly business-driven, and focussed on creating economic opportunities for members and partners.

Cluster General Manager Trond Olsen says that when considering a new activity, the cluster executives ask themselves a key question: "can somebody make money on this activity, in the short or long term?" Only projects with clear business outcomes for cluster members are approved.

The most popular of these have included networking events in a fast-paced "speed dating" style which introduces cluster members to one another. Small companies are able to connect to key contacts in larger enterprises, and large enterprises are introduced to companies and technology concepts that they otherwise might never have discovered.

Group stands at major international trade shows and conferences allow smaller companies to access opportunities that would otherwise be closed to them. The cluster also has a mandate to support the creation of new businesses. Cluster staff can assist start-up companies with business plan development and help them access R&D funding.

Expanding Infrastructure

The official designation of the cluster in 2006 gave new profile to the Bergen region´s strengths and has encouraged companies to invest and develop in the region. Many companies are undertaking aggressive expansion programs, displaying their strong confidence in continued oil and gas-related activity on the Norwegian continental shelf.

Twenty minutes outside of Bergen, the benefits of geographical co-location within the cluster are on display. The Ågotnes industrial estate, just west of the city, is home to NCE Subsea´s offices, and also houses facilities of key players including Aker Solutions and Statoil.

Statoil´s main Bergen offices are at Sandsli, but its Subsea Pool, which manages Statoil´s tools for subsea production on the Norwegian continental shelf, maintains a facility at Ågotnes.

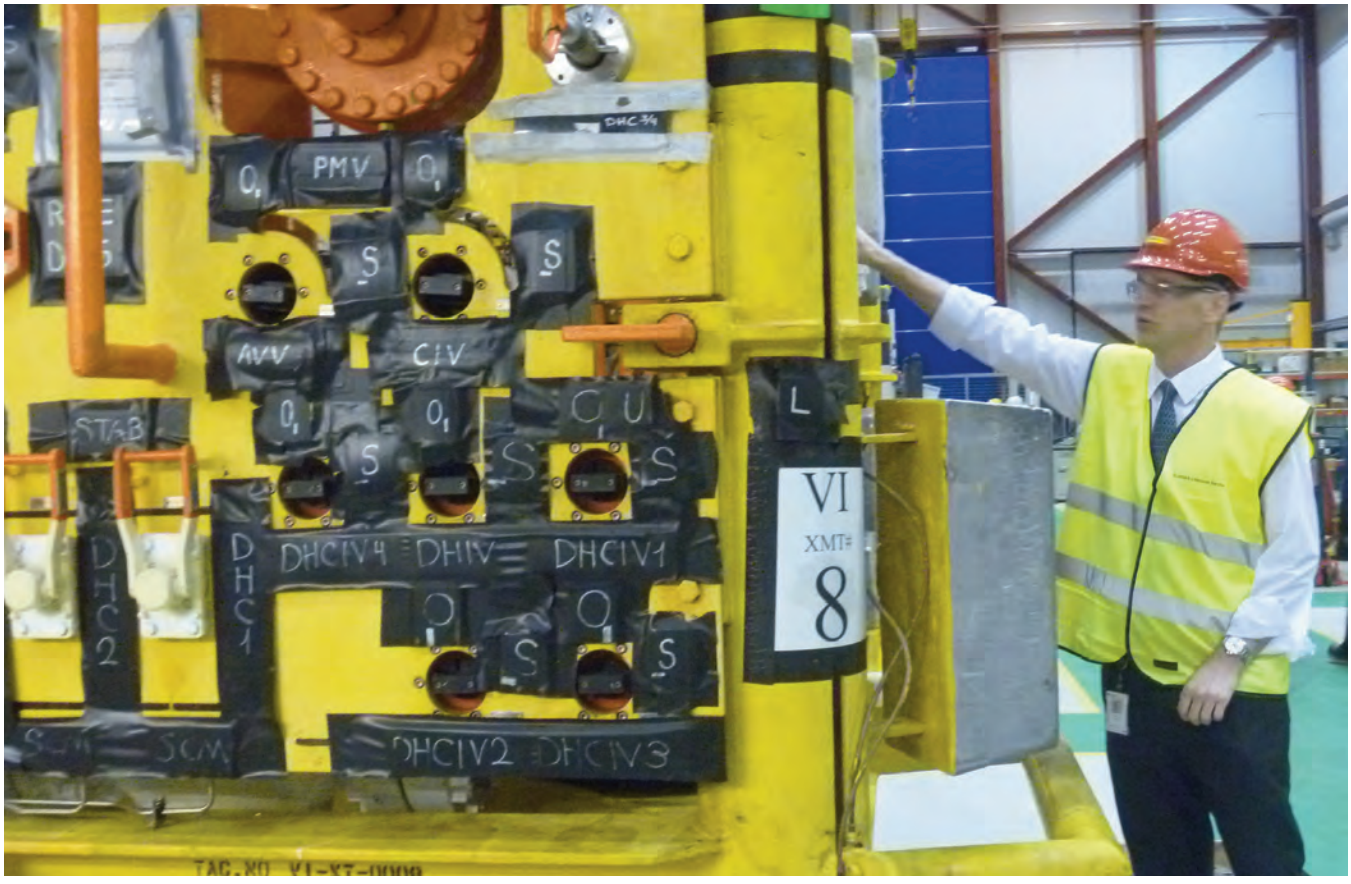
Aker Solutions´ expanded Ågotnes facility opened in 2009, and is the company´s largest subsea service and maintenance base worldwide. Ågotnes focusses on the refurbishment and upgrade of christmas trees used on subsea installations on the Norwegian Continental Shelf.

Coast Center Base (CCB), which is a 50% owner of the Ågotnes estate, also has a major facility here for logistics, maintenance and supply activities for North Sea oil and gas fields including Troll – the world´s largest subsea development – as well as Statfjord, Gullfaks, Veslefrikk, Huldra and Kvitebjørn.

Across the water from Ågotnes, Framo Engineering´s extensive new facility at Horsøy is visible. Framo is a Bergen-based product developer, supplier and system supplier, with three main product groups – pumps and subsea systems, multiphase metering, and swivels and marine systems.

Framo, which was fully acquired by Schlumberger in July 2011, purchased the former fish-processing site in 2007, and in 2008 began a 1 billion NOK ($171 million USD) infrastructure development. The Horsøy site includes a harbor, a logistics worksite, R&D facilities, assembly, and testing, including the full-scale pressure testing of large systems. At a total of 750,000 square meters, the site also has the potential for co-location of

Gordon Birnie of Aker Solutions showing Marine Technology Reporter's Clare McIntyre one of the subsea christmas trees in for refurbishment at Aker Solution's facility at Ågotnes, near Bergen, Norway.



Framo´s sister and partner companies in the Bergen cluster. "Our new facility (proves) that we believe in what we are doing, that we need super facilities to provide to the market super products," Ole G. Steine, Managing Director of Framo Engineering, said. The company believes that "good facilities and good products go hand in hand," and that its financial investment in the facility will enhance its product offerings and attract business.

Innovation and Collaboration

Companies in the cluster benefit from collaboration on subsea technology development, in many cases supported by Statoil. The Norwegian oil giant, which *Fortune* magazine recently named one of the world´s 10 most innovative companies, is a major driver of innovation in the subsea sector, and is collaborating with several cluster members on new subsea technologies.

Statoil has an ambitious goal of achieving production of at least 20.5 million barrels per day by 2020. At least a third of this new production is projected to come from current wells, through both increased oil recovery and the extension of their productive lives.

Ove Magne Kallestad, Statoil´s Vice President of Subsea Technology & Operations, says that technology is essential to meeting this target. According to Kallestad, Statoil is focussed on both the reliable operation of existing wells and the development of new technology for the subsea.

Continued operation of existing wells requires upgrading and refurbishment of existing subsea technology. In Bergen, a major source of aftermarket activity is the ongoing need to refurbish of subsea christmas trees, which control the flow of subsea oil and gas.

While the average lifespan of a christmas tree is around 20 years, maintenance of either the tree or the well is typically required between 5 and 10 years after installation. Many of the trees in use today were installed in the 1990s, and now require maintenance and upgrading.

In Bergen, both FMC and Aker Solutions have facilities for christmas tree refurbishment at Ågotnes. Trees can be returned to their former operating capacity, and also upgraded to include new features and capabilities that have been developed in the past 20 years.

Inside Aker Solutions' facility at Ågotnes, near Bergen, Norway. Aker Solutions carries out repair and refurbishment of subsea christmas trees at this facility.

New technology is also critical, and since 2009 Statoil has been working with Framo Engineering on a subsea boosting system which uses Framo´s wet gas compressor technology to increase subsea gas production.

The compressor, which allows for boosting of gas containing both water and condensate, is as efficient as a conventional compressor and eliminates the need for upstream treatment of gas. Statoil is considering the technology as an option to maintain production on Gullfaks C beyond 2013, and to increase total recovery from the reservoir.

Framo has been working on this technology for ten years, and entered into a partnership and funding arrangement with Statoil in 2009. The compressor is presently undergoing testing at Framo´s Fusa facility, near Bergen. A decision is expected in early 2012 as to whether to adopt this technology concept for the Gullfaks C field.

Aker Solutions is also working with Statoil to bring to market with a new product aimed at improving recovery from mature fields. Their power and communications system, known as PodEx, can be used to provide extra power and communications ability to existing subsea installations, without a wholesale upgrade. This allows new tools and sensors to be installed on existing wells, without disruption. The first PodEx system is currently undergoing integration testing for Statoil's Njord field on the NCS, and Aker is expecting that it will be installed in 2012.

Meanwhile, smaller companies, such as independent Bergen company ClampOn, are also contributing to subsea technology innovation. ClampOn specializes in subsea ultrasonic sensor technology, building each sensor by hand in their Bergen facility. Their sensors help companies increase oil recovery by providing additional information to manage the flow of oil and gas. Their products are non intrusive (they “clamp on” to an existing installation), and can be moved around without the risk of leakage.

ClampOn recently launched its Corrosion-Erosion Monitoring System (CEM), which allows for observation and management of corrosion and erosion in subsea pipes. This is particularly important when trying to safely extend

Ove M. Kallestad, Vice President Subsea Technology and Operations at Statoil, showing Marine Technology Reporter a subsea christmas tree at Statoil´s Subsea Pool at Ågotnes, near Bergen, Norway. November 2011.

the life of existing wells. The CEM has been in development for 10 years and uses acoustic transducers to send information about the condition of a section of pipe. ClampOn currently has two major orders for this product, one for a BP field life extension project in the Gulf of Mexico and one for Total in the North Sea.

Expanding Subsea Education

Besides boosting infrastructure investments and encouraging innovation, the cluster has also led to the development of more education options to attract students to the region. Bergen University College (HiB) recently expanded its offerings to include three new subsea-focussed degrees: a Bachelor of Subsea Technology - Marine Operations, a Master of Subsea Technology - Operations and Maintenance, and a Master of Subsea Technology - Marine Operations.

"Local industry said they needed more engineers, and not only mechanical or electrical engineers but preferably with training in both. Local companies worked together with HiB to identify the competencies they needed HiB to give the students through the study program," explained Laila Linde Lossius, Assistant Professor at HiB and program coordinator for the Bachelor´s degree program. The resulting program offers students a mix of mechanical engineering, electrical engineering and petroleum related subjects.

The Master´s program, meanwhile, is offered in collaboration with the Norwegian University of Science and Technology (NTNU). According to Ragne Gjengedal, Associate Professor at the College and program coordinator for the Master´s program, the College aims to become a "knowledge hub" for the subsea activities in the Bergen region.

Since 2007, 40 students per year have enrolled in what is now a highly competitive three-year Bachelor´s degree program. "The local industry needed more engineers with these skills," Lossius says – as demonstrated by the fact that members of the two graduating classes to date have quickly found work, primarily with service companies in Bergen´s subsea industry.

Cluster Impact

Subsea technology development and company collaboration has been going on in the Bergen region since long before the establishment of the NCE. But General Manager Trond Olsen believes that NCE Subsea´s efforts have made an impact, and cluster members appear to agree. In a 2009 survey of members, 60% said that they had initiated a new project or activity with another cluster member. "We are seeing more competing companies collaborating in non-sensitive areas of mutual benefit," Olsen says. Olsen is also proud that the NCE organization itself has become an accepted member of Bergen's subsea community. As an example, he notes that he will chair the program committee for the 2012 Underwater Technology Conference in Bergen, the oldest subsea conference in the world. This is the second time he has filled this role, which had previously been filled by a representative from an operator. Olsen believes this shows the business community´s buy-in to the NCE´s role, and its continued presence in the region.

ClampOn Engineering´s new subsea Corrosion-Erosion Monitoring system on display at the company´s recently-expanded facility in Bergen.

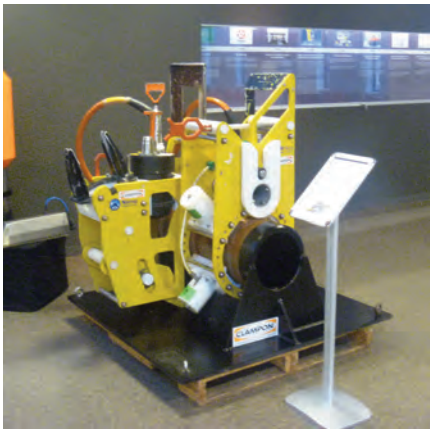


Image: Bomber Command Museum Of Canada.

The Halifax Project

Raising LW170

By Rhonda Moniz

This story started when **Karl Kjarsgaard**, a retired pilot in Canada's Royal Canadian Air Force (RCAF), turned his eye toward raising WWII Halifax Bombers for the Bomber Command Museum of Canada. Since the inception of Halifax 57 Rescue, a non-profit organized specifically for these projects, Kjarsgaard has worked with this group and has been dedicated to preserving the **Handley Page Halifax bomber** and the heritage of this historic aircraft. The registered charity's goal is to locate and recover lost Halifax Bombers or their components, and to bring them back home to Canada to be restored and displayed to the general public at the Bomber Command Museum of Canada in Nanton, Alberta.

Kjarsgaard insists this is not just a Canadian story, but a little known American story as well. During the second-world war almost 9,000 Americans joined the ranks of the Royal Canadian Air Force. During that time, more than 700 American pilots were killed in the effort, pilots that are representatives of 48 of the United States. In memory of these Canadian/American heroes, Kjarsgaard is undertaking his latest efforts to locate and raise the LW170 Halifax Bomber sunk during a meteorological flight off the coast of Ireland. Originally there were over 6,000 of these bombers built and currently just three remain. None of them are intact, but Mr. Kjarsgaard believes this one could have a better chance due to colder water temperatures and the circumstances of the sinking.

During the D-Day invasion from May to August of 1944 the LW170 flew 28 combat missions to Germany and France. The bomber helped destroy German heavy guns threatening the Allied invasion fleet on D-Day, June 6, 1944. Mel Compton an American pilot from Richmond, Va., joined the RCAF before the U.S. joined World War II. Compton flew 39 combat missions over Nazi-Occupied Europe. "This is not just important in Canadian history but also for American history. Over 8,800 U.S. citizens signed up with the RCAF to help fight for our freedom," said Kjarsgaard. In 2005 the Nanton Lancaster Museum, now known as the Bomber Command Museum, erected Canada's Bomber Memorial, a massive granite wall on the museum's front lawn that is inscribed with 10,643 names. Those names include all the Canadians who were killed serving the Bomber Command. On the wall are also the names of 379 Americans.

The Halifax was the second of the four-engine heavy bombers to enter service with the RCAF. As time passed the Lancaster Bomber was introduced and it began to overshadow the Halifax due to its capability of carrying ever-increasing bomb loads without effecting performance and handling capabilities. It became apparent that the Halifax's defensive armament was inadequate for daytime missions and was then used for nighttime bombing missions. The Halifax did successfully operate in Bomber Command Operations until the end of the war. Many of those Halifax Bombers ended up on the scrap heap. The

Karl Kjarsgaard, who led the recovery team in 1997, with the aluminum ingots from Halifax LW682.

Image: Bomber Command Museum of Canada

LW170 was spared the junk pile and was commissioned by the meteorological division. In August of 1945 while on a routine weather patrol it sprang a fuel leak and its crew was forced to ditch the aircraft in the Atlantic off the west coast of Ireland. The crew drifted for some time before being rescued and several hours later the Halifax slowly sank nose first.

The RAF had a basic position given by the navigator on the LW170 as to the ditching point and a ditching radio fix with latitude and longitude to within three nautical miles from triangulated land stations. When the four search and rescue aircraft arrived in the search area to begin a visual search for the men in the dinghy or the aircraft itself they found the Halifax within fifteen minutes floating along the ocean surface. The crew and life raft were found shortly after. As the crew waited for rescue the navigator continued to take copious notes. Based on these logs and navigation fixes along with ocean currents Kjarsgaard believes he has a promising area on the Atlantics Abyssal plane in which to search. This is not the first aircraft Kjarsgaard has raised. Previous projects in Norway, Belgium and Malta have served as learning experiences for Kjarsgaard and his team. One such search and recovery expedition took them to a lake in Norway.

During the Second World War in an effort to thwart the

(Continued on page 48)

Air Marshal W.A. "Billy" Bishop V.C., an Allied ace of World War I, pins wings on Leading Aircraftman R.N. Harrison of Montclair, NJ upon his graduation from No. 2 Service Flying Training School at Uplands, Ontario (July 31, 1942).

Image: Canadian Armed Forces

Marport Names New CEO, CFO

Marport Deep Sea Technologies appointed Cyril McKelvie as President & CEO and Susan Robbins Parsons to the position of CFO. McKelvie will succeed Karl Kenny, Marport's co-founder, who will assume the position of Chief Strategy Officer and continue to serve on the company's Board of Directors. Robbins Parsons will succeed Bernie Beckett, who will retire at the end of 2011. McKelvie brings more than 25 years of senior management experience in advanced engineering, R&D and operations. He joins Marport from his most recent position as EVP of Sanmina-SCI Corporation. "Marport is fortunate to have Cyril take the helm," said Kenny. "He brings significant operational and management expertise that will be instrumental in our continued global expansion. Appointing Cyril to his new position enables me to stay focused on corporate strategy, product development and brand positioning."

Susan Robbins Parsons has over 20 years experience in senior finance. She joins Marport from her most recent position as V.P. Finance for COM DEV Canada, a leading provider of space hardware and services. Before that she was CFO for International Datacasting Corporation, a global leader in digital content distribution. Susan holds a Bachelor of Arts degree from the University of Western Ontario and an MBA from Dalhousie University.

Umbro Joins Hydroid

Bruno R. Umbro Jr. CFCM, has joined Hydroid, Inc. as Contracts Manager and Small Business Liaison Officer (SBLO). Umbro brings 15 years of government contracting experience, including positions with Foster Wheeler, ECC and NEIE, along with three years of private consulting, both government and commercial.

Keppel Wins $809m Contract from Sete Brasil

Keppel Offshore & Marine Ltd. (Keppel O&M), through its subsidiary Fernvale Pte., won a $809m contract from Urca Drilling B.V., a subsidiary of Sete Brasil Participações S.A. (Sete Brasil), for the design and construction of a semisubmersible (semi) drilling rig based on Keppel's proprietary DSSTM 38E design. It is designed to meet the stringent requirements of the deepwater "Golden Triangle" region, comprising Brazil, Africa and the Gulf of Mexico. Scheduled for delivery in 4Q 2015, the rig is intended to support the exploration of Brazil's estimated 50 billion barrels of deep-sea oil and gas reserves. Brazil is currently the world's 11th largest oil producer and is expected to be in the top five by 2020. Its national oil company, Petrobras, has plans for $224 billion in capital expenditure from 2011 to 2015. The DSSTM 38E is rated to drill to depths of 10,000m below the rotary table in 3,000m water depth. It is 108m in overall length, with a main deck size of 73 x 73m. Its operational displacement is approximately 45,000 tons. The DSSTM 38E has accommodation facilities to house a crew of up to 160 men. It has both vertical and horizontal riser storage. The vessel is designed to stay in position via eight Azimuthing thrusters and the configurations comply with the ABS DPS-3 requirements.

Sea-Bird Opens European Center

Sea-Bird Electronics, Inc. opened its European calibration and repair center. Located in Kempten, Germany, Sea-Bird GmbH offers European customers the same repair and calibration services that up until now have only been performed at Sea-Bird HQ. A four-day training session and open house will be held at the European facility from April 23 to 26, 2012. A full range of parts and supplies will be stocked to support the repair and refurbishment of customer-owned equipment.

Sound Metrics Receives Large Order from Japan

Sound Metrics received an order from Japan Maritime Self-Defense Force (JMSDF) for 17 DIDSON Diver-Held Systems. In the search for disaster victims immediately following the earthquake and tsunami that hit Japan in March, JMSDF, state and local agencies became intimately familiar with the brand. It reportedly found DIDSON's ease of use and near video-like imagery that led JMSDF to order 17 units that will be placed with agencies at ports around the country. Sound Metrics designed and manufactures the DIDSON brand of acoustic imaging sonars that has exceptional image clarity.

In addition to the autonomous Diver-Held unit, which has a high-definition mask-mounted heads-up display, all Sound Metrics sonars are dual frequency – the lower frequency to reach out farther and find targets, the higher frequency for closer detailed inspection and identification.

www.soundmetrics.com

Unique Maritime Opens New Office in Russia

Unique Maritime Group, an integrated turnkey subsea and offshore solution providers, opened its office in St. Petersburg, Russia. Offices are located in St. Petersberg, Russia, at Stachek Avenue, 105 building 5A - 198303.

STX Finland, VentusVis to Develop Wind Power

On December 20, 2011, STX Finland Oy and VentusVis Oy signed a letter of intent, the purpose of which is to develop wind park for the city of Rauma on Finland's west coast. The goal is to get building permissions for three wind turbines within the UPM Rauma mill site and one within the area of the STX Rauma Shipyard.

VentusVis Oy is a company which develops land assets owned by UPM suitable for wind power investments and STX Finland Oy offers construction, user, maintenance and lifecycle services for wind parks.

VentusVis Oy is a joint venture between UPM-Kymmene Oyj and TuuliSaimaa Oy. It aims to convert land assets owned by UPM suitable for wind power production. STX Finland Oy's long-term goal is to develop into a turnkey deliverer of offshore wind parks in particular.

The company is also actively involved in onshore wind park business as well. The global STX Group manufactures and designs wind turbines, for instance, in the STX Windpower unit in the Netherlands. STX Finland supports the group's wind power-related business operations in the Nordic and Baltic Countries.

New Maintenance Service to Renewables Sector

Offshore Marine Management (OMM) launched a new maintenance support service for offshore renewable operators. "Renewables operators are currently exposing themselves to unnecessary and potentially serious risks – risks that could result in lengthier, more costly repairs if things go wrong and ultimately long periods of lost production," said Stephen Bolton, OMM's Operations and Maintenance Director. "This new service takes a holistic approach to the problem. It examines every aspect of an installation, including the crucial sub-sea elements, and identifies those that represent the greatest risk to the project should they fail. In a first for our industry, it also ensures that the resulting maintenance plan is independently verified – giving operators and their backers the assurance they need that precisely the right level of maintenance is taking place."

Harbor Authorities Select Cadden "Pack"

Cadden, specialized in electronic systems for geopositioning and hydrography, announce that its "Integrated Hydrographic Pack" solution just convinced two new Harbor authorities for multibeam bathymetric equipment for their new survey vessels.

Cadden has just expanded its offer to "Integrated Hydrographic Pack," a turnkey solution for hydrographic vessel equipment. It is a fully integrated system consisting of 3 essential pieces of equipment for high precision bathymetric survey:

- a R2Sonic multibeam echosounder – bathymetric core system,
- an IMU (Inertial Motion Unit) which delivers heading, roll, pitch and heave data,
- a DGPS receiver for accurate positioning.

AXYS Announces IN VIVO as France Partner

AXYS Technologies Inc. (AXYS) will be partnering with IN VIVO for WindSentinel sales and support in France. "We are pleased to work with IN VIVO because of their extensive experience in the field of environmental monitoring combined with their background in marine engineering and their capacity for vessel support," said Graham Howe, International Business Development for Renewable Energy at AXYS. This background is a significant factor in the successful deployment of buoy systems of this type, and AXYS looks forward to working with IN VIVO to meet client needs.

www.invivo-environnement.com

Sonardyne Systems Sold in U.S.

Sonardyne International Ltd has delivered two more Sentinel Intruder Detection Sonar's to Space and Naval Warfare (SPAWAR) Systems Center Pacific (SSC) in San Diego, USA.

The application is undisclosed, however, the systems are based on Sonardyne's latest evolution of its

underwater surveillance system, Sentinel. For the first time, Sonardyne is supplying the sonars to the customer in a MOTS (Military off-the-shelf) configuration. This allows the client to configure the system to simultaneously process the sonar data with both Sonardyne's automatic, detection and tracking algorithms (ADT) and the users bespoke sonar processing capabilities.

The Sentinel sonar system has now been ordered or specified by over 30 customers worldwide.

www.sonardyne.com

Nautronix Wins Order for NASeBOP System

Nautronix won an order worth around $4m from an American BOP supplier to supply its NASeBOP (Nautronix Emergency BOP Acoustic Control System) to be used on the four new ultra-deepwater drillships for Noble Corporation. This order comes just after their recent success in securing an order to supply the drillships with their NASDrill RS925 Hydro-acoustic positioning system from a Norwegian DP supplier. With the important emphasis placed on safety in the drilling industry, Nautronix reviewed its existing acoustic BOP switch product line and developed NASeBOP. This expanded on the existing EBOP product which provided high integrity control and monitoring of BOP critical functions

both as primary or secondary control in conjunction with the standard BOP umbilical.

Top-side, NASeBOP offers unprecedented redundancy in the form of two portable EBOP control systems which are strategically located onboard the drilling unit, typically at either set of lifeboats. Additionally, a portable Emergency Response Unit (ERS) "Red Box" is supplied with the NASeBOP system; this is typically kept at an onshore facility where it can be easily transported to the rig or vessel if the need arose.

MacArtney Norway Opens Purpose Built Facility

The MacArtney Group's longest established subsidiary, MacArtney Norge in Stavanager, Norway, has officially opened its doors to its newly completed, purpose built building. At 2500 sq. m., more than double the size of its previous base, the new facility houses servicing areas, workshops and office space.

A number of new services have been added to the MacArtney Norge portfolio, including a new pressure tank and test pool. Lease services have been greatly extended and a large workshop purpose has been built for electronics and fibre optics and for the servicing of fibre optic and electrical slip rings. Warehouse space has also been greatly increased and the MacArtney Norge site now has a wide range of equipment available from stock.

The official opening was attended by customers, suppliers and representatives from the global MacArtney group. The official dinner, held in the large warehouse, was a generous mixture of formal and informal with speeches held by MacArtney Norge Director, Anders Andersen, and by owner and co-founder, Winnie MacArtney.

MacArtney Norway offers

- Cable moulding and encapsulation
- Electrical and optical connectors
- Cables and terminations
- Winch and handling systems
- Electrical and optical slip rings
- Cameras and lights
- Sonar systems and acoustics
- Multiplexer and control systems
- Engineering and services
- ROV and ROTV systems
- Lease pool

Subsea, NASeBOP offers dual redundant Subsea Control Units, with the ability to control up to 16 functions with corresponding solenoid read-backs. Up to 8 analog sensors can be interfaced. All connectors and end-caps have fully testable dual O-Ring seals (testable to full operating depth of 4000m) enabling NASeBOP to be the only fully compliant acoustic BOP switch with all the relevant requirements of API16D and 17E.

Thailand Becomes SeaFox Customer

Atlas Elektronik won a new customer for SeaFox: the Royal Thai Navy (RTN). Atlas will supply three mobile SeaFox systems with the corresponding number of SeaFox I units for inspection and training purposes and an initially small number of SeaFox C combat units for mine disposal. Further SeaFox C units are to follow over the next few years. The mobile SeaFox system is a completely autonomous system that allows the deployment of SeaFox vehicles with no dependence on shipboard facilities or equipment. This permits deployment of the SeaFox vehicles from various types of ships at any time, without the need to convert the vessels in any way.

The Royal Thai Navy currently operates four mine countermeasures vessels, all of which are equipped with mine warfare systems made by Atlas. The vessels to be modernized belong to two different ship classes. As the first step, the boats will be fitted with SeaFox units in the form of a mobile SeaFox system.

This fiber-optic guided, one shot mine disposal vehicle SeaFox C is used for semi-autonomous disposal of naval mines and other ordnance found at sea. It is able to automatically relocate previously acquired positions of underwater objects within minutes with the integrated homing sonar. After relocating, these objects can be identified using the onboard CCTV camera and destroyed by the use of a built-in, large caliber shaped charge.

Bowtech Provides Obs System for Shell Decommissioning Project

A Bowtech camera system has been successfully deployed to observe decommissioning operations on the L13FH well which is operated by Shell in the Dutch Sector of the Southern North Sea.

The company was requested by Shell UK to supply a camera system to be fitted to the L13FH well. Bowtech engineers, working with Shell, designed and supplied a complete camera and lighting system to suit. This included 12 of its LCC-600 cameras and 12 LED-G-800 lamps, all umbilicals, all brackets, two CVIS-3 compact video inspection systems and two purpose designed video switching junction boxes. The cameras and lights were fitted to various points on the well to observe operations as the well was worked on for abandonment.

Doug Cowie, Senior Subsea Intervention Engineer at Shell UK, said "The Bowtech System installed on L13FH was easily set up, with good onshore support as required. This allowed it to prove itself as being very effective in its role as part of the abandonment program"

Email: bowtech@bowtech.co.uk
http://www.bowtech.co.uk

BlueView, Deep Ocean Sign Agreement

BlueView Technologies and Deep Ocean Engineering signed a Systems Integrator Agreement that enables Deep Ocean Engineering to re-sell BlueView 2D and 3D products on Deep Ocean Engineering's ROVs. Deep Ocean Engineering recently moved to a new facility in San Jose Calif. BlueView's compact, multi-beam imaging sonar will expand Deep Ocean Engineering's real-time ROV navigation capabilities and operation in low and zero visibility conditions.

BlueView Signs Agreement with Roper

BlueView Technologies added Roper Resources, Ltd. as an authorized commercial sales representative in Canada. Roper Resources has a long history of serving the Canadian marine industry providing a wide range of equipment including Remote Operated Vehicles (ROVs), Autonomous Underwater Vehicles (AUVs), robotics, underwater sensors, and accessories.

BIRNS
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BIRNS, Inc. is an ISO 9001:2008-certified designer and manufacturer of high performance lights, connectors, penetrators and custom cable assemblies for the planet's most demanding environments—from deep ocean, commercial diving and marine applications to military programs and nuclear power facilities. The company has been innovating underwater technology since 1954, delivering a wide range of unparalleled, technologically advanced products proven to perform in rigorous applications. Its products began lighting the way to new depths of subsea exploration during the original Sealab projects, and today continue to be relied on worldwide.
In 2011, BIRNS received ABS Product Design Assessment Certification for its lines of penetrators.

Caley Ocean Systems
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Established in 1968, Caley Ocean Systems Ltd. Is a specialist in bespoke, offshore handling systems for the offshore, oceanographic marine science and naval emergency vessels. Significant industry developments include davit technology, diving bell winches, heavy weather A-frames and high-capacity carousels for cables and pipelines. Davits for rapid launch of emergency lifeboats and inflatable boats. Pipe and cable carousel and reels up to 7,000 tons. ROV and dive bell handling: A-frame and precision winch control. Design and FEED studies, and control systems development. Recent projects: FPSO Hose Deployment system, and ultra-compact winch system for downhole tool deployment.

Cooper Interconnect
Email: info@cooperinterconnect.com
www.cooperinterconnect.com
Rugged and reliable connectors and cable assemblies featuring Burton® connectors - one of the most trusted names in the subsea world for over 65 years.

DCL Mooring & Rigging
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While individually meriting over 60 years of experience and success, the merger of Dreyfus Supply, Cortney Co. and Lowery Bros. in 2004 allowed DCL Mooring and Rigging to begin strategically developing into a new unique entity by combining both anchoring and lifting products and services under one roof. During the past 7 years, DCL has embarked on a dedicated mission to identify, develop and incorporate interrelated capabilities to better meet the new demands of the ever-challenging offshore oil, marine and construction industries. Today, DCL is the only authorized SlingMax fabricator for Louisiana and offers on-location and portable off-site NDT and load testing of slings and CCUs. In addition to its inspection, testing and certification services, the company provides comprehensive web-based Inventory Management Systems for its customers and has partnered with InfoChip to incorporate RFID capabilities into the system. Through its continuing efforts to meet the industry's more demanding and advanced mooring and lifting requirements, the company established a separate product development group (DCL Engineered Solutions) to provide product development and engineering services concentrating on subsea rigging and heavy lift projects. DCL Mooring and Rigging has three full-service facilities in Louisiana while locating its milling/machining, product development and engineering services in Houston, TX. DCL is committed to advancing their support of the offshore, marine and construction industries through integrating existing and developing new, state-of-the-art, products and services.

Hydracon
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Hydracon Subsea is an innovator and manufacturer of high-performance deepwater subsea products for over 25 years. With a working maxim of "Deepwater Means Smaller," Hydracon manufactures over 90 product models many of which are capable of operating submerged in ocean depths to 20,000 ft. or to 10,000 psi ambient. Hydracon's high-performance subsea products include submersible electrical switches, subsea solenoid valves, ocean submersible solenoid actuators, and other subsea technology products. The company's products represent the latest subsea technological advances resulting in reduced downtime and less risk or revenue loss, reduced size, high reliability, smaller topside handling systems, and smaller electrical cables resulting in high performance and reliability.
Applications include: Subsea Electro-Hydraulic Controls, Downhole Tools, Deepwater Pipeline, BOP Controls, autonomous underwater vehicles AUV's and ROVs, Diving, Deep Sea Mining, Dredging, Marine Geophysical, Subsea Oil & Gas, Naval Defense and others.

Imenco
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Imenco is a major EPC-contractor to the maritime industry. Imenco designs, develops and manufactures a wide-range of products as Diving Systems, Helicopter Fuel Systems, Industrial CCT Systems, Ex cameras, Lifting & Handling products , Subsea cameras and tools incl. subsea Lights and Lasers. 30 years of experience gives our customers added value and smart solutions. Our engineering team is specialized in the area of mechanics, hydraulics and electronics engineering. Imenco provides services for some of the world's leading oil and drilling companies. Imenco is among the leading suppliers of special tools for Subsea and ROV operations. Imenco's International Headquarter in Houston has been established in response to the increasing demand for our portfolio of specialized products and tailor-made solutions. Al Cohen-VP of Business Development, has been very active and planning to expand inventory and hire more support staff.

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The MacArtney Underwater Technology Group is a global supplier of underwater technology specializing in design, manufacture, sales and service of a wide range of systems to offshore operators, surveyors, the renewable energy sector, ocean sciences, security forces and navies across the world. MacArtney's proven systems and components are backed by an international network of subsidiaries, providing local access to global service. The MacArtney Group supplies and services a wide range of integrated systems and products, many of which have been designed, developed and manufactured by MacArtney. It is also trusted representatives of many leading manufacturers of underwater products and systems. MacArtney is expert at combining own products with customer or supplier products into integrated systems. MacArtney supply includes cable and connector systems, advanced fibre optic telemetry systems, complete launch and recovery systems – including active heave compensation winches and electrical work class winches. Our range of oceanographic equipment includes the MacArtney FOCUS-2 and TRIAXUS vehicles, which are highly regarded as fast and precise towed vehicles.

Measurement Technology NW
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Measurement Technology NW provides instrumentation, monitoring and control technologies for new and retrofit winch installations. Our primary customers are in offshore, Oil & Gas, commercial marine and oceanographic industries.
MTNW is a trusted source for sensors, local winch displays, running line tensiometers, and PC software for remote winch monitoring and data-logging. Our LCI display products are used to control and monitor speed, payout, and tension (wire rope, EM cable, synthetic lines, and chain) in winch/LARS systems used for ROV deployment, oceanographic research, rig/vessel mooring and towing, barge positioning - anywhere accurate and reliable line control is required. LCI has also recently manufactured a new line of rugged tensiometers for winch mooring retrofit and line rider applications. These tensiometers are available in models ranging from 2KIPS to 1,000 KIPS.

PDM Neptec Limited
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PDM Neptec Ltd was formed over 25 years ago as the exclusive distributor for off the shelf Teledyne Impulse underwater connectors and cable assemblies. Founder Peter Dennis recruited staff with a proven subsea engineering background to give the company an additional advantage in supplying the industry with superior quality, professionally designed and long-lasting cable assemblies. Time has proved this strategy to be absolutely correct, with the added bonus that PDM now has a reputation for engineering expertise, and more specifically, for providing connectivity solutions in harsh environments.

PMI Industries, Inc.

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PMI Industries, Inc. designs, manufactures and tests innovative products for solving underwater cable, wire rope & tension member application problems. PMI is committed to providing the most robust cable systems and hardware available to the military, commercial and scientific communities. From initial product concept through quality assurance testing, PMI is a complete underwater cable system facility. Through innovation and exhaustive laboratory testing, the helical gripping concept was engineered into PMI products and resulted in a very reliable standard line of products. Based on the geometry and behavior of helically preformed wire, helical gripping rods hold the cable with low compression and friction forces distributed along the length of the rods. This unique helical concept eliminates concentrated stresses in the cable at the termination, eliminating common failure modes.

EVERGRIP Termination, the benchmark product of PMI, is a full-strength, field installable termination. Designed to hold 100 percent of the cable's rated breaking strength, it protects against fatigue of the cable system under severe dynamic conditions. The cable or wire rope extends through the termination intact without cutting or modification of the cable; no cable preparation, special training, or tools are required to install it

SEA CON

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After almost 45 years in the subsea industry, the SEA CON Group has become a leader in the manufacture of electrical, optical and hybrid subsea systems and connector solutions for the Oil & Gas, Defense, Oceanographic, Renewable Energy and many other harsh environmental markets. Since the beginning with the manufacture of the Marsh & Marine connector range, SEA CON has always undertaken the challenge of not only providing what the markets require today, but also tomorrow and achieves this by identifying and providing solutions for technology gaps within a market. An example of this is SEA CON's commitment to supporting the use of fiber optics within the Oil & Gas industry through the development of dry-mate optical products, including the MINI-CON and OPTI-CON connector series, the highly successful underwater mateable HYDRA-LIGHT connector and even the down-hole multi channel fiber optic G3 connector series.

To achieve this broad spectrum of product supply and service, the SEA CON group has six globally located manufacturing facilities, each staffed with experienced design/development teams. SEA CON maintains multiple CNC machining departments, routinely manufacturing electrical contacts from 28 AWG to components weighing hundreds of pounds. SEA CON also has several molding departments with a wide variety of composites/elastomers and an in-house glass to metal sealing facility. To complement its design and manufacturing capabilities, SEA CON has extensive in-house testing capabilities that includes, electrical, optical, dimensional, pressure, shock, vibration, axial pull equipment all with experienced staff. To support its product in the field SEA CON provides a 24/7 field service support through its many highly trained field service teams.

SEA CON has been providing products and services to many harsh environmental markets over the years and has been proud to provide some of the most leading edge solutions available in the market. This focus on technology has always run deep within SEA CON and can be traced back many years through products like the ALL-WET connector series. These connectors not only provided the market with the ability to mate electrical connectors 'wet', but gave the flexibility of connecting multiple individual instruments, lights, etc into a single interface connection point on a control pod with the further development of the 'Split' ALL-WET connector range.

South Bay Cable Corp

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Founded in 1957, South Bay Cable Corp is a leader in the design and production of purpose built, hard working cables for use in harsh and demanding environments. Corporate headquarters are located in Idyllwild, CA with additional manufacturing facilities in Temecula, CA. The two facilities total approximately 100,000 square feet. To date South Bay has designed and produced over sixty-thousand different cable constructions, with each cable design being unique to the intended application. Cable uses include ROV Tether and Umbilical's, tow cables, geophysical exploration, bottom laid interconnect cables, mine sweep cables, airborne aerostat and a host of other unique special purpose applications.

From the initial design phase, to the drawing of the copper rod, through the final jacketing operations, South Bay Cable possesses the engineering skills and production capabilities to perform nearly all operations in house. Working closely with the customer, all aspects of the system are considered. This approach results in a cable with the required electrical, optical and mechanical properties, all within the smallest possible overall cable diameter. Electrical conductors can be designed to be highly flexible, optical fibers can be incorporated into several different configurations and mechanical strength members include both synthetic and metallic materials. Cables can be designed with working loads as low as 50 pounds to ultimate breaking strengths in excess of 100,000 pounds.

SubConn Inc.

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SubConn Inc. and The MacArtney Underwater Technology Group have been supplying the world's leading range of underwater pluggable electrical connectors to the demanding underwater industry for over 30 years. The SubConn range has been developed over the years to meet the needs of our global customers from shallow water use to full ocean depth rating. SubConn prides itself on manufacturing and delivering industry standard, reliable and affordable connectors and cables, supported internationally by the MacArtney Underwater Technology Group. Its globally trusted range of SubConn connectors is continually being tested and reviewed to ensure the highest quality and suitability to the underwater and offshore market. Our range is regularly extended to meet new individual or industry requirements.

Teledyne D.G. O'Brien

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www.dgo.com

Teledyne D.G.O'Brien designs connection systems that transmit signals, data or power through challenging media, such as subsea oil wells; and through pressure barriers, such as the hull of a submarine. Because the cost of failure is so high, Teledyne D.G.O'Brien designs and manufactures its products to deliver total reliability.

Teledyne Impulse

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Teledyne Impulse has a new product line, Interconnect Devices, formerly Teledyne Interconnect Devices.

Teledyne Impulse designs and manufactures high reliability electrical and optical interconnection systems, motorized power transfer switches, and custom insert molded compression connectors for a broad range of harsh environment applications. The company's products are proven performers in the most demanding applications, which include oceanographic exploration, spacecraft and launch vehicles, defense, oil and gas production, nuclear systems, and wastewater management.

The company's commitment to customer satisfaction, quality assurance, and rapid response is unsurpassed. Through precise and innovative engineering, flexible manufacturing processes, and dedicated customer support, Teledyne Impulse provides industries worldwide with highly reliable and cost-effective interconnection solutions.

Teledyne ODI, Inc.

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Teledyne ODI, Inc. is a leader in sub-sea electrical and fiber optic interconnect systems. ODI's wet-mateable connectors include signal and high-power electrical, fiber optic, and hybrid electro-optical products. All are based on patented oil filled, pressure balanced technology. Companion dry-mate submersible connectors complement these wet-mate lines. These rugged components can be used at any ocean depth and in the harshest environments. In addition to standard product lines, ODI provides top quality custom engineered solutions for any sub-sea networking challenge.

TE SubCom

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TE SubCom (SubCom), a TE Connectivity Ltd. company, is an industry pioneer in undersea communications technology and marine services and a leading global supplier for today's undersea communications requirements. Drawing on its heritage of technical innovation and industry recognized performance, SubCom delivers the most reliable, high quality solutions to organizations with undersea communications needs vital to their core mission. The company designs, manufactures and installs systems around the world, and has deployed more than 490,000km of subsea communication cable—or enough to circle the earth more than 12 times at the equator.

Think Sensor

Think Sensor Research introduced Magnetic Interference Detector (MID), a new, powerful feature the TSR-100 Motion Reference Unit, which helps output a magnetic field quality value when detecting magnetic interference. The Magnetic Interference Detector will alert the ROV or sonar system operator of the magnitude of the error in the heading output from the motion reference unit. This feature is of value to operators that perform work near structures built from ferromagnetic materials which can interfere with the earths magnetic field (i.e. bridges, oil rigs).

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www.thinksensor.com

New Underwater Camera with Multicolor Illumination

Following the requirements of the European armed forces, Germany's Mariscope Meerestechnik introduced what it reports is the first system worldwide that allows the variation of underwater camera illumination. For certain kinds of appliances, especially for the Explosive Ordnance Disposal, it is necessary to illuminate objects with an illumination that does not only emit white light. Traditionally, underwater illumination standards were used and filters had to be added to the cameras to achieve this objective. Mariscope Meerestechnik however developed a new system of underwater illumination that adds to the line of their professional underwater cameras. The system allows controlling the variation of colors of the underwater light from the surface. Starting with the colors red, green, blue and white, it is possible to mix any color in the visible range to obtain extraordinary results, especially for underwater film making. The system is based on advanced technology of high output LEDs, developed recently by the company itself in Germany.

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SonarBell

Subsea operators contend with low visibility making the location of a specific asset, potentially in a cluttered environment, challenging. With complexity comes cost - increased overhead, for the submersible and support vessel, lost revenue from shut-in production or indeed reputational damage following a leak to the environment. SonarBell offers an alternative: an easily deployable passive marker, which delivers a clear location echo without the need for routine maintenance. The SonarBell operates by focusing and re-radiating sound energy, much as a lens or mirror can focus light. By focusing and re-radiating the sound energy back in the direction from where it came, a 200mm SonarBell can deliver the same sonar target strength as a 2m diameter metal sphere, while being light in weight, and easy to handle, attach and deploy. The technology originated within the UK MoD and was subsequently licensed to Subsea Asset Location Technologies Ltd for commercial exploitation. The technology is compatible with all types of sonar, from hull mounted mine hunting sonar and side-scan devices to fish-finders and echo sounders. It works well with UUV's and hand-held sonar.

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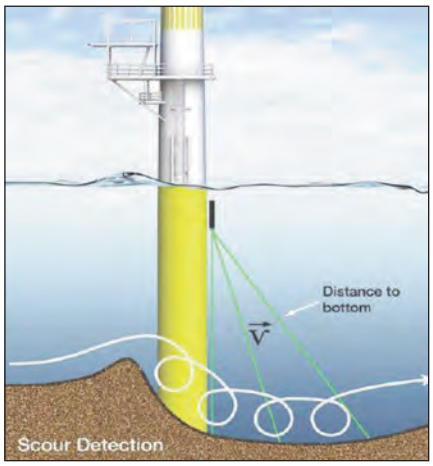
Rutter Sigma S6

On February 17, 2011, the Icelandic container ship Godafoss ran aground on the south coast of Norway outside Fredrikstad. As a result, four of its tanks were damaged and the ship was leaking oil. The oil spill cleanup operation was conducted by two Norwegian coastguard vessels and three Swedish aircraft equipped with oil spill detection radar. More than 100 cu. m. of spilled oil were cleaned from the waters surrounding the vessel. One of the biggest challenges of the cleanup operations is to remove oil from ice covered areas. To enhance the effectiveness of the operation in the presence of ice, the Norwegian coastguard vessel KV Harstad used Rutter's Sigma S6 radar processing and display technology to detect the oil spilled from grounded Godafoss. The Norwegian Coastal Administration comments, "The Rutter Sigma S6 has been used and proven its capabilities during the oil spill in South-eastern Norway. It is still in use, and has made it possible to recover oil from the surface in low-light and during night conditions."

Scour Monitor Package for Wind Farms

OSIL offers a complete Scour Monitoring and Data Review Package for wind farms and other similar structures. Scour is a significant concern for owners and operators of offshore structures, as erosion of the sediment in the vicinity of a structure can lead to a lowering of the seabed directly surrounding the structure, undercutting foundations and decreasing the stability and lifespan of the structure. Offshore wind farms are now being proposed for, or built in, increasingly hostile hydrodynamic environments, and many candidate sites are located on beds of mobile sediments. In these cases, the interaction of the sediments with the turbine support structure, and the effects of flow- and wave-induced scour of the sediments must be carefully observed.

The package available from OSIL comprises an acoustic Scour Monitor, which is then coupled to the clients own data handling system, or to the OSIL Falcon or Falconet Data to Web Logger – which will then permit instant access to a web-based data display, eliminating the need to re-visit the unit to manually download data, or to perform ship-based surveys (which are restricted in the areas they are able to survey). The Scour Monitor is mounted directly onto the turbine pile, and comprises four downward looking narrow acoustic beams (fanned out on a single axial plane) which provide a profile of the seabed close to the base of the pile.



Picture courtesy of Nortek UK.

Email: sales@osil.co.uk
www.osil.co.uk

New Articulating A-frame by MacArtney

MacArtney has designed and built a new kind of A-frame that is designed to make accessing equipment on the A-frame more convenient and safe. The new system makes it possible to access the top of the A-frame from the deck of the ship. This hydraulic design, using just two rams, articulates the A-frame a full 149 degrees from the 20 degree angle for launching equipment over the side or the rear of the vessel to 11 degrees over the deck of the vessel. It has a high total safe working load throughout the entire process. Equipment, for example a full ROV launch system, can be installed on the A-frame on deck by operators working at deck level and readied for launch. With all operators clear of the frame, the A-frame can be lifted up, past 90 degrees and then onwards over the side or the rear of the vessel and lowered down to 20 degrees for launch into the water. For retrieval, the process is reversed and the A-frame raised past the 90 degree point and lowered to 11 degrees over the vessel deck. From here, operators can conveniently remove and replace equipment and make any necessary adjustments to the A-frame without having to be hoisted up the frame. Lowering the A-frame to 11° from the deck also makes any service and maintenance work easier and faster to perform. MacArtney's Articulating A-frame is designed with a safe working load of 89 kN and safety factor (Psi) of 2.5. Luffing is at 48.5 kN with docking head and 89 kN without docking head. It has a luffing range of 11 degrees inboard to 20 degrees outboard.

Email: info@macartney.com
www.macartney.com

Articulating Aframe by MacArtney.

Chinese RV's "Go Green" with Underwater CTD Profilers

Shallow Sea Technology Development Corp., The Oceanscience Group's representative in China, has taken delivery of six "green" UnderwayCTD profiling systems destined for installation on Chinese Navy vessels, to be operated by the National Oceanic Technology Center (NOTC). Workers on these vessels wishing to gather temperature and salinity profiles while underway have traditionally used expendable bathythermographs (XBT) or expendable CTD (XCTD) probes.

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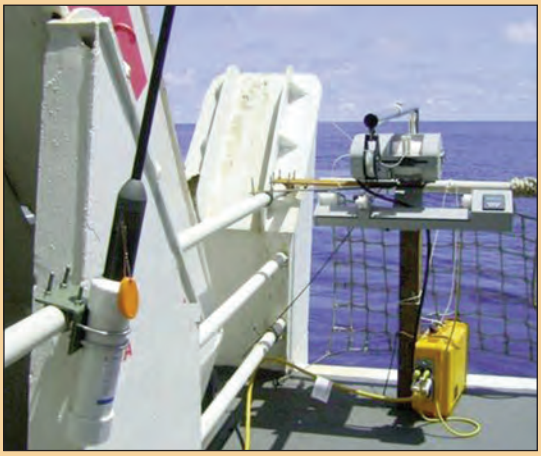
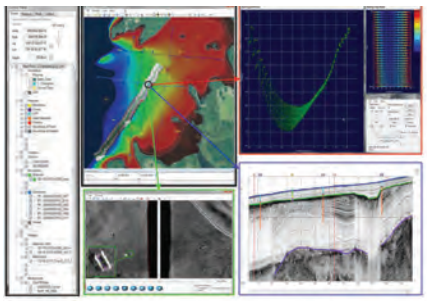


SeaLite Six Underwater Light

DeepSea Power & Light introduced the SeaLite Six underwater LED light – designed from the ground up for ruggedness and multi-purpose use. Many years ago the Multi-SeaLite introduced the idea of one light being useful in a variety of configurations and as a result, it became a standard for use on ROVs and special purpose research applications. The SeaLite Six picks up on this theme of versatility and incorporates LED technology for increased ruggedness and performance. The light is available with a wide variety of LEDs from the standard white LEDs to blue, green, red, either of two UV wavelengths, and even IR LEDs for special research applications. By incorporating proprietary thermal transfer techniques in its design, the SeaLite Six is offered with a variety of housing materials including aluminum, stainless steel, titanium, and beryllium copper to optimize the weight and corrosion resistance of the light for a variety of applications. All versions feature a sapphire window and are rated for 6000m operating depth. The SeaLite Six is offered as either a low voltage 10-36Vdc version or a high voltage 90-270Vac/120-280Vdc version with both the low voltage and high voltage models being fully dimmable. A unique feature of the high voltage dimming is that it can be accomplished using a Variac or a Triac dimmer. The standard beam pattern is flood; however it can be fitted with optional external reflectors to produce spot or medium beams as well as a flat field filter for an extremely wide angle beam so that it can meet most any application requirement. With lumen output equivalent to a 100W halogen light and its compact size of 48mm (1.9") diameter x 1488mm (5.9") long, the SeaLite Six is ideal for a variety of uses with ROVs, divers, and special undersea investigations.

Email: sales@deepsea.com
www.deepsea.com



Software for Integrated Data Processing

Triton Imaging released the new, fully integrated version of its Perspective software that supports the processing of data from all three major sonar imaging modalities:bathymetry, sidescan, and subbottom. Prior to this release, Triton's seismic processing software, SB-Interpreter, existed outside the Perspective software environment. With the new Perspective, data from the different sonar types can be input, processed, visualized, and interpreted in a single application. Sidescan mosaics, gridded bathymetry, and seismic profiles are displayed correctly geo-located and co-registered in the Perspective Map multi-layer GIS environment. Access to all raw data via the sidescan waterfall, swath viewer, and seismic profile display is provided with a simple mouse-click on any point of interest. The new seismic capability will give Perspective users an increased understanding of surveyed areas by adding the subsurface dimension to the analysis of seabed imagery and bathymetry.

Email: sales@tritonimaginginc.com
www.tritonimaginginc.com

New Tools, Functions for DELPH 2.9

iXBlue introduces a new version of the DELPH geophysical software suite. This 2.9 release features a number of new tools and functions to simplify survey acquisition operations and boost side-scan sonar, seismic, sub-bottom profiler and magnetic data processing and analysis. DELPH now offers complete batch processing capabilities: optimal processing parameters can be defined and used for processing a number of profiles at the same time within minutes, making them ready for QC, interpretation and mapping. DELPH Interpretation produces high quality results from collected survey data in a very short time:

- DELPH Acquisition is a simplified acquisition software that focuses on raw data QA/QC from most analog and digital sensors;
- DELPH Interpretation dedicates a complete geo-referenced work environment for processing, interpreting and mapping all data. Global viewers replace the time-consuming waterfalls and scrolling displays, offering an interactive view of the records, from the overview to the finest details.

http://delph.ixsea.com

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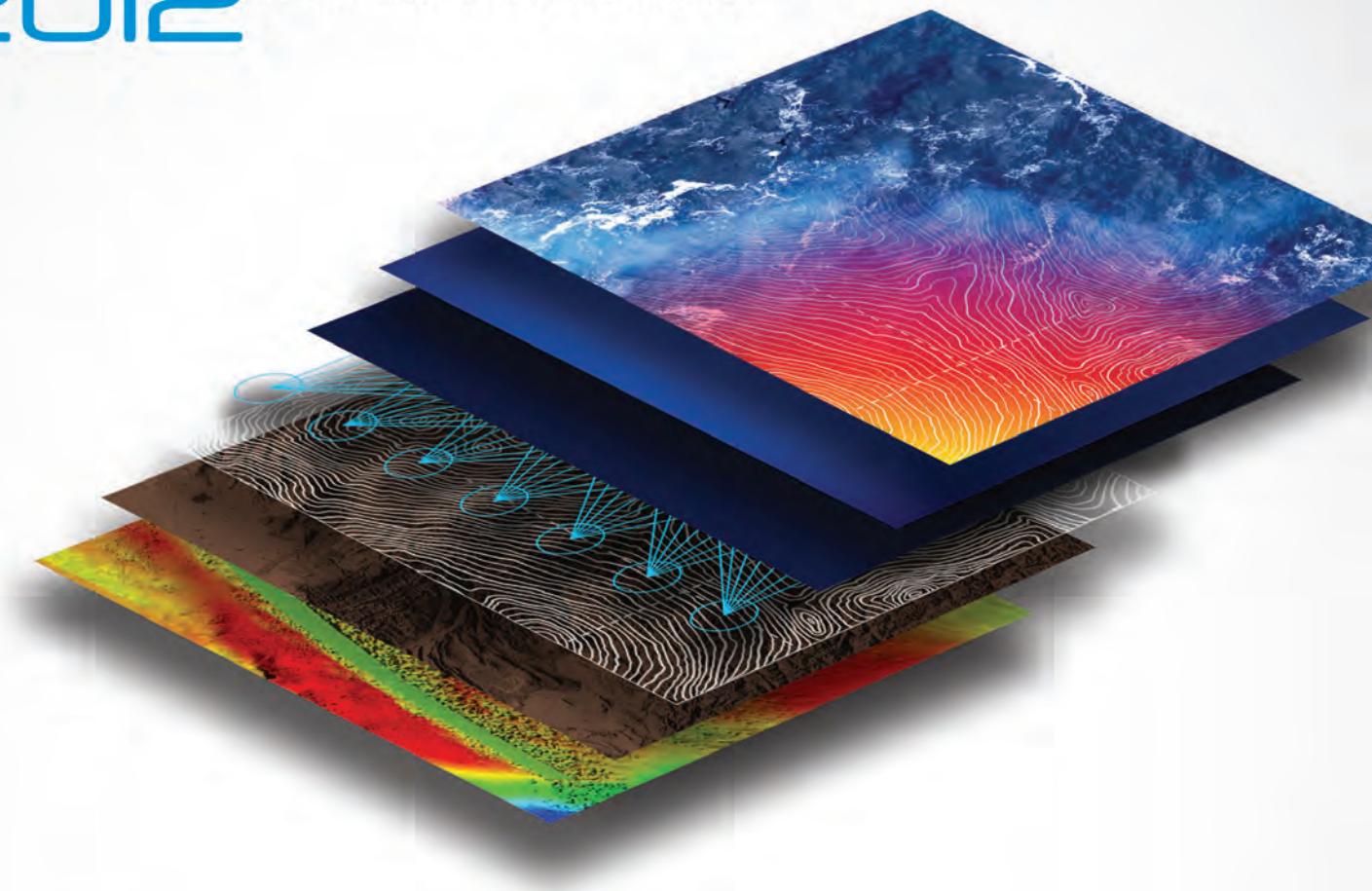

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(Continued from page 33)

Nazi occupation, the Norwegian underground was created. A secret nighttime mission using a Halifax Bomber was to be carried out. The six-man crew on board the Halifax NA337 set out from England to Norway to provide supplies for the underground movement. Using parachutes the supplies were dropped on their designated areas and the crew was readying to fly home when a German anti-aircraft battery fired on the bomber hitting the starboard side. One engine caught fire and caused a massive blaze in the aircraft. The pilot made the split second decision to land the plane on the lake. The impact tore the tail off and the crew was thrown into the water. Thomas Wightman, the tail gunner secured the life raft by diving to the craft as the plane began to go down nose first. He would be the only surviving member of the six-man crew. The bomber began to fill with water and slowly descended to its final resting place in the deepest depths of the lake where it would lay for over fifty years, its existence and exact location a mystery. Years later in an effort to honor the pilots who crewed these bombers and to preserve the history for future generations, Kjarsgaard set his sights on locating and guiding the recovery of this Halifax Bomber. In 1995 he and his colleagues found and raised the Halifax NA337 from the bottom of the Norwegian lake in 750 feet of water. **They were able to lift the craft by using a specially designed lifting devise christened the "Moby Grip".** The tool was designed to secure to the aircraft where the greatest stability occurred allowing the group to then lift the plane from the lakebed. The aircraft was restored by volunteers from the Royal Canadian Air Force Memorial Museum in Toronto Canada, and is now on display. Halifax 57 Rescue was also able to secure a cache of Bristol Hercules engines in the fall of 2011. Thanks to the generosity and cooperation of Hawkair management and staff, a deal was worked out for the Bomber Command Museum to receive all their Bristol Hercules engines, parts, and tools as a major contribution to the museum's Halifax Project. Even in England where these 1700 horsepower monsters were built to power the Halifax, Stirling, and Wellington bombers, as well as post-war transports like the Hastings, Bristol Freighter, and Vickers Varsity, it is only rarely seen that a single complete Hercules engine becomes available for sale.

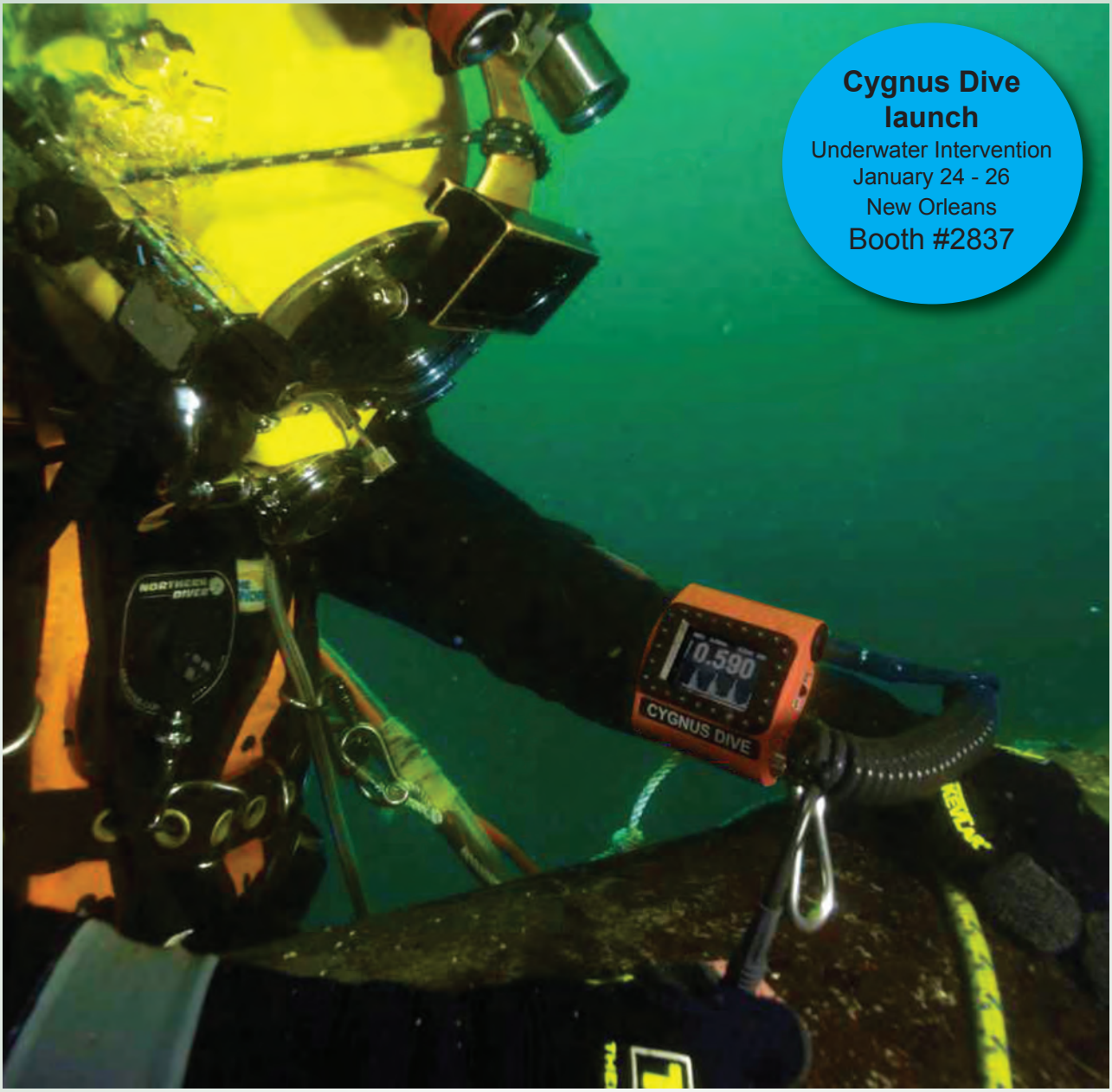
When asked about the difficulties in raising the Halifax LW170 where it lays in over 5,000 feet of water Kjarsgaard says he is not worried about the depth, only the position. He has spent the past several years working with scientists, historians and researchers to create a rectangular search area based on the local ocean currents and

Image: Karl Kjarsgaard

Engines in Bristol Bunker.

bathymetry. "These previous projects in Norway, Belgium, and Malta were my university projects, all learning experiences, but now we must go to The Mt. Everest project, Halifax LW170. It is a needle in a haystack but with huge value in historical, scientific, and USA-Canada relations. Kjarsgaard said. "Although I would not call this a real needle in a haystack thanks to some fine work for Halifax 57 Rescue done by Fiona Fitzpatrick of the Marine Institute of Ireland. After meeting with Fiona she agreed to help me evaluate all the sonar data and any targets on the bottom that the Marine Institute had detected and or collected within the six by six nautical mile Halifax search box we had constructed. The search box is based on the drift model search box we built from a composite estimated sinking position of the Halifax."

Halifax 57 Rescue is currently working with the American based company Benthic Exploration to acquire funding for the project. Both companies will work in a collaborative effort in conducting the fieldwork and have agreed to produce a documentary production chronicling the expedition. The project will have three phases. Phase one will be using AUV technology to locate the bomber. "If we get good pictures of the airplane," he said "that will be the catalyst." The second phase will be a thorough mapping of the area providing scientists with a detailed study of its bathymetry. Finally the third phase will be the recovery of the bomber. The bomber will be a special memorial to the Canadian pilots and virtually unknown American airmen of the RCAF who flew, fought and died for freedom. "Its not the airplanes," Kjarsgaard said. "It's the men in the airplanes." The Bomber Command Museum currently has a number of aircraft on exhibit including the much larger four-engine Lancaster. With the addition of the Halifax Bomber LW170 it would be the only museum in the world to house both.



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