

# MARINE TECHNOLOGY REPORTER

July 2007  
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# MTR 100



# Impressive on their own...

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# SeaSPY

## Marine Magnetometer



### Do it all

Tough enough for any environment, SeaSPY is adaptable to a myriad of applications and is one highly versatile marine magnetometer.

### Specs

**High sensitivity:** 0.01nT/sqrt-Hz

**Power requirement:** 3W

**Depth range:** Up to 6000m

**Cable lengths:** Up to 10km

**Worldwide operation:**  
No restrictions/deadzone

**Integrations:**  
Side scan sonars, ROV & AUV

**Gradiometers:**  
Longitudinal, horizontal & vertical

**Other sensors:** Altimeter, pressure sensor, transponder

### Specs

**High sensitivity:**  
0.01nT/sqrt-Hz per sensor

**Gradient information:**  
X, Y and Z in realtime

**Power requirement:** 5W

**Depth range:** Up to 6000m

**Worldwide operation:**  
No restrictions/deadzone

**Integrations:** Side scan sonars, deep tow platforms

**Other sensors:** Altimeter, pressure sensor, transponder, tilt sensor

## Multi-sensor Gradiometer Platform

### Do more

SeaQuest measures the complete 3 dimensional magnetic gradient vector, quickly, accurately and in real time.

# SeaQuest



# Explorer

## Mini Marine Magnetometer

### Do it with less

High sensitivity, compact size and light weight make the Explorer mini marine magnetometer the ideal tool for shallow water surveys.

### Specs

**High sensitivity:** 0.02nT/sqrt-Hz

**Ease of use:** Ready to deploy

**Power requirement:** 2W

**Cable lengths:** 300m

**Worldwide operation:**  
No restrictions/deadzone

**Depth range: 300m**  
Up to 6000m with side scan sonar

**Gradiometers:** Horizontal & vertical

**Integrations:**  
Side scan sonars, ROV & AUV

**Other sensors:**  
Pressure sensor, transponder



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July 2007

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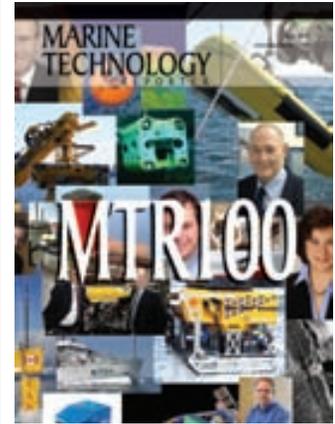
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## “Nuts!”

As a magazine editor for more than 15 years and a purported wordsmith, this is the first word that comes to mind — and the most succinct way possible — to describe the prospect of delivering insightful profiles of 100 companies in a single edition. The above exclamation is particularly true when discussing the furcated subsea technology industry, a dynamic international market that has firmly rooted local and regional alliances, which is equally populated with corporate behemoths and small, privately held companies, built to serve the subsea technology needs of the defense, commercial and scientific markets.

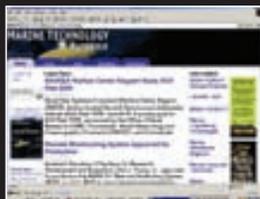


As the editorial staff whittled through the hundreds of applications for this year’s *MTR100* listing, the selection process brought to mind the oft-debated but never-agreed process by which Major League Baseball selects members to its annual All-Star game: there were plenty of ‘ballot box stuffers’; there exists no common measuring stick by which to select one entity over another; and, undoubtedly, there are worthy candidates who are not included.

That said, this year’s *Second Annual MTR100* listing embodies what I believe to be a comprehensive and diverse slice of the subsea technology pie, with profiles of 100 of the leading organizations driving the subsea technology market today. Particularly striking were the large number of selections representing the West Coast of North America, 24 out of the 100 companies in total, which are covered in our “West Coast North America” focus, starting on page 45.

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## Ulstein Builds for Marine Subsea



Marine Subsea Inc. signed a contract with Ulstein Verft for building an offshore construction vessel specialized in inspection, maintenance and repair operations (IMR/OCV) of the ULSTEIN SX121 design from Ulstein Design. The value of the contract is about \$154.6m. The ship will be delivered in 2010 and is the fourth vessel of the type ULSTEIN SX121 from Ulstein Design. The vessel will be yard number 287 at Ulstein Verft. Marine Subsea Inc. has previously contracted a similar vessel from Ulstein Verft for delivery in July 2009. "In a pressured market with many delays in both equipment and deliveries, it is important to have a good dialog with the shipyard. The Ulstein Group is highly reputable when it comes to building state-of-the-art vessels and developing design," said hristian Nygaard, managing director, Marine Subsea.

The ship will have the characteristic ULSTEIN X-BOW. "The hull design also gives the ship more volume in the forepart and thus more space for accommodations than a conventional hull," said Nygaard. The vessel will be 120 x 25 m and accom-

modate 100. It will be fitted with a tower for module handling, a moonpool, ROV hangar, offshore crane, helideck and a diesel-electric propulsion system. The ship will also be equipped with ULSTEIN COM, ULSTEIN IAS and the newly developed ULSTEIN NAV from Ulstein.

## Electric Boat Wins Sub Deal

Electric Boat Corp., Groton, Conn., is being awarded a \$10,743,734 cost plus fixed fee modification to definitize previously awarded contract N00024-96-C-2100, for tasking associated with the execution of the USS Virginia (SSN 774) Post Shakedown Availability (PSA). Work was performed in Groton, Conn. (99 percent) and Quonset Point, R.I. (1 percent), and was completed in March 2007. Contract funds will not expire at the end of the current fiscal year. The Supervisor of Shipbuilding Conversion and Repair, USN, Groton Conn., is the contracting activity.

## Aker Yards to Build AHTS for DOF

Aker Yards entered into a contract with DOF Installer ASA. This is the first of two possible options in the connection of the previous contract for building of 2 + 2 AHTS vessels. The vessel is an Anchor Handling Supply Vessel based on the Aker Yards design AH 04 CD. Delivery is scheduled in Q4 2010. The vessel will have a bollard pull in excess of 350 tons, and will be outfitted with a triple drum winch of 500 tons. Accommodation is planned for 90 persons.

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## Hornbeck Orders OCV

Merwede Shipyard received a contract for the design and construction of a multi purpose offshore support vessel for Hornbeck Offshore Services LLC. The vessel will be built under Yard No. 717 and delivery is scheduled for 3Q 2009.

This MPOCV will be capable of operating globally. However, the Hornbeck Offshore Services plans to deploy the vessel in its primary operating market, the deep-water and ultra-deepwater Gulf of Mexico. While this foreign-built vessel cannot qualify for Jones Act trade, the Hornbeck intends to U.S.-flag the vessel. Hornbeck Offshore also has an exclusive four-year option to construct two additional sister vessels based on the same Type-22 MPOCV design at a U.S. shipyard of its choice, which would qualify for domestic coastwise trade under the Jones Act.

This 8,000 dwt vessel will be equipped with two cranes, a helideck, a moon pool and accommodations for 100. The primary crane will have lifting capacity of up to 400 tons in up to 3,000 m of water depth and the secondary crane will provide significant



### Principal characteristics

Length, o.a. ....	131.7 m
Length, b.p. ....	117.7 m
Breadth, molded ....	22 m
Depth, main deck, mld. ....	9.5 m
Draft, design mld. ....	6.25 m
Draught scantling mld. ....	6.75 m
Deadweight at design draft ....	6,850 Metric tons
Deadweight at scantling draft ....	8,050 Metric tons
Classification ....	.DNV

additional lifting capacity. The ship has been designed by Merwede Shipyard in close concert with Hornbeck Offshore Services and has been based on an enhanced version of the Merwede Type-22 design, Merwede Shipyard's versatile 22 m beam design. It will be a fully Dynamic Positioned DP3 Multi Purpose Offshore Construction Vessel, suitable for worldwide operation.

## Seven Seas Launched

Subsea 7's newbuild deepwater Flexlay and J-lay vessel is launched at Merwede Shipyard recently. The Seven Seas will have the ability to perform a wide variety of offshore and subsea operations in addition to its main pipelay rolls. The high specification pipelay spread is being designed and manufactured by Huisma-Itrec in Holland. There will be appointed facilities for up to 120 persons. The vessel will be completed the following months at Merwede Shipyard in Holland. At the end of October the vessel will go to Huisman-Itrec to install the specific pipelay spread.

The Seven Seas is the second vessel for Subsea 7 built by Merwede Shipyard. The first vessel, the Seven Oceans, is at this moment at Huisman-Itrec and will be delivered in a few weeks. The Seven Oceans departs to the Gulf of Mexico for the first project.





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# Signal Delivers TLP Hull

Signal International, a major Gulf of Mexico builder and services provider for the offshore business, has completed work on the hull unit for SBM Atlantia's Neptune SeaStar Tension Leg Platform. The unit was floated off of Signal's Port Arthur, Texas, and wet towed to location on BHP Billiton's Green Canyon 613 Block, located 99 nautical miles south of Port of Fourchon, La. The project consisted of fabricating the hull, including pontoons, and the hull jacket. Outfitting included external top connector buckets for the tendons that keep the platform on location. Also installed at Port Arthur were the supply boat bumper guards and the porches for supporting the export and flowline risers.

At the production site, the hull assembly will be mated with the topsides platform where the production unit will be brought on stream. "This job has been an important



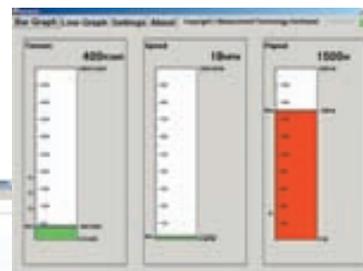
project for the company," said Dick Marler, CEO and President of Signal International. "The success reflects the pride of workmanship that goes along with a 'built in the USA' statement.

The exceptional quality that Signal's Texas workers built into the Neptune TLP should contribute to many years of successful operation, helping to produce much-needed energy for America."

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## OceanWorks Venus Project



The Victoria Experimental Network Under the Sea (VENUS) project designed and manufactured by OceanWorks International, is a cabled seafloor observatory. Through a network of scientific instruments and cameras connected to the Internet by power and fibreoptic cable, VENUS provides scientists, educators and the general public with around-the-clock biological, oceanographic and geological data from the seafloor. The first 3-kilometre leg of VENUS was installed in Saanich Inlet in February 2006 and continuous data has been flowing ever since. When completed, the Strait of Georgia leg will feature 40 kilometres of cable and two central nodes, to which dozens of ocean sensors will be connected. The complex installation process is taking place in several stages between now and the Fall. "The Strait of Georgia is one of the most forbidding places to deploy an ocean observatory," says VENUS project director Dr. Verena Tunnicliffe. "OceanWorks is thrilled to be involved in the leading edge of ocean observatory systems" says OceanWorks project manager Alberto Moreno. This phase of the installation laid the 40 km of cable and two node bases in offshore waters just north of the Vancouver International Airport. Working with UVIC's VENUS team, Ocean Works International, based in North Vancouver, designed and built the 2.5-tonne node bases.

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

## Sub Sea Expands Shipwreck Search, Recovery Capabilities

Sub Sea Research LLC, a privately held shipwreck research and recovery company, purchased M/V Son Worshipper — a 96-ft. swift ship completely set up for diving operations and capable of conducting archaeological excavation and recovery work on the company's shipwreck projects. The ship is equipped with dual high pressure dive compressors as well as being able to house up to 28 divers and guests.

"This vessel will put our dive teams on site for an extended period of time and speed up operations immensely," said Greg Brooks, Co-Manager of the company. "The ship has room for a full spectrum of professionals such as videographers, archaeologists, as well as the press."

"Over the past several years our researchers have amassed a database of roughly 150,000 shipwrecks worldwide. We believe we have the most comprehensive list of shipwrecks in the world today," said Brooks.

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# The MTR100

*Evaluating and ranking the top 100 companies in any industry is no small task, particularly in one such as the subsea technology market, which is vast and international in scope, with companies serving the scientific, defense and commercial ends of the market to varying degrees. The companies serving this market are significantly diverse in shape and size, with corporate titans rubbing elbows with a field of smaller, privately held firms. Last, but certainly not least, is the fact that in many cases technology and financial data is held very close to the vest for competitive reasons. Regardless, the editorial staff of MTR entered the hunt for the Second Annual MTR100 with abandon, and presented on the ensuing 43 pages are profiles of 100 leading companies — including a number of significant business and technological insights recorded over the past 12 months.*

## Aanderaa Instruments

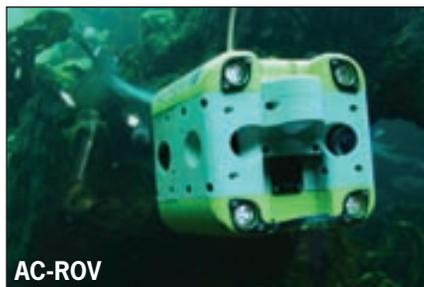
P.O. Box 34 Slåtthaug, 5851  
Bergen, Norway  
Tel: +47 55 60 48 00; Fax +47 55 60 48 01  
E-mail: info@aadi.no

Aanderaa Instruments develops, manufactures and markets oceanographic and meteorological instruments and special systems for collecting environmental data. The products are designed to be rugged, reliable and particularly well suited for long-term applications in remote areas without electricity supply.

## AC-CESS Co. UK Ltd

Tyrebagger Works, Clinterty,  
Kinellar, Aberdeen, AB21 0TT  
Tel: + 44 (0)1224 790100  
Fax: + 44 (0)1224 790111  
Email: info@ac-cess.co.uk  
www.ac-cess.com

The AC-ROV is a portable ROV. A complete system comes in one rugged waterproof hand carry case with an all up weight of 18kg — a true "Hand Carry" class in underwater inspection systems. CE Marked and certified for all "feet wet" applications, offshore, onshore or down pipes for underwater inspection. One person can deploy the system in less than 3 minutes. It can also be controlled with one hand, leaving your other hand free to tend to the tether, take notes



AC-ROV

operate the manipulator or answer your mobile. The AC-ROV is a true single operator system. **Technology Profile:** Standard System Components — AC-ROV, surface control unit, intuitive 3-D hand controller, monitor & stand options, tether configuration to client requirement, tether deployment system (TDS), flight assist functions, tool kit, storm case, instruction manual, training, operators online secure area. Options — 2 function manipulator, slip ring, depth sensor, rear view camera and light, custom cable reel (additional tether to 120m), video grabber.

## Airmar Technology Corporation

35 Meadowbrook Drive  
Milford NH 03055  
Tel: 603-673-9570; Fax: 603-673-4624  
Email: mreedenaaur@airmar.com  
www.airmar.com  
CEO: Steve Boucher  
President: Ted Krantz  
Vice President: Ron Cormier  
Engineering Director: Fred Boericke

R&D Director: Dr. Roger Tancrell  
Facilities: Engineering, Marketing, Manufacturing  
Square Footage: 75,000  
Testing Capabilities: Acoustic test tanks, test boats,  
Number of Employees: 200  
Annual Sales (US\$): 25,000,000

Design and manufacture of ultrasonic transducers for underwater applications. A major focus is on innovation and continuous product improvement. Airmar sells more than 600,000 sensors per year and has more than 30 U.S. and foreign Patents. ISO 9001/2000 Registered.

**Technology Profile:** The products and systems used in following applications are: recreational marine, commercial fishing, high seas navigation hydrographic survey, homeland security, industrial process control, aquaculture, algae control, et al. Airmar was the first developer of affordable Broadband technology.

## Applied Science Associates, Inc

70 Dean Knauss Dr., Narragansett, RI 02882-1143  
Tel: 401-789-6224; Fax: 401-789-1932  
E-mail: nwhittier@appsci.com  
President: Eric Anderson

Applied Science Associates (ASA) is a leader in the development and application of computer tools to investigate marine and freshwater environments.

Using computer models to simulate physical, chemical, and biological processes, ASA answers questions about the surface water environment and human interaction within that environment. ASA identifies timely, reliable, and cost-effective solutions to environmental problems and helps manage information through the integration of Geographical Information Systems (GIS) with environmental data monitoring and modeling.

**Aqua-Air Industries, Inc.**

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Harvey LA 70058  
Tel: 504-362-8124; Fax: 504-362-3600  
Email: sales@aquairind.com  
www.aquairind.com  
President: Dianne Cruze  
Executive Vice President: Stacy Cruze

Aqua Air Industries is supplier of commercial diving equipment, complete saturation systems, sat tankage

components, and ancillary equipment. Aqua Air Industries designs and builds more than 75 products under our AAI product line and also supplies all major brands of diving equipment. Aqua Air Industries was incorporated 34 years ago by company founder, Rodney A. Cruze. His dream was to provide innovative equipment to the diving industry. It designed and built the first 1250 air filtration system, standardized by the U.S. Army. It has recently provided the first new-built complete saturation diving system to 1000 ft. fabricated in the US in over 12 to 14 years. Its two-acre site in Harvey, La., (4 miles from the port of New Orleans) houses our Saturation Systems Division, fabrication facility, warehouse, electronics division, and diver's locker showroom. **Technology Profile:** Aqua-Air Industries, Inc.

designs and manufactures complete new 650 to 1000-ft. Saturation Systems for the worldwide commercial/military diving market. The System has a diving complex that is capable of supporting 4-6-10 or 12 divers or two diving teams at different depth levels. Our Diving Bell is equipped for two divers and one bellman. The bell may have two mating positions, bottom or side.

The AAI skid mounted components are easily mobilized aboard all types of support vessels which permits convenient arrangement to minimize deck space requirements.

The AAI Hyperbaric Rescue Chamber (HRC) is capable of supporting 4-6-10 or 12 divers. The HRC can have side, bottom, or end mating positions.

The air operated HRC launching system incorporates a "Davit" Frame.

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C'INSPECTOR - Exploring wrecks in Truk Lagoon. (Courtesy BBC/Discovery Channel)



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## Bluefin Robotics Corporation

237 Putnam Avenue  
Cambridge MA 02139  
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Fax: 617 498 0067  
Email: dabraham@bluefinrobotics.com  
www.bluefinrobotics.com  
CEO/President: Dr. Brian Abraham  
COO: Robert Grieve  
Engineering Director: Dr. Joseph Bondaryk  
Marketing Director: Deanna Abraham  
Facilities: Bluefin occupies two facilities in the greater Boston area. The main facility is a 37,000 sq. ft. headquarters on Putnam Avenue in Cambridge, MA which houses three floors of engineering, manufacturing, and corporate administrative functions. Our permanent marine operation is based in the former U.S. Navy shipyard in Quincy, Mass., which provides Bluefin with year-round ocean access for testing and sea trials.  
Testing Capabilities: Four test tanks, machine shop, 42 ft. boat, RHIB, 35 ton crane  
Number of Employees: 60  
Annual Sales: N/A

Founded in 1997, Bluefin we have over the years grown to serve a variety of global markets, with military, commercial (oil and gas exploration, sea floor mapping) and archaeological applications. Our wide range of vehicles include the long-endurance Spray Glider, the untethered HAUV designed for ship hull inspection, and the BF series of AUVs, available in a wide range of standard or customized configurations. In addition, our product family includes innovative propulsion, navigation, and battery systems that have benefited from our years of experience in subsea compo-



BPAUV

nent design.

Bluefin Robotics BF series vehicles are the only commercially available AUVs that boast a completely modular, flooded architecture for optimum performance at even the greatest depths. All BF series AUV's feature rapid on-the-fly swapping of our specially designed pressure-tolerant batteries for safe, fast turnaround at sea (without ever opening a water-tight seal). In addition, our Operator Tools Suite of software, including Mission Planner, makes mission programming simple and intuitive for every application.

**Technology Profile:** Bluefin has exclusive licenses with MIT, Scripps Institute of Oceanography, and Monterey Bay Aquarium Research Institute. These partnerships in combination with our in-house R&D programs, allow us to deliver innovative subsea solutions to our customers worldwide.

The Bluefin product line includes a variety of AUVs. The BF series includes the Bluefin-9, Bluefin-12, and Bluefin-21. The Bluefin-9 is a two-man deployable AUV which achieves high navigational accuracy and short turnaround time between missions. The Bluefin-12 offers a greater depth rating, longer endurance, and increases payload flexibility. The Bluefin-21 is the world's smallest deep-water AUV and is ideal for re-configurability and customization. In 2003, Bluefin licensed glider technology from Scripps for the Bluefin Spray Glider. We are focusing on sensor integration and commercialization of the vehicle. Funded by ONR and developed in conjunction with MIT, the Hovering AUV or HAUV is the most recent vehicle to the Bluefin family. It is modeled off of Remote Operated

Dr. Brian Abraham, CEO



Vehicles but is independent from any cabling. Bluefin has recently received a NAVSEA contract to demonstrate the HAUV and its hull inspection capabilities in August 2007. This is the first phase of three and if successful the demonstration may lead to vehicle improvements and ultimately a number of vehicle builds.

In search of reliable subsystems, Bluefin has developed a number of derivative products. Bluefin Subsea Battery Systems not only power AUVs but power other underwater vehicles owned by our customers. Bluefin's batteries have gained popularity across applications primarily because they are internally pressure-compensated, fully-submersible and highly robust.

This also stands true of our propulsion systems that are based on a gimbaled design. Furthermore, our navigation system is unique to Bluefin and extremely accurate; so-much-so, we compare it to INS systems. Lastly, Bluefin software interface for mission planning, mission monitoring, and post-mission analysis has taken years to develop and is constantly under re-evaluation and therefore continuously advancing.

The HRC has a single clamp release. System Life Support Modules contain the main power distribution system, heating and cooling system, Potable Water System, Sanitary Facilities, automatic temperature with humidity controls, External Regeneration, Environmental Monitoring System, air compressors, diver's hot water suite units, gas storage modules, and high pressure transfer pumps.

**Autonomous Surface Vehicles**

Contact: Stephen Phillips, Managing Director  
Unit 3, City Business Centre, Basin Road,  
Chichester, West Sussex, UK PO 198DU  
Tel: +441243784222  
E-mail: [Info@asv.org.uk](mailto:Info@asv.org.uk)  
[www.asv.org.uk](http://www.asv.org.uk)

ASV Ltd. designs, constructs and supports a range of autonomous surface vehicles for survey and surveillance operations. These craft can operate in rough seas (up to and including Seastate 5) with an endurance of between 24 hours to a month, at speeds of up to 15 knots. They have a wide range of applications and are currently employed in commercial survey and technical research for civil and military organizations.

**Balmoral Offshore Engineering**

The Quadrant  
Green Lane Heywood  
Lancashire OL10 1NG  
Tel: +44 (0)1706 362800  
Fax: +44 (0)1706 625648  
Email: [offshore@balmoral.co.uk](mailto:offshore@balmoral.co.uk)  
[www.balmoraloffshore.com](http://www.balmoraloffshore.com)

Steeped in polymer and elastomer design and manufacturing history,



Dynamic Riser Buoyancy

Balmoral Offshore Engineering provides the international energy sector with a range of products from surface to deepwater buoyancy. In-house laboratory and hydrostatic testing facilities enable the company to research and identify cost effective materials across a spectrum of applications. From surface navigation to insulated buoyancy 3000m below, Balmoral products include: drilling and dynamic riser, ROV/AUV and sub-surface buoyancy through to elastomer cable protectors, bend restrictors, stiffeners, clamps and riser protection guards.

**Battelle**

505 King Avenue  
Columbus, Ohio 43201  
Tel: (800) 201-2011  
<http://www.battelle.org/>

**Technology Profile:** Lithium

Hydroxide Curtain: Battelle developed a lithium hydroxide curtain that removes hazardous carbon dioxide from the atmosphere of disabled submarines. The curtain improves the crewmembers' ability to survive while awaiting rescue; NR-1 Submarine Sonar: Sonar system for the U.S. Navy's NR-1 nuclear-powered submarine. Battelle staff selected off-the-shelf technology, re-engineered it to improve its efficiency and installed the sonar system at about one-fifth the cost of a custom-made model, in a fraction of the time; Oil Spill Clean-Up: The company worked for 10 years for Italian oil company ENI-Agip, handling cleanup issues and determining the risks to the environment following a major oil spill in Italy. Throughout the course of the project, the company helped preserve

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**CARIS**

115 Waggoners Lane  
 Fredericton, NB  
 Canada E3B 2L4  
 Tel: 1-506-458-8533  
 Fax: 1-506-459-3849  
 www.caris.com  
 Email: info@caris.com

CARIS develops and supports rigorous, technologically advanced geomatics software. Its systems give value to spatial data and empower customers with information that is meaningful. Providing software solutions to hydrographic and marine organizations since 1979, CARIS pioneered the use of geomatics technology in this industry. In this time the company has gained a secure understanding of the daily operations, technological needs, and challenges faced by their maritime clientele. Their product line enables customers to input, create and manage, and deliver consistently reliable marine and hydrographic spatial data information and products.

CARIS marine and hydrographic software product line provides a complete Ping to Chart solution for all anticipated geospatial data collection, processing and production needs within the broad marine environment. Applications include modules for the processing, presentation and

cleaning of bathymetric data through to the creation, management and output of IHO S-57 compliant datasets in a database environment.

Some of the benefits of CARIS include but are not limited to hydrographic offices, navies, national charting agencies, port and harbor authorities, research institutions, dredging and underwater mining, exclusive economic zone management, coastal engineering and construction, oil and gas, and cable and pipeline route surveys. The company has grown to include offices in The Netherlands, United States and Australia. CARIS employs more than 160 engineers, technologists, skilled technicians and trades people engaged in forward research, current development and support of its innovative products and systems. Expansion plans continue as our client list continues to grow. There are also more than 30 resellers bringing sales and support of CARIS brand software to more than 75 countries.

**Technology Profile:** The CARIS product line provides a complete 'Ping-to-Chart' solution from post-processing of bathymetric data to chart production, to spatial database management and production,

through to Internet distribution. HIPS and SIPS offer a comprehensive bathymetric data cleaning and validation tool integrated with powerful vector product creation. Take the raw sounding data from survey to chart. Supporting over 40 industry standard sonar data formats, HIPS and SIPS can easily integrate into any workflow. Bathy DataBASE allows the user to centrally manage large bathymetric data sets coming from different data sources. The software allows users to validate and combine bathymetric data sets as input for further chart production.

The notebook is a digital alternative to the paper field book, Notebook enables collection of geo-referenced field objects in S-57 format, such as buoys, lighthouses, etc. It fills a workflow gap between post-processing of hydrographic survey data and hydrographic products such as S-57 ENC's.

Using HPD, data is stored in a common database and shared by multiple products, providing a higher degree of consistency between product types (e.g. ENC and Paper Chart). It removes duplication of work and lowers maintenance costs. Updates can be done once while the status of updates can be tracked from source to product and history of changes is recorded, allowing better management of liabilities. With support for nautical symbology and support for Open Geospatial Consortium, Inc. (OGC) formats (WMS, WFS etc.), Spatial Fusion Enterprise allows users with a Web browser to view and query HPD source data. Zoom in on points of interest, select what will be displayed by Feature type and Usage, configure user roles and groupings of data types and merge data from several HPD sources into one continuous map.

Contours 3D

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BIG ON  
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Performance...  
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- 4000m or 6000m depth rating
- Universal power Input 100-277V AC/DC



Performance  
Under Pressure

Photo courtesy: Steve Drogin, DeepSee Sub

the ecosystem while providing significant cost savings for Agip.

**Brooke Ocean Technology**

11-50 Thornhill Drive, Dartmouth  
 Nova Scotia, Canada B3B 1S1  
 Tel: +1902-468-2928; Fax: +1902-468-1388  
 E-mail: sales@brooke-ocean.com  
 www.brooke-ocean.com

Brooke Ocean Technology Ltd. (BOT) provides hardware, systems engineering and R&D services to the marine science, naval and oil & gas sectors. Its specialty is the development of equipment and systems to operate in harsh marine environments. BOT is a Canadian owned and operated company and is owned

and managed by the two company shareholders. BOT has been involved with the design and development of marine and oceanographic equipment for more than 20 years and has a track record as a company that can solve problems with simple, yet innovative designs.

**C&C Technologies**

730 East Kaliste Saloom Road,  
 Lafayette, LA 70508  
 Tel: 337-261-0660; Fax: 337-261-0192  
 E-mail: info@cctechnol.com  
 CEO/President: Thomas Chance  
 Vice President: Jim Chance

C & C provides a range of survey and mapping services for the land

and offshore oil and gas industry, the telecommunications industry and several government entities. The company has six divisions including; the Land and Transition Zone Survey Division, Marine Construction Survey Division, Geophysical and Geosciences Division, NOAA Surveys Division, Geotechnical Division, and the Worldwide DGPS Services Division. Several in-house departments including a Database, Systems Development, Information Technology, HSE, and QA as well as a mechanical fabrication department support all C & C operational divi-

**FarSounder, Inc**

43 Jefferson Boulevard  
 Warwick, RI 02888-1078  
 Tel: 401-784-6700; Fax: 401-784-6708  
 Email: joann.aldsworth@farsounder.com  
 www.farsounder.com  
 CEO/President: Cheryl M. Zimmerman  
 Marketing Director: Jo-Ann Aldsworth  
 Engineering Director: Matthew J. Zimmerman  
 Facilities: One combined facility for Worldwide Corporate Headquarters and R&D Center in Warwick, RI. 4,200 sq. ft.  
 Number of Employees: 8

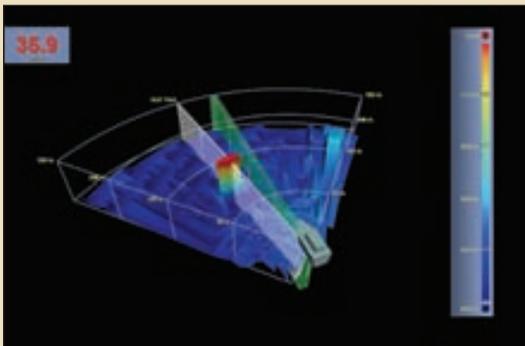
FarSounder is a developer and manufacturer of advanced 3D sonar systems for marine navigation, obstacle avoidance, and security applications. The privately held company has patented technology with three patents issued and has been in business for six years. The first commercial product line was launched in 2004. FarSounder has a growing worldwide distribution network with

sales and installations globally. Markets sold to include passenger vessels, commercial, government, and large yachts. One facet of the company vision is to seek out opportunities across a broad range of market sectors. The growing use and application of FarSounder's real-time 3D sonar technology is designed to enable marine vessel operators to avoid collisions and groundings. **Technology Profile:** FarSounder has developed and advanced 3D sonar technology that is revolutionizing marine navigation and transportation. Current products include a 440m (>1/4 mile) navigation and collision avoidance sonar. With its patented Target model technology, FarSounder is leading the way in marine navigation. The company has recently been issued three US and PCT patents pending. The company's patent strategy includes both broad based claims and application focused claims which cover software, hardware, and system architecture. Current R&D projects include adapting this advanced sonar tech-

**Cheryl M. Zimmerman, CEO**



nology to security and defense applications. The company is working with the US Department of Homeland Security on a Phase II HSARPA SBIR project. This work will result in a Low Cost Under Water Threat Detection prototype, which will then be commercialized into a variety of port, ship protection, and shoreline infrastructure security products. Other Internal R&D projects are in process, both in support of the current product line and for other applications.



sions. C & C is known as a technological leader in the survey field. Innovations such as C-Nav, Globally-corrected GPS and C-Surveyor AUVs have made groundbreaking advancements to the survey industry. Today, C & C is the worldwide leader in deepwater AUV survey services.

### CapRock Communications

4400 S. Sam Houston Parkway  
Houston, TX 77048  
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E-mail: info@caprock.com

CapRock Communications provides managed telecommunications services to remote operations around the globe. These services include, but are not limited to, basic telephony, IP telephony, video, Internet and corporate data access, presented in a variety of flexible formats. While the company provides these services primarily over its owned-and-operated VSAT network, it also provides such services over microwave, conventional and trunking radio systems and terrestrial backhaul. The company operates with fully staffed 24x7 network operation centers (NOCs), supported by an in-house engineering staff and a large staff of field service technicians.

### CDI Marine Systems Development Division

900 Ritchie Highway, Suite 102  
Severna Park, Maryland 21146  
Tel: 410-544-2800; Fax: 410-647-3411  
www.cdicorp.com  
Email: johnson@cdicorp.com  
SVP and General Manager: David Lavis  
Marketing Director: Dr. Robert S. Johnson,  
Manager Engineering Development  
Facilities: Shop/Lab  
Square Footage: 2450 sq ft  
Number of Employees: 36 in SDD  
Annual Sales (US\$): Over \$5 million

For 29 years, CDI Marine Systems Development Division has provided customers expertise in the hydrodynamics and design of high-speed

ships and craft and the early stage design of conventional ships. The company has a particular expertise in the design of water-jet pumps and systems for both conventional and advanced ship and craft applications. The company has broad-based experience in amphibious and JLOTS missions and technologies with recent work in JLOTS, LCAC, JMAC, AAV and Finnish T-2000 ACV.

The company has also developed a comprehensive family of computer-aided design synthesis models that collectively are referred to as Parametric Analysis of Ship Systems (PASS). PASS is a physics-based computer-aided design synthesis model that permits simulation-based design for Displacement Monohulls, Planing Monohulls, Semi-Planing Monohulls, Catamarans, Trimarans, SWATH and Semi-SWATH, ACV and SES. For each hull form type, the model permits whole-ship design trade-offs to be examined with respect to acquisition or operating cost and ship performance, including seakeeping. With support from ONR and technical oversight by NSWC-CD and NAVSEA, the software has been developed with a strong focus on the use of physics-based algorithms. **Technology Profile:** CDI-Government Services, Systems Development Division provides support to military and commercial clients worldwide with an emphasis on high-end naval architecture & marine engineering.

### Chelsea Technologies

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www.chelsea.co.uk

Chelsea Technologies Group operates from a 17,500 sq. ft. facility in Surrey, England. A team of scientists and engineers are engaged in design, development, production engineering, process control and marketing of a wide range of individual sensors and distributed instrument systems. Applications include environmental monitoring, acoustics sonar, biotechnology and advanced optics.

Chelsea Technologies Group specializes in underwater technologies ranging from acoustics and sonar products through to comprehensive environmental monitoring systems.

### Corrpro

1090 Enterprise Drive  
Medina, OH 44256  
Tel: 216-723-5082; Fax: 216-722-7653  
www.corrpro.com

For over 30 years, Corrpro has provided corrosion services including engineering, pipeline integrity, construction, coating inspection and cathodic protection materials. Corrpro offers corrosion solutions for every market including pipeline, refinery, water, wastewater, concrete, infrastructure, offshore, marine, above and underground storage tanks.

### Davidson Laboratory

711 Hudson Street  
Stevens Institute of Technology  
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Tel: 201-216-5568; Fax: 201-216-8214  
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The Davidson Laboratory combines experimental and numerical methods to solve complex problems related to surface and subsurface vessel dynamics. The experimental facilities include a high speed towing tank with wave generation capability and a rotating arm tank.

The laboratory has tested hydrodynamic scale models of all types of craft (sail boats, yachts, planing craft, seaplanes, submarines, torpedoes) to assess their performance for calm water resistance, propulsion, seakeeping and maneuvering. Numerical modeling using advanced CFD codes is performed and provides an excellent supporting tool to our experimental towing tank.

### Deep Sea Systems International

P.O. Box 622, Falmouth, MA 02541-0622  
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Email: info@deepseasystems.com  
http://www.deepseasystems.com

Deep Sea Systems International (DSSI) was founded by owner and President Chris Nicholson in January 1983. The company's initial development was the Mini Rover. DSSI has since gone on to develop the Mini Rover MK-2, the Sea Rover, and its current MAX Rover MK-1, MK-2

and MK-3 series of vehicles for operation to 6,000 m, with a full set of accessories. The company's newest design is the Mini MAX Rover, a scaled down version of the MAX Rover. It is offered as an economical, basic function ROV suitable for the most rugged work environments. DSSI also offers a line of ROV supporting products including 2-5 hp electric brushless thrusters, HID high

### EdgeTech

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Director of International Business Development:  
Simon Reeves



EdgeTech established itself as a private company in 1995 after being part of EG&G since 1965. It selected its name in part to honor the late Dr. Edgerton, an MIT professor and marine instrumentation pioneer. EdgeTech designs and develops a full line of underwater survey equipment including side scan sonar and sub-bottom profiling systems, combined side scan/sub-bottom, Synthetic Aperture Sonar (SAS), deep towed, integrated and modular imaging systems. These systems are available in towed configurations as well as for AUV, ROV, USV and ROTV platforms. Additionally EdgeTech designs

and develops engineered to order systems for specialized applications based upon requirements specified by the customer. EdgeTech Marine employs over 60 people and currently operates out of two facilities within the U.S.; in Massachusetts and Florida.

**Technology Profile:** EdgeTech develops a variety of marine products by using and enhancing a set of core technologies, which includes, but is not limited to, Full Spectrum Chirp Processing, Multi-Pulse Technology, Dynamically Focused Arrays, Synthetic Aperture Sonar (SAS), Bathymetry, Telemetry, Modular Design, Compact & Low Power Electronics and Application Customization.

Most recently EdgeTech has developed a side scan sonar that will combine the company's Multi-Pulse and Dynamically Focused technologies into one system. **The new 4700-DFX Side Scan System uses proprietary signal coding** to place up to four pulses in the water at the same time. This translates into a four times increase in survey speeds while still maintaining 100% bottom coverage or a four times increase in hits on the target for improved imaging at standard survey speeds. Additionally the 4700-DFX will employ dynamically focused arrays in order to achieve high resolution imagery at longer

ranges. The resolution achievable by conventional side scan sonars is always a compromise between low frequency for long range performance, and array size, which limits the along track resolution. The along track resolution is, at best, equal to the physical array length, and degrades even further with range. Traditional, single element arrays are essentially focused at long range, providing sub-optimal behavior at shorter ranges. By using a physically concave array to focus the acoustic beam the resolution can be improved. However, such transducers have a reduced depth of field and as such are not practical for use in side scan sonar. By using a transducer comprised of multiple, individually accessible elements, electronic dynamic focusing techniques can overcome this limitation by changing the effective shape of the array during the receive cycle. This provides an along track beam width substantially less than the physical array length. The full array length can then be exploited at long ranges to provide extremely small beam angles of 0.1 degrees for superior long-range resolution. The result is a system that is capable of being towed at speeds of up to 14 knots while achieving along track resolution of less than 20 cm at up to 80 meters range and 34 cm up to 150 meters range.

intensity gas discharge and conventional quartz underwater lights, pan and tilt camera units, cameras and Blue MAX emergency flashers. MAX and Mini MAX Rovers are currently offered with fiber optic umbilical cables as standard.

#### **Falmouth Scientific, Inc.**

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Tel: 508-564-7640; Fax: 508-564-7643  
E-mail: flewis@falmouth.com

Since 1989, Falmouth Scientific, Inc. has been an international leader in the development and manufacturing of precision oceanographic instrumentation. FSI's full range of products is used around the world, in environments ranging from estuarine to full ocean depths. Core products include current meters, CTDs, profiling CTDs, wave gauges, AUVs and other oceanographic sensors. FSI also offers offshore acoustic instrumentation and leading edge special engineering capabilities to address a wide array of underwater applications.

#### **General Acoustics GmbH**

Am Kiel-Kanal 1  
24106 Kiel, Germany  
Tel: +49(0)431-580 8180  
Fax :+49(0)431-580 8189  
Email: JKoslowski@generalacoustics.com  
www.generalacoustics.com

General Acoustics GmbH is a producer of special echo-sounders, water level and wave sensors, as well as flow measuring systems. GA was founded



Tide and Wave measuring system LOG\_aLevel.



Hendrik Eden, GM

in 1996 by physicists and engineers and is now located in Kiel, Germany. GA is a developer of innovative DSLP ultrasonic sensor technology enabling analytical sub-bottom profiling, detection and imaging of geological formation as well as of substances and objects in sub-marine ground formations up to a depth of more than 80 m below sea-bed. **Technology Profile:** GA is producer of unique ultrasonic level gauge and wave measurement systems. GA developed a proprietary technology to measure, evaluate and visualize complex flows (up to 3D). This generates high quality results on the basis of few measuring data. An application of this technology is the GA software product LOG\_aFlow to generate high quality flow charts for harbors, coastal zones and inland waters. The new SUBPRO 1210 Sub Bottom Profiler solves the limitations of existing device by a good penetration and a high resolution starting at 1.5 m shallow water.

#### **General Robotics Limited**

6 Mill Square, Featherstone Road  
Wolverton Mill, Milton Keynes, UK, MK12 5RB  
Tel: +44 (0)1908-577835  
Fax: +44 (0)1908-220959  
Email: jason-tisdall@generalrobotics.co.uk  
www.generalrobotics.co.uk  
Director of Business Development: Dr Jason Tisdall

GRL is a leader at developing customized simulation solutions for the subsea environment. Late last year GRL won an order for a second ROVolution simulator from Sonsub

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is as clear as  
Black & White



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

337-210-0000  
[Cnav@CnavGPS.com](mailto:Cnav@CnavGPS.com)

## Fugro Global Environmental & Ocean Sciences (GEOS)

6100 Hillcroft (77081)

Houston, Texas 77274

Tel: 713-346-3600

Fax: 713-346-3605

Email: usa@geos.com

www.geos.com

President: Jan van Smirren

VP Sales & Marketing: Rob Smith

Managing Director: Jeff Coutts

Directors: Jan van Smirren, Garry Mardell, Mark

Calverley, Mark Wimshurst, Frode Berge

Number of Employees: 200 worldwide

Fugro Global Environmental and Ocean Sciences (GEOS) is a leader in providing oceanographic and meteorological (metocean) services to the offshore and coastal construction industry, institutions and governmental organizations. The broad spectrum of metocean services offered is designed to provide solutions through cost-effective, high quality and technically advanced

services and systems. With over 30 years experience in a diversity of metocean projects worldwide, Fugro GEOS has an active policy of technical and business development that is closely linked to both its clients' needs and a desire to maintain the lead in metocean expertise on a global basis from offices in Wallingford (UK), Glasgow (UK), Houston (USA), Abu Dhabi (UAE), Trondheim & Sandes (Norway), Kuala Lumpur (Malaysia) and Singapore.

Their clients are able to capitalize on the talents, experience and specialist consultancy skills of over 100 members of staff, most of whom are experienced oceanographers, meteorologists and marine environmental scientists. These are supported by fully qualified engineering, workshop, administration, development and information technology staff. In addition to the unique capabilities of their staff, they have the largest commercially available inventory of metocean measurement equipment and a policy of continual investment in new technology.

**Technology Profile:** Monitoring services including the design and development of systems to monitor metocean conditions in real-time, installation and testing of systems (meteorological and CCTV), training of client personnel, maintenance of proprietary systems (e.g. current speed, wind speed and direction) and remote and direct management of system data. Consultancy services including the provision of preliminary desk studies, design studies for operational and extreme conditions, management of metocean data inventories, VIV analysis and numerical



modeling capabilities.

Measurement services measures the metocean parameters such as waves, current speed; including multi-disciplinary project management, daily monthly, and yearly data acquisition programmes, data analysis and presentation.

Forecasting services include the provision of site-specific weather forecasts (by email, fax, inmarsat and the world-wide web), 24-hour telephone consultation and provision of onboard forecasters for sensitive operations offshore.

Seawatch - design and development of metocean buoy network systems, oceanographic and water quality sensors, and tsunami module for tsunami wave detection;

Structural Monitoring - specializes in engineering expertise in measurement and monitoring of platform, vessel and riser responses, including installation and servicing of integrated metocean and structural monitoring systems.



Ltd. The simulator will be used to train pilot-technicians specifically for Sonsub's own Innovator ROVs. ROVolution is a real-time simulator which hydrodynamically models any ROV, using cost-effective PC hardware running Windows XP for ROV pilot training, manipulator operator training, subsea task planning and access simulation.

**Geonav Marine Systems**

11211 Katy Freeway, Suite 430,  
Houston, TX 77079  
Tel: 713-722-9697  
E-mail: [morton@geonav.com](mailto:morton@geonav.com)  
CEO: Russell Morton  
Vice President: Lisa Morton  
Sales Manager: Rami Tador  
Number of Employees: 5  
Annual Sales: \$400,000

Founded in 1991 in Aberdeen, the company moved to Houston in 1996. Geonav has 3 three areas of operation. Navigation system software and hardware, projects have included minesweeping control, geophysical and seismic navigation systems. The second are is passenger information systems for cruise vessels. The third area is interface hardware and systems of commercial shipping. This third area includes VDRs and a satellite based doppler sonar replacement. The new AMI VR 2272B, is a landmark in VDR/sVDR: small, easy to configure and to install.

**Guarino & Cox, Inc**

19399 Helenburg Road, Suite 203  
Covington, LA 70433  
Tel: 985-871-9997; Fax: 985-871-9927

Guarino & Cox, Inc., provides engineering, design and naval architectural services to all sectors of the marine industry including commer-

cial, government and military. The company has earned a reputation for its innovative design and engineering resulting in vessels that are builder friendly yet efficient in operation. They have been involved in the design of numerous research and survey vessels of all sizes and types ranging from 40 ft. inshore survey launches to oceanographic research ships over 300 ft. long. Participation in the design of these vessels began in the 1960's when Sal Guarino designed the R/V Ellen B. Scripps for the Scripps Institution of Oceanography and the R/V Oceaneer for the famed Willard Bascom. In 1995 another vessel designed by Guarino & Cox, the R/V Roger Revelle (AGOR 24), was delivered to Scripps. The period in between and since then has seen many research and survey vessels built

or converted using the designs of Guarino & Cox or its principals. The most recent is the geophysical survey vessel Ms. Cordelia, a 140 ft. aluminum catamaran. The vessel, intended for shallow water surveys, was converted from a high speed passenger ferry.

**Hydroacoustics Inc.**

999 Lehigh Station Road  
Rochester, NY 14467  
Tel: 585-359-1000; Fax: 585-359-1132  
Email: [ggazarek@hydroacousticsinc.com](mailto:ggazarek@hydroacousticsinc.com)  
[www.hydroacousticsinc.com](http://www.hydroacousticsinc.com)

Hydroacoustics presents its Proteus line of underwater ROVS. There is the Proteus 500 which is rated to 500 ft. and weighs 60 lbs., and the Proteus 1000 which is rated to 1,000 ft. and weighs 60 lbs. Both have a 3mm tether diameter that allows for maximum control. Proteus ROVs are best for small boats.



Ms. Cordelia

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1907 **MARKEY** 2007

**MARKEY MACHINERY CO. INC.**  
Suite C-140, 4834 East Marginal Way So.  
Seattle, WA, USA 98134  
PH: +1 206-622-4697, FX: +1 206-623-9839  
Email: [info@markeymachinery.com](mailto:info@markeymachinery.com)  
Web: [www.markeymachinery.com](http://www.markeymachinery.com)

## Hydroid

Unit 3, Basepoint Enterprise Centre  
Anderson's Road  
Southampton SO14 5FE  
United Kingdom  
Tel: + 44-2380-682-388  
Fax: + 44-2380-682-389  
Email: LBandstra@hydroid.com  
www.hydroid.com  
President/CEO: Christopher Von Alt  
Vice President of Marketing: Kevin McCarthy  
Director of Business Development: Graham Lester  
Facilities: 12,700 sq. ft  
Testing Capabilities: Test Tank/ Boat  
Number of Employees: 40

Hydroid, LLC was founded in November 2001, following the execution of a technology transfer license with the Woods Hole Oceanographic Institution (WHOI). The intent of the license was to transfer the REMUS Autonomous Underwater Vehicle (AUV) technology out of the

academic development environment and into the commercial marketplace, making the technology available to a wide array of users.

The past several years, Hydroid has taken the REMUS product and technology to a new level, providing world-class sales, service and support to an ever-increasing customer base. Hydroid has realized rapid growth and in support of this growth has opened a European office to service an ever increasing international market. This team is enhanced by the organization's growing representative network, which provides local sales and support at a global level. There are more than 160 REMUS vehicles in operation around the globe, serv-

ing customers within the military, scientific, and commercial market segments. Hydroid maintains a full service production and test facility, staffed by a highly skilled and experienced group of individuals committed to our customers' ultimate success. Hydroid also offers customers a comprehensive, easy to follow training seminar, which ensures that users gain a full understanding of their REMUS vehicle's capabilities, data collection and analysis, and service requirements. Hydroid's customer service department is well-versed and readily available to assist customers in all aspects of operation throughout the life of the vehicle.

**Technology Profile:** From the coastline to the deepest corners of the ocean, Hydroid now offers a family of AUVs to meet a full range of autonomous needs. REMUS 100 is a powerful, light-weight, compact AUV designed for operation in coastal environments up to 100 meters in depth. REMUS 100 can be configured to include a wide variety of standard and/or customer specified sensors and system options to meet your unique autonomous mission requirements. The vehicle has been used extensively for hydrographic and environmental monitoring applications. REMUS 600 is a versatile, modular AUV used for the collection of oceanographic data in water depths up to 600 meters, and can also be configured for 1500 or 3000 meter operations. The vehicle was designed to provide extended mission endurance, increased payload capacity, and greater operating depth. REMUS 6000 is capable of highly intricate deep-water operations in water depths up to 6000 meters, allowing for a wide spectrum of autonomous operations.

REMUS 600



**ICAN**

Suite 201 1118 Topsail Road, Mount Pearl  
 Newfoundland Canada A1N 5E7  
 Tel +7097540400; Fax: +7097540419  
 E-mail: apower@icanmarine.com  
 www.icanmarine.com  
 CEO: Neil Chaulk

ICAN was established in November 1996 by Neil Chaulk. Neil, a professional engineer, had been working with the Canadian Coast Guard when he conceived of a company that could provide Differential GPS (DGPS) consulting to other countries.

Today, ICAN employs 35 in three Canadian provinces and two U.S. states and has a minority shareholder in The Netherlands.

**IXSEA**

500 W. Cummings Park  
 Suite 100 Woburn, MA 01801  
 Tel: +49 69 247 06953; Fax: +49 69 247 06953  
 Email: arne.hoof@ixsea.com  
 URL : www.ixsea.com/en

IXSEA offers solutions in the scientific, offshore and defense markets for: navigation and positioning, imagery, moorings, and survey. IXSEA has 3 industrial sites in France as well as a global sales network in Europe, America and Asia. It currently employs 180 people, with more than 50 PHD graduates and engineers concentrating solely on research and development. IXSEA offers a broad and unique range of complementary systems and solutions built on key technologies like, FOG (Fiber Optic Gyroscope) technology, Underwater acoustics, and Seismic, sonar and magnetometer imagery solutions.

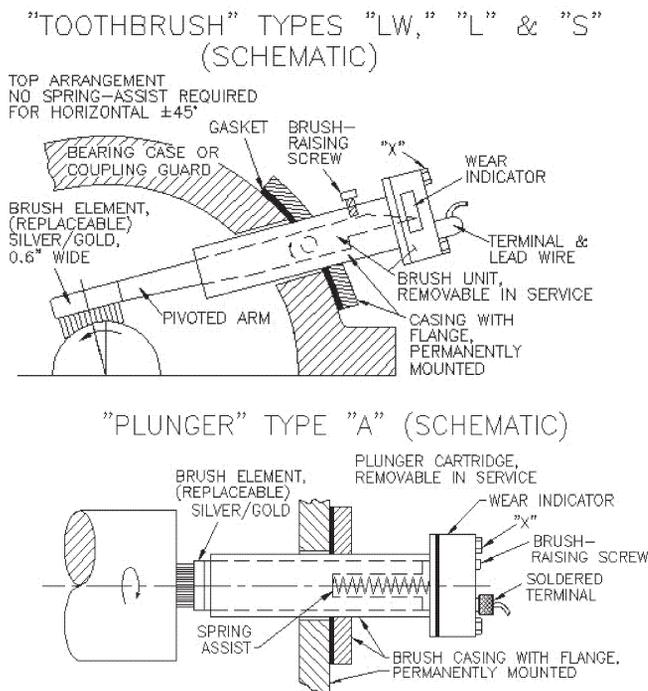


**Technology Profile:** IXSEA works in five main market segments: Navigation and positioning, Imagery, Moorings, Survey, and Space. Its Fiber Optic Gyroscope (FOG) technology is at the heart of its Gyrocompasses and Inertial Navigation Systems. IXSEA is at the

center of the data fusion revolution: by merging Inertial Navigation Systems (INS) and Global Acoustic Positioning Systems (GAPS, IXSEA's USBL), IXSEA strives to provide accurate and robust subsea positioning, where all data is fused into optimal solutions.

## Are Stray Electrical Currents Destroying Your Machinery?

- Sohre SHAFT GROUNDING (EARTHING) BRUSHES are used on propeller shafts, turbines, generators, electric motors, gears, pumps, etc. Failure to properly ground (earth) rotating shafts can result in expensive damage to seals, bearings, and other critical components.
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**SOHRE TURBOMACHINERY® INC.**  
 MONSON, MASSACHUSETTS, USA 01057  
 TEL: (413) 267-0590 FAX: (413) 267-0592  
 TSOHRE@SOHRETURBO.COM WWW.SOHRETURBO.COM

**Kongsberg Maritime AS**

Subsea Division  
 P.O. Box 111, N-3191  
 Horten, Norway  
 Tel: +47 33 03 4100  
 Fax: +47 33 04 4753  
 Email: subsea@kongsberg.com  
 www.kongsberg.com

Kongsberg Maritime AS uses underwater positioning and navigation, including the industry standard of HPR and HiPAP systems and inertial navigation through Hydroacoustic Aided Inertial Navigation, the HAIN systems. Transponders for any water dept and any of the LBL, SBL, SSBL or combined principles. Acoustic telemetry vertical and horizontal, up to 15 km. Acoustic BOP emergency control. Hydrographic precision echo sounders of single beam and multibeam types, for surface ship, ROV, towed and AUV applications are a part of Kongsberg's main technologies. Hydrographic data processing software and integrated instrumentation systems also play vital roles for Kongsberg. Active sonars for antisubmarine warfare, obstacle avoidance and mine detection and classification are the goals of Kongsberg Maritime's products. Many of the company's products are specially designed for Littoral Warfare

and brown water operations.

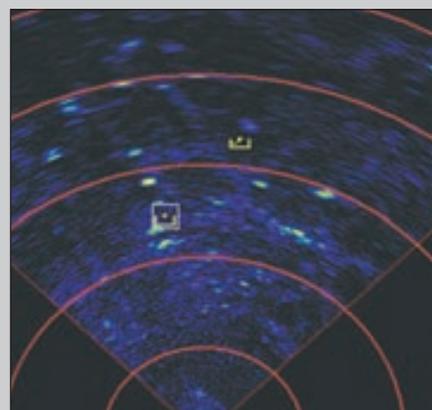
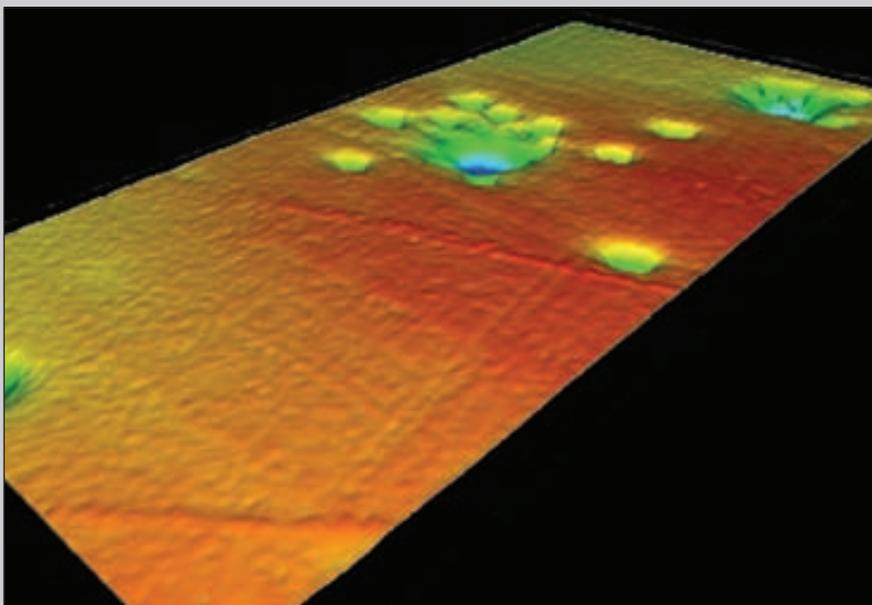
**Technology Profile:** Kongsberg Maritime has developed good solutions for producing integrated sensor systems, which will function smoothly without mutual interference problems, and which distribute data and images efficiently over a ship data network. Complete instrumentation and data processing systems are offered which use sensors and offer the highest flexibility, productivity and data security. Kongsberg can provide instrumentation solutions for hydrographic mapping which are adaptable to most user requirements, based upon its broad range of multi-beam and single beam echo sounders. Real time data processing and visualization software gives the surveyors immediate information about the progress of work and the quality of the data that is being collected. Autonomous underwater vehicles are being used increasingly as a supplement to surface ships, for a number of different data collection tasks. For seabed mapping or inspection purposes they can bring the sensors closer to the seabed and thus obtain a more detailed result. Mine detection and classification can be carried out



HiPAP

without any risk for human life. Kongsberg is one of the pioneers in this field, and can supply well proven and reliable turnkey systems as well as instruments, accurate underwater positioning, data collection and control modules.

Accurate positioning under water is a key issue for all applications of ROV's, so Kongsberg Maritime offers a number of high quality solutions for positioning of ROV's, and also acoustic and optical instrumentation to be used by ROV's.



**IVS 3D**

325 Corporate Dr. Suite 175, Portsmouth, NH 03801  
 Tel: 603-431-1773; Fax: 603-766-0485  
 www.ivs3d.com • Email: info@ivs3d.com

Interactive Visualization Systems' (IVS3D) Fledermaus software suite provides users with a set of interactive 3D visualization tools for data preparation, analysis and presentation. Fledermaus allows users near real-time, interactive 3D display of very large complex scenes at their full resolution. Users gain insight and extract more information from their combined data (data sets such as multi-beam, LIDAR, magnetic and gravity, in fact any surface



data that has an x, y, z, variables format). Fledermaus is used across many industries by a variety of disciplines such as geoscientist, oceanographers and hydrographers. It can be used as a tool to assess environmental and geological hazards, plan drilling locations, rig placements, or pipeline and cable routes.

IXSEA's seismic, sonar and magnetometer imagery solutions integrate hardware with interpretation tools. As an example, SHADOWS is the first commercially available Synthetic Aperture Sonar (SAS). SHADOWS purports to double the resolution while reducing survey costs by one-third. SHADOWS is compatible with GAPS and POSIDONIA, IXSEA's USBL positioning systems.

**Jack Vilas & Associates, Inc.**

701 Federal Avenue, Morgan City, La. 70380  
 Tel: 985-384-8012; Fax: 985-384-8011  
 http://www.jackvilas.com

Jack Vilas & Associates, Inc. was created in 1986 to meet the needs of the commercial diving industry. The company has fulfilled this by having a competent, working knowledge of diving equipment. In a few short years of business, JVA has replaced many "industry standard" with items that we have had a direct hand in developing, testing and marketing. With a complete line of supplies and services, Jack Vilas & Associates is recognized as one of the leaders in the commercial industry, however JVA also carries MSA safety and Medical Appliances including their line of Mini-Ox analyzers, broad assortment of knives and protective gloves, and many other products beneficial to other fields outside of commercial diving.

**Lockheed Martin MS2**

199 Borton Landing Road, MS 102-103, Moorestown, NJ, 08057  
 Tel: 856-722-4063; Fax: 856-273-5744  
 E-mail: Susan.L.martin@lmco.com

Lockheed Martin MS2 provides surface, air and under-sea applications on more than 460 programs for U.S. military and international customers in nearly 50 nations. The same expertise MS2 provides to military customers is being applied to increase the capabilities of U.S. and international civilian agencies. Lockheed Martin MS2 specializes in providing solutions to the most complex and challenging technological issues. Areas of expertise include: Advanced Platforms; Sensors & Surveillance;

Missile Defense; Network Centric Warfare; Integrated Warfare; Systems; Lifetime Support, Logistics and Training; Homeland Security, and Systems Integration

**Mad Rock Marine Solutions Inc.**

77 Alexander Street, St. John's, NL, Canada A1E 2T8  
 Tel: 1 709 772 7547; Fax: 1 709 772 2462  
 Email: Info@madrock.ca • Website: www.madrock.ca

Mad Rock Marine Solutions is a technology company that provides marine operators with evacuation system solutions. Using a wide range of engineering, regulatory,

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- ❖ Protocol development



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 www.ohmsett.com

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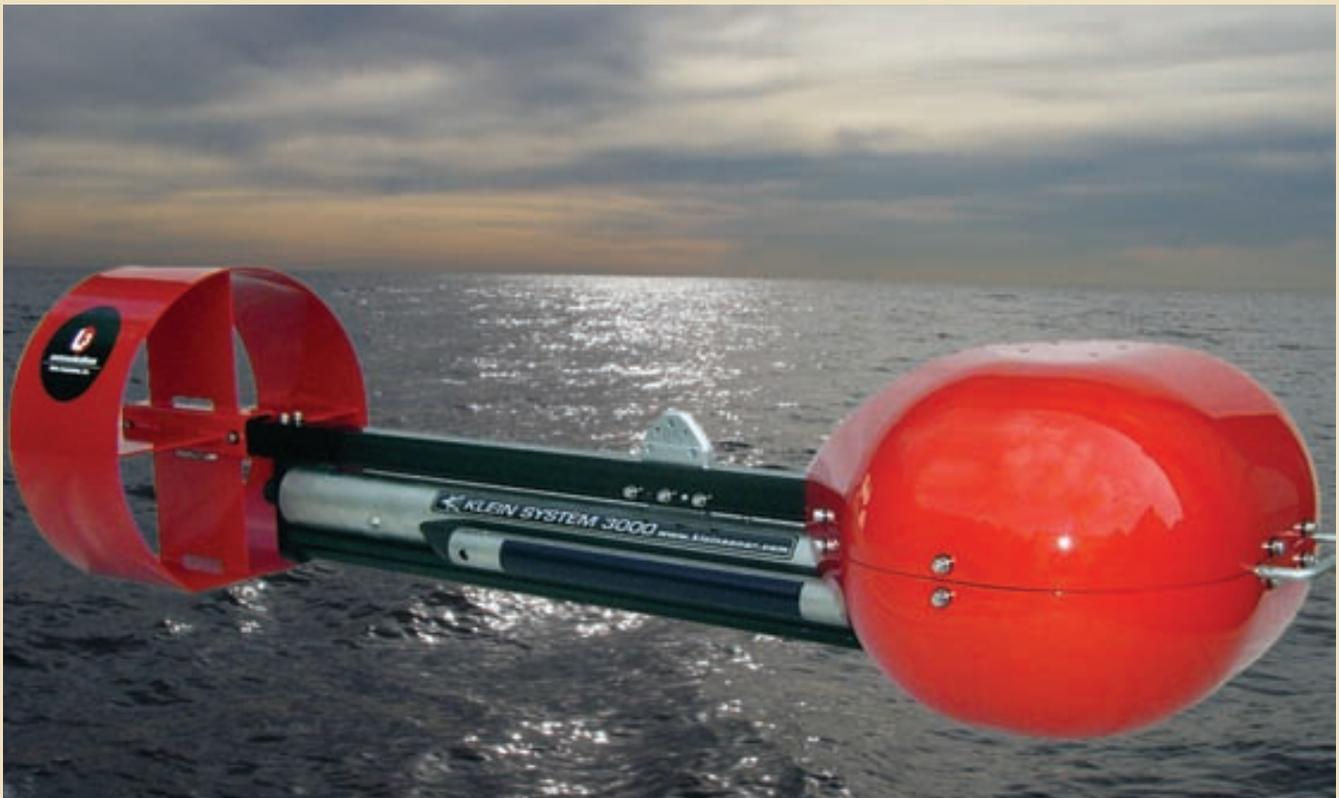
## L-3 Communications Klein Associates, Inc.

11 Klein Drive  
Salem, NH 03079  
Tel: 603-893-6131  
Fax: 603-893-8807  
Email: Klein.Mail@L-3com.com  
www.L-3Klein.com  
CEO: John Cotumaccio  
Vice President: Michael Mitchell  
Marketing Director: Deborah Durgin  
Engineering Director: Marc Parent  
Facilities: Robert Harris  
Testing Capabilities: We have a 30,000 sq. ft. facility which includes two large acoustic test tanks and a pressure vessel for simulating deep ocean pressure.  
Number of Employees: 65  
Annual Sales (US\$): 25 million

Founded in 1968 and located in Salem, New Hampshire, L-3 Klein Associates is a supplier of side scan sonar equipment, integrated bridge and navigation equipment and water-side security and surveillance systems. L-3 Klein has developed a worldwide reputation of excellence in the industry by providing high quality products and customer service. **Technology Profile:** L-3 Klein's side scan sonar systems have been used to

help find the Titanic, the wreckage of the Space Shuttle Challenger and downed aircraft including TWA flight 800. These sonar systems have been deployed by governments, navies, surveyors, oil companies and universities worldwide. L-3 Klein is the first commercial company to design and manufacture multi-beam side scan sonar using a similar design technology to military sonar systems at a lower cost. The high resolution L-3 Klein sonar systems provide high speed, full bottom coverage with imagery unmatched in the industry. As the exclusive supplier of Raytheon Marine GmbH High Seas Products L-3 Klein utilized an extensive world wide network of sales and factory trained service representatives to distribute fully integrated turnkey bridge systems, radar, gyrocompasses, steering controls, autopilots, ship security alert systems, automatic identification systems, echo sounders

and communications equipment. L-3 Klein has developed the HarborGuard Integrated Waterside Security and Surveillance System which combines radar and video surveillance technology to provide all weather, day/night coverage of over water areas. The HarborGuard system is currently in use by the U.S. Navy for protection of base facilities worldwide. In addition, other commercial and local government agencies are using the system in offshore platform, port/harbor and bridge security and surveillance applications. The HarborGuard system is designed to detect, monitor and track small targets on the water. To provide a broader range of products and services to our customers, L-3 Klein has developed strategic relationships with Thrane & Thrane, Elac Nautic, and L-3 Communications Aviation Recorders, RM Young & Co., Leica, and several others.



operations, and human factors expertise, Mad Rock is committed to providing the most economically effective solutions to clients evacuation system needs. **Technology Profile:** The new patented RocLoc technology has SOLAS approval and is adaptable as an OEM or as a retrofit to existing lifeboats or Fast Rescue Craft.

### **Magic Instinct Software (MIS)**

IRCCyN #114, Ecole Centrale, 1,  
rue de la Noe, BP92101  
Nantes cedex 03, Région  
Pays de la Loire 44321, France  
Tel: +33 025-186-2649  
Fax: +33 025-186-2649  
Email: sales@justmagic.com  
http://www.justmagic.com

Magic Instinct Software (MIS) is a company involved in the development of specialized software for marine applications on Linux and MacOSX platforms. The creators of the company Peio Elissalde and Loic Segalou have respectively started in 1986 and 1991 in the development of onboard computers, navigation software with marine electronic charts and 3D seafloor mapping. The creation of MIS occurred in 2000 in Fredricton NB (Canada) where the company developed the first 3D seafloor mapping software applied to fishing applications. **Technology profile:** Geogarge is a software service used for interactive mapping/publishing and targeted to organisms which have data but don't know how to publish them. Its mission is to integrate digital mapping data (maps, orthophotos, in any formats) to provide web hosting and to diffuse them in ASP mode, storing huge geographical documents and displaying the images with raster tiles technology.

### **Marine Environmental Mgmt., LLC.**

P.O. Box 686, Warrington, Pa. 18976  
Tel: 215-491-0543; Fax: 215-491-0566  
Email: Stu@MarineEnvironmentalMgmt.Com  
www.MarineEnvironmentalMgmt.Com

Owner: Tina E. Albert  
Director of Engineering: Stuart Millen

Marine Environmental specializes in the utilization of "bio - remediation" technology for the degradation of hydrocarbon and organic waste. This is a non-chemical process, and will decrease costs associated with the pumping ashore of bilge waste, and grey / black water. We are an authorized distributor for AQUATEK (Oil Water Separator), and Quansor (Oil Content Monitors), along with the manufacturer of the "Purificator" a stand-a-lone filtration unit for hydraulic systems.

### **Marine Magnetics**

134 SPY Court  
Markham, ON L3R 5H6  
Canada  
Tel: +1 905 479 9727  
Fax: +1 905 478 8484  
Email: info@marinemagnetics.com  
URL: www.marinemagnetics.com

Marine Magnetics manufactures magnetic exploration equipment for marine environments. It supplies mainly for the measuring, medical and controlling devices manufacturing industries. One of its main products is the SeaSPY Overhauser towed magnetometer has gradiometer capability and all SeaSPYs are interchangeable. Standard SeaSPY fish are pressurized for 300m. For those interested in deep surveys Marine Magnetics provides SeaSPY with the deep tow option, pressurized to 2000m.

### **Marine Underwater Electronics**

20/22 Piliis St.  
Piraeus, Greece 185 32  
Tel: +302104100656/7  
Fax: +302104100658  
Email: marhge@otenet.gr  
CEO: Marinos Pittas  
Marketing Director: Nikolaos Mavridoglou

Mariner Underwater Electronics was established in 1980 and specializes in high technology electronics for underwater use. The company's main activity is the production of video

**Marinos Pittas**



inspection systems, cameras, communication equipment, lights, headphones and microphones-all for underwater use. It also provides full after sale service for any item it sells to its clients including regular service, maintenance and if necessary repair of such equipment. The company also imports and services items which it does not produce such as ROV's , Sonars, Analysers, etc. Last but certainly not least the first prototype ROV to be produced in Greece is nearing completion.

### **MAR-VEL International, Inc.**

7115 Airport Highway, Pennsauken, NJ 08109  
Phone: 800-325-5711; Fax: 856-488-4343  
Email: mar-vel@mar-vel.com

MAR-VEL International was founded in 1946 as a diving division of M&E Marine Supply named "MAR-VEL Diving Specialties." The company also began to produce a catalog with details and photos the products offered. The catalog began as a few pages in the late 1940's and grew to over 100 pages in the 1960's. This tradition of marketing through the catalog became a vital part of the distribution business and continues to this day. MAR-VEL was one of the first dealers for US Divers, receiving and selling some of the first scuba

**MacArtney A/S**

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 Tel.: +45 7613 2000  
 Fax: +45 7511 7220,  
 Email: mac-dk@macartney.com  
 www.macartney.com  
 CEO: Niels Erik Hedeager  
 Marketing Director: Michael Bjerrum  
 Engineering Director: Steen Worsøe  
 Facilities: Fibre Optic, Electronics & Mechanical workshop, Molding, Slip-ring repair & Calibration facilities.  
 Square Footage: app. 8,500  
 Testing Capabilities: Test tank, Pressure chambers, Pull bench, Winch test facilities. All testing procedures are documented under our DnV certifies ISO 9001 QA system.  
 Number of Employees: 170  
 Annual Sales (US\$): \$65,000,000

The MacArtney Group is a world-wide organization of companies specializing in the sale and service of underwater technology systems and products. The group headquarters in Esbjerg, Denmark, which was established in 1978, supports subsidiary companies in Norway, Benelux, the UK, France, Germany and the U.S. Each independent company has been incorporated to meet the indigenous requirements of the local area while being fully supported by the parent company, MacArtney A/S which coordinates activities such as product development, system integration, training, quality assurance, financial support and marketing.

Underwater technology covers a highly diverse market including off-

shore oil and gas geophysical exploration, development and production, diverse military activities including MCM, civil engineering, underwater security; ocean sciences, environmental studies and research and leisure activities.

Company policy is to deliver tried and tested technical systems solutions to the problems encountered in this harsh working environment. The organization is controlled by an established certified DnV ISO 9001:2000 quality assurance program, which was established in 1993. The company has shown a sustainable growth and financial stability over the past couple of decades and is currently rated AAA by the international financial company, Dunn and Bradstreet, and the company employs 170 people worldwide. **Technology Profile:** The systems and product base of MacArtney is extensive and falls into a number of main categories: The "infrastructure" systems and products, comprising amongst others of underwater cable systems and the Subconn connector range, an extensive range of underwater fibre optic connectors as well as moulding and encapsulation services.

The "Launch and Recovery" systems and products comprising of a



Niels Erik Hedeager, CEO

range of standard and custom designed Electrical and Electro-hydraulic winch systems, A-frames, sea cranes and rotary solutions ranging from simple electrical slip rings via multiple pass fiber optic rotary joints to huge FPSO systems. "Telemetry" systems comprise with others in the industry standard approved NEXUS family of fiber optic multiplexers and other electronics & software based products and services

"Remote Technology" systems, comprising of the TRIAXUS family of high speed towed adulators, the FOCUS family of Remotely Operated Towed Vehicles and the Moving Vessel.





regulators to land in the US. In addition, MAR-VEL also produced its own line of products including wet-suits, regulators, camera housings and a tank mounting system known as the MAR-VEL Pak. **Technology Profile:** MAR-VEL International is currently one of the premier suppliers for commercial diving equipment. The company currently manufactures diver's umbilicals and air system components and continues to distribute ROV's, sonar equipment and video systems. MAR-VEL is proud to be the exclusive dealer for the Monkey Heater, a hot water heater manufactured specifically to provide divers with the thermal protection provided by hot water.

### McDermott Corporation

1639 Stephen Street, Ridgewood, NY 11385  
Tel: 718-456-3606; Fax: 718-381-0229  
www.mcdermottlight.com  
Email: sales@mcdermottlight.com  
President: Vernon McDermott  
National Sales Director: John Boc

Founded in 1943 by engineer Julian A. McDermott, today the company is run by Julian's son Vernon McDermott, the Chief Engineer and President. In recent years sales have



www.seadiscovery.com

expanded to Europe, Australia, and the Middle East, with McDermott lights being used on barges, tugboats, and dredges throughout the world. **Technology Profile:** The TB3 is the company's newest product and serves as an all around L.E.D. navigation light for use on tugboats and workboats over fifty meters long. The light comes in green, yellow, red, and white and is also made in a port, starboard, or stern version.

### MSI (Materials Systems Inc.)

543 Great Roadm Littleton, MA 01460  
Tel: 978-486-0404; Fax: 978-486-0706  
Email: ideas@matsysinc.com  
www.matsysinc.com  
President: Dr. Leslie Bowen  
Vice President: Gerald Schmidt  
Sales and Marketing Manager: Rick Foster  
Engineering Vice President: Brian Pazol  
MSI's 20,000 sq. ft. facility houses R&D, Manufacturing, and Sales and Marketing. Manufacturing includes equipment for making and injection molding piezoelectric ceramic, piezocomposite fabrication, transducer assembly and encapsulation, and in-water tank testing.  
Test Capabilities: In-water acoustic testing, pressure, temperature, impedance  
Number of Employees: 35

MSI (Materials Systems Inc.) designs and manufactures custom sonar transducers and arrays for a wide range of applications, including side-scan, obstacle avoidance, sub-bottom profiling, swath bathymetry, mine hunting, swimmer detection, and acoustic communications. MSI's piezocomposite technology offers extremely broad bandwidth, high receive sensitivity, high source levels, and conformability for curved arrays. **Technology Profile:** MSI's piezocomposite arrays deliver broad bandwidth, allowing multiple beams to operate in distinct frequency bands. This allows greater resolution and enhances broad spectrum (chirp) operating techniques. MSI's piezocomposite arrays can also be curved and shaded to achieve a specific beam pattern or to achieve a hydrodynamic profile when mounting the arrays to the curved hull of a vessel or

autonomous underwater vehicle (AUV). Resonant transmit designs are in production at frequencies ranging 20 kHz to as high as 1MHz. Receive arrays cover this same range and more, operating as low as 3 Hz in long-range surveillance arrays. MSI's piezocomposite arrays have been shown to meet full explosive shock requirements for Navy operations in both the USA and UK, and can be configured for full ocean depth performance.

### Noise Control Engineering, Inc.

799 Middlesex Turnpike, Billerica, MA 10821  
Tel: 978-670-5339; Fax: 976-670-7047  
E-mail: mikeb@noise-control.com  
President: Raymond W. Fisher  
Vice President: Michael Bahtirian

Noise Control Engineering (NCE) was founded in 1991 by Raymond Fischer. NCE is an engineering consulting firm that specializes in shipboard noise and vibration measurement and control. Significant accomplishments include acoustic design of the NOAA FRV-40, and R/V SHARP (University of Delaware) first two acoustically quieted Research Vessels that meets international standard (ICES). NCE in partnership with Proteus engineering has also developed the first shipboard noise prediction software with GUI.

### Nautronix

Nautronix House, Howe Moss Avenue  
Kirkhill, Dyce, Aberdeen, AB21 0GP,  
Scotland  
Tel: +44 (0)1224 775700;  
Fax: +44 (0)1224 775800  
Email info@nautronix.co.uk

Nautronix (Holdings) plc is the parent company for the Nautronix Group that consists of four operating divisions:

- Nautronix plc, Aberdeen: NASNet and Commercial Acoustics
- Nautronix Ltd, Fremantle: ADS<sup>2</sup> Technology Development, Through Water Communications, Portable and Relocatable Underwater

**Makai Ocean Engineering, Inc.**

PO Box 1206  
 Kailua, HI 96734  
 Tel: 808-259-8871  
 Fax: 808-259-8238  
 Email: Makai@makai.com  
 http://www.makai.com  
 CEO/President: Dr. Jose Andres  
 Vice President: Dr. Joseph Van Ryzin  
 Marketing Director: Reb Bellinger  
 Engineering Director: Dale Jensen  
 Facilities: Ocean-side office space and pier  
 Square Footage: 25,000  
 Testing Capabilities: dockside laboratory  
 Number of Employees: 18  
 Annual Sales (US\$): \$3.4 M

Founded in 1973, Makai Ocean Engineering, Inc. is a leading expert in the design and deployment of large deep ocean pipelines and is the maker of the Makai Submarine Planning and Installation Software Suite. Much of Makai's ocean design work is focused on methods to produce clean, renewable and sustainable energy, such as sea water air conditioning (SWAC) and ocean thermal energy conversion (OTEC). Makai's software team continues to improve and expand upon their flagship product MakaiPlan, which has become the telecommunications industry standard in planning submarine cables. New advances have been made in accurately modeling the shapes of towed arrays from submarines and the deployment of autonomous seafloor surveillance systems. A new division has been recently launched to further the company's successful research and development of 3D/4D visualization.

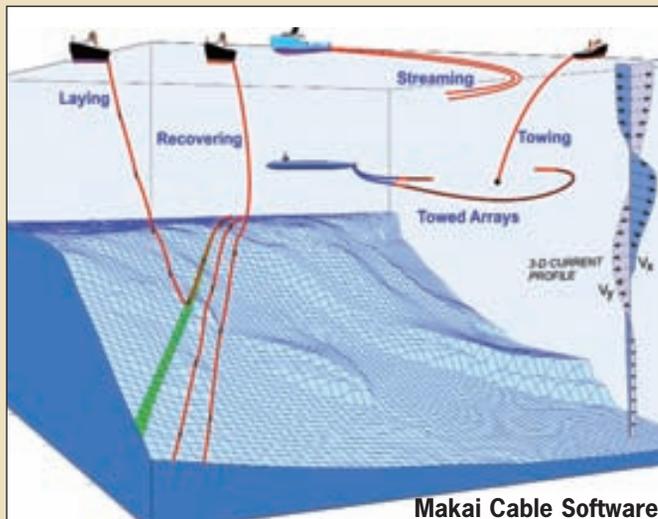
**Technology Profile:** Makai Ocean Engineering, Inc. has technology in two fields: large, deep-ocean pipeline design and submarine cable planning and installation. Makai designed the world's deepest large diameter seawater intake pipeline and the deep water intake for the first "deep water cooling" project of its kind in the United States. As fossil fuel costs continue to rise, Makai has been receiving numerous contracts from around the world to design pipelines for seawater air conditioning which can result in a 90% reduction in energy consumption, as compared to conventional AC systems. Makai's pipeline team has also received an ONR contract to define the economic feasibility of building floating OTEC plants to produce hydrogen (or alternate) fuel



in the near future (Lockheed Martin is a subcontractor). Makai's software division continues to improve upon and expand its flagship submarine cable planning software, MakaiPlan. In addition, Makai has extended the 3D finite element model used in its submarine cable installation software



**Cable Control**



**Makai Cable Software**

package, MakaiLay, to include the real-time at-sea modeling and control of towed arrays. This new technology has applications in the military (submarines and surface vessels tow arrays for surveillance and tracking operations) and in the ocean survey industry (surveyors need to monitor and control the location of their underwater tow fish). Finally, Makai is launching a new 3D/4D visualization R&D team to expand upon new technology which would allow for four-dimensional data (e.g., medical imaging, atmospheric modeling, groundwater contamination, etc.) to be modeled and visualized on single PCs

Test and Evaluation Ranges, and Systems Integration

- Nautronix Inc, San Diego and Houston: Vessel Management and Positioning Systems
- Nautronix MariPro Inc., Santa Barbara CA: Underwater Test and Evaluation Ranges, Ocean sciences and Through Water Communications.

Nautronix specializes in this field and it has used its experience in conventional narrowband signaling and broadband chirps, as a base from which to concentrate on increasing signal bandwidth to develop Acoustic Digital Spread Spectrum, (ADS<sup>2</sup>) signaling. This is derived from direct sequence spread spectrum (DSSS) coding techniques successfully used above water.

**ORE Offshore**

4 Little Brook Road  
West Wareham, MA 02576  
Tel: 1-508-291-0960  
Fax: 1-508-291-0975  
www.ore.com  
Email: sales@ore.com  
VP: Greg MacEachern



ORE Offshore was founded in 1961 with the original focus of the company being subsurface flotation and acoustically released anchors for oceanographic moorings. Today ORE is a leading manufacturer in high accuracy acoustic positioning, communication and control systems. ORE has two main product lines; Underwater Navigation & Positioning and Acoustic Communication & Control. The Navigation & Positioning systems are used to track underwater vehicles including ROVs, AUVs, and towed instrumentation packages. The Communication & Control products are used to locate, communicate and

activate or control devices underwater. These include acoustic releases, acoustic transponders, acoustic long baseline positioning systems, and acoustic telemetry products. ORE sells and supports their products to offshore, military and institutional customers on a global scale. The company is based in West Wareham, Massachusetts and shares a facility with its sister division, EdgeTech Marine.

Technology Profile: ORE Offshore designs and manufactures acoustic products for many underwater applications. The company's core technology is acoustic tracking and underwater communications.

**PCCI, Inc.**

300 North Lee Street, Suite 201  
Alexandria, VA 22314-2640  
Tel: 1-703-684-2060  
Fax: 1-703-684-5343  
Email: thudon@pccii.com  
www.pccii.com  
CEO: Alan Becker  
President: Robert Urban  
Vice President: Frank Marcinkowski  
Marketing Director: Thomas Hudon  
Engineering Director: Tony Kupersmith  
Number of Employees: 46  
Annual Sales (US\$): 19,300,000

PCCI, Inc. is a privately owned marine and environmental engineering firm established in 1977. The company has specialized experience in: marine emergency operations involving oil and hazardous substance issues, salvage and safety engineering, Incident Command System (ICS) management, emergency response planning and training, ocean engineering, and naval architecture. PCCI specialty services include:

**Perry Slingsby Systems**

821 Jupiter Park Drive, Jupiter, FL 33458  
Tel: 561-743-7000;  
Fax: 561-743-1313  
E-mail: Laura.Rhodes@us.perrymail.com  
CEO: Martin Anderson  
Managing Director: Martin Anderson  
COO: Bruce Lokay

Perry Slingsby Systems is a leader in the design and manufacturing of

remote intervention technologies and equipment systems. Production is carried out at two facilities. One in Kirkbymoorside, near York, England, in a 48,000 sq. ft. plant and the other in Jupiter, near Palm Beach, Fla., in a 45,000 sq. ft. plant. The company recently opened a state of art training facility located in the heart of Houston, Texas. PSS remote intervention technologies and equipment systems are grouped into six business lines: Vehicle Systems, Tooling & Robotic Systems, Support Services, Defense, Process Controls Products and Geotechnical & Trenching Products. Sub-Atlantic Limited is the newest addition to the Triton Group.

**Phoenix International, Inc.**

9301 Largo Drive West, Largo, Md. 20774  
Tel: 301-341-7800; Fax: 301-499-0027  
Email: tjanaitis@phnx-international.com  
URL- www.phnx-international.com  
President: Mike Kutzleb  
Executive Vice President: John Smith  
Marketing Director: Tim Janaitis  
VP Engineering: Eric Lindberg  
Facilities: Six facilities: Maryland, Louisiana, Texas, Virginia, California, and Hawaii  
Square Footage: 330,510  
Testing Capabilities- Pressure Chamber: 10,000 psi; Test Tank: 18,000 gallons, 12 ft. deep; Fiber Optic Testing: Electronics to component Level  
Number of Employees: 264  
Annual Sales (US\$): \$60,000,000

Phoenix International, Inc. is 10-year old marine service company specializing in underwater operations and engineering worldwide. The orig-



**John Smith**



## Ohmsett

Naval Weapons Station Earle, Waterfront  
Route 36, Building R-26  
Leonardo, NJ 07737  
Tel: 732-866-7183; Fax: 732-866-7189  
www.ohmsett.com  
Email: bschmidt@ohmsettnj.com  
CEO & Chairman: Mike Norcio  
Program Manager: Bill Schmidt

Ohmsett, The National Oil Spill Response Test Facility is located in Leonardo, NJ, where full-scale oil spill response testing, research and training can be conducted with oil in a realistic simulated marine environment under controlled conditions. The facility consists of a large outdoor above-ground concrete test tank measuring 667 feet long by 65 feet wide by 8 feet deep filled with 2.6 million gallons of clear salt water, conference rooms, maintenance/machine shop, chemistry laboratory, and offices. Ohmsett's mission is to increase oil spill response capabilities through independent and objective performance testing of equipment, providing realistic training to response personnel, and improving response technologies through research and development. The U.S. Department of Interior, Minerals Management

Service (MMS) has operated the Ohmsett facility for 15 years as part of its mandated requirements to ensure that the best and safest technologies are used in offshore oil and gas operations. The Ohmsett facility is maintained and operated by MAR, Incorporated through a contract with Minerals Management Service.

**Technology Profile:** Ohmsett has experienced a 150 percent increase in its use over the past five years. The continued safe and effective operation of Ohmsett will be ensured through the completion of major repairs as well as replacement of necessary facility equipment and systems. September 2007 will mark the end of a four-year, major refurbishment program that totaled \$4 million. Ohmsett plays a critical role in developing effective response technologies and represents a necessary intermediate step between small scale bench testing and open water testing of equipment. Many of today's commercially available oil spill cleanup products and services have been tested at Ohmsett either as off-the-shelf commercially available equipment, or

as equipment or technology still under development.

Recent research projects includes testing concepts for new products not yet in production, innovative studies of oil emulsions, and the development of testing capabilities for dispersants. Ohmsett is open and operational year round and provides a controlled environment for cold water testing and training including the ability to simulate realistic broken ice conditions. The facility has the capability to test and evaluate all types of oil spill response technologies that include: chemical treating agents and dispersants, fire-resistant containment booms, remote sensing and detection instruments, sorbent materials, temporary storage devices, viscous oil pumping units and oil water separators. In addition to developing and testing response technologies, Ohmsett provides first responders, from state and federal government agencies, private industry and foreign countries, with the most realistic training available enabling a rapid and efficient response to an actual spill event.

inal staff of nine conducted underwater ship repairs for a single Navy customer, and grew to over 250 people whose capabilities now serve customers found throughout the ocean industry. Phoenix performs waterborne ship repairs, underwater inspections and surveys, search and recovery missions, marine construction support, submarine rescue operations, and engineering. Expertise in underwater welding, side scan sonar, ROVs, diving, and design is available from Phoenix offices located in Virginia, Texas, Maryland, Louisiana, Hawaii, and California.

Phoenix played key roles in the discovery of INS DAKAR, an Israeli submarine that was lost for 31 years; two James Cameron Titanic documentaries for which Phoenix designed unique, mobile lighting systems and battery powered, wreck penetrating mini-ROVs; numerous international search and recovery projects as well as ongoing repairs to the Gulf of Mexico's damaged offshore oil and gas infrastructure caused by Hurricanes Katrina and Rita and where Phoenix conducted the largest ever underwater wet welding repair to an operating oil and gas platform. **Technology Profile:** Phoenix developed 21 Navy certified, underwater welding procedures for materials ranging from mild steels to high carbon steels and modern alloys. It modified carbon arc gougers and plasma arc cutters for safe diver use thus improving diver work efficiencies 3-4 fold. As sole operators of the HardSuit 1200 in the Gulf of Mexico, Phoenix offers one-atmosphere diving systems of the utmost dexterity and ability to operate in any attitude, and in confined spaces to depths of 365 m. Phoenix designed the 6,000-m depth capable, REMO-

RA, an ROV notable for its agility, small footprint and use on numerous military and commercial recovery projects. Internal R&D led to the development of xBot, a mini-ROV designed for hazardous ops and wreck penetrations in extreme depths (7000m). Phoenix is completing the development of safe, high energy density, pressure tolerant Lithium Ion batteries for underwater applications. The battery uses a Phoenix battery management system that allows for battery control at the cell level. The company's SBIR project to produce a battery for large diameter AUVs will be completed this fall.

### **Plymouth Marine Laboratory**

Prospect Place, The Hoe  
Plymouth, Devon UK PL1 3DH  
Tel: +44 1752 633100; Fax: +44 1752 269011  
Email: forinfo@pml.ac.uk • www.pml.ac.uk  
Chief Executive: Professor Nicholas Owens  
Deputy Chief Executive: Dr. Peter Claridge

### **METOCEAN Data Systems**

21 Thornhill Drive  
Dartmouth, Nova Scotia B3B 1R9 Canada  
Tel: +1.902.468.2505; Fax: +1.902.468.4442  
www.metocean.com  
President: Tony Chedrawy,  
Sales Manager: Greg Connor,  
Marketing Manager: Emily MacPherson

METOCEAN Data System develops and manufactures data acquisition and telemetry systems. It specializes in the production of air-deployed and ship deployed drifting buoys, Search and Rescue buoys such as Self Locating Datum Marker Buoys, Oil Tracking Buoys such as Argospheres and Davis Drifters, Ice Platforms and Acoustic Systems. METOCEAN has developed niche markets to support a wide variety of scientific and commercial fields. These markets include Oil and Gas, Search and Rescue (SAR), Oceanographic, Meteorological, Military, Asset Tracking (VMS), Polar, ARGO Program, Aquaculture and Port Authorities. **Technology Profile:** The company specializes in the design, development and manufacture of data acquisition and telemetry systems for severe environments. All of the buoy payloads are designed for use on ocean platforms either drifting or moored buoys. The company's primary products are SVP/WOCE drifters, air deployed Self Locating Data Marker Buoys (SLDMB), Profiling Subsurface Floats, Ice Platforms & other Arctic products, Asset Management Tracking Transponders and Underwater Acoustic Platforms. METOCEAN also manufactures custom moored buoys (1m, 2m and 3m diameter) as well as weather stations and port monitoring systems.

Chairman: Rt Hon. Lord Kingsland QC  
Marketing Director: David Robins  
Facilities: Marine research laboratories, Molecular Laboratory, Seawater Hall, Mesocosms, research vessels, Culture Rooms, Flow Cytometer  
Square Meterage 4884 sq/m  
Testing Capabilities: (ie. test tanks, boats, pressure chambers)  
Number of Employees: 150

PML is an independent provider of scientific research, contract services and advice on the marine environment, with a focus on understanding marine ecosystems and reducing uncertainty about the complex processes and structures that sustain life in the seas. To help deliver its knowledge transfer, PML has a wholly owned trading subsidiary, PML Applications Ltd, which has been created to facilitate the exploitation and application of PML research and to provide a more appropriate interface for working with end users, industrial and commercial partners.





## Product Engineer (Electrical Engineer Degree)

EdgeTech Marine located in West Wareham, MA- is seeking a Product Engineer (with an Electrical Engineer Degree) who has 3-5 years of hands-on experience in instrumentation design. Duties will include but not limited to: full range of design to production tasks, product enhancement, customer field support, installation and operation; microprocessor hardware/software, digital/ analog circuitry, electronic packaging exp.; DSP (digital signal processing) knowledge desired; Document products-schematics, factory acceptance tests, manuals, software revisions; Interface with engineering group on ECO's, new product transfers, bill of material structure and entry; BS Electrical Engineer; 3-5 years of hands-on exp. in instrumentation design; Travel both domestically and internationally (approx 10-20% of the time; Self-motivated; Previous exp. in Marine sonar field a plus

### Please send resumes to:

Elizabeth D. Sundberg  
EdgeTech  
4 Little Brook Road  
West Wareham, MA 02576  
Fax: (508) 291-2491  
E-Mail: [sundberg@edgetech.com](mailto:sundberg@edgetech.com)  
Web Page: [www.edgetech.com](http://www.edgetech.com)

EOE

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EIA's, Site Investigations. Due Diligence Surveys. Solving complex coastal erosion problems  
Marine Structures Sea defense works. Hydrographic Survey. Project Engineers & Managers

Phone 767-235-5962 Fax 767-440-0464

E-mail: [ocean@cwdom.dm](mailto:ocean@cwdom.dm)



**Sea-Bird Electronics**, the leading manufacturer of CTD instrumentation, has a career opening for a **Sales/Applications Engineer** in our Seattle area (Bellevue, Washington) corporate office. We are passionate about advancing ocean science, and apply our expertise in Salinity and oxygen determination to serving customers and developing tools that make ocean researchers and engineers more productive and successful. Our sales approach is consultative and collaborative when responding to inquiries from a diverse mix of scientists, engineers, technicians, and non-technical buyers.

Applicants must be able to promote dialog with customers to understand their measurement objectives and the operational conditions likely to affect them, recommend instruments that will produce the best quality data, and communicate technical and scientific information in support of quotes and proposals. They should also have sensitivity to customer cultural and organizational differences, and the flexibility to work effectively with international end users, the company's international representatives, system integrators, resellers, and OEMs world wide.

Initial responsibilities will include responding to customer and rep inquiries for product information, applications assistance and price quotations, entering sales orders, and assisting with marketing plans to enhance relationships with customers and improve sales channels. Applicants will be expected to develop expert knowledge of our products, their operation, the principles behind the determination of Salinity and the fundamental measurements of temperature, conductivity and pressure, and the Company sales and service policies and procedures. A modest amount of domestic and foreign travel is expected for sales activity at scientific conferences and trade shows, as well as occasional support for customers and representatives.

Applicants should have personal computer skills, a degree in a physical science or engineering, and they must be self-motivated and able to quickly develop product knowledge, become familiar with our customers and their applications, and be very skilled in written and oral English communications. Experience selling a technical product internationally is desired but not required. Occasional domestic and international travel is anticipated. Excellent salary and profit sharing/benefits package available to qualified candidates. Non-smoking facilities. Send a cover letter and resume by e-mail to [jobs@seabird.com](mailto:jobs@seabird.com). NO PHONE CALLS.



Hydroid is a young, highly innovative rapidly growing technology company that manufactures, sells and services REMUS AUV's to a worldwide market.

Hydroid currently has the following openings:

- Mechanical Engineer
- Electrical Engineer
- Software Engineer
- Sales Engineer
- Quality Assurance Manager

Full job descriptions are available on our website at [www.hydroid.com](http://www.hydroid.com). Applicants selected may be subject to a government security investigation and must meet eligibility requirements for access to classified information.

Hydroid offers an attractive starting salary and competitive benefits package including medical, dental and 401K with match.

Qualified candidates should send their resumes, including salary requirements, to Hydroid, LLC at 6 Benjamin Nye Circle, Pocasset, MA 02559 or e-mail to [hr@hydroid.com](mailto:hr@hydroid.com). Hydroid is an Equal Opportunity Employer.

## Phoenix Wants You!

- Divers
- ROV Technicians
- Welder/Divers
- Engineer

Be part of a company where you **ARE** the company.

Visit our website at [www.phnx-international.com](http://www.phnx-international.com) for more information and openings.

Excellent benefits, profit sharing, and rewarding work environment. Phoenix International is an Equal Opportunity Employer.



### Product Sales Engineer

ORE Offshore, located in West Wareham, MA, is seeking a Product Sales Engineer. Key duties will include: Visit customers/manufacturers' representatives; Attend trade shows; Generate quotations and technical proposals; Follow-up qualified leads and quotations leading to closure; Maintain high level of continuing contact with new/existing customers; Know competitive advantages of products and how to reinforce them with customers; Have strong product/applications knowledge and demonstrate this to existing/potential customers, sometimes offshore; Know advantages/disadvantages of competitors' products and how to counter these with customers; Make recommendations for new product development/technological trends; Maintain positive company image in marketplace; Be passionate advocate for product line; Make recommendations for ads/sales promotions; Participate in business/product planning and forecasting; Identify representatives that would strengthen sales force; Travel approximately 25% of the time both domestic and international; Utilize most cost effective approaches to selling product. Physical Science or Engineering Degree; Minimum 3-5 years prior exp. in technical sales, preferably in government/military markets; Ability to deal effectively with engineers, scientists and other technical personnel; Demonstrated ability in written and oral communication; Microsoft Office experience a plus.

Submit resume to: Elizabeth Sundberg  
ORE Offshore  
4 Little Brook Road, West Wareham  
sundberg@edgetech.com  
1-508-486-9348 (fax) • <http://www.ore.com>  
EOE



**GUARINO & COX, LLC**  
*Naval Architects, Marine Designers and Consultants*

**NAVAL ARCHITECTS WANTED**---Guarino & Cox, L.L.C. has several positions open for naval architects. Experience in the design of workboats and barges desired though entry level applicants may be considered. Applicants must have legal proof of authorization to work in the USA. Positions are intended to be full time and permanent. Guarino & Cox is a small naval architectural firm and is located in Covington, LA. Email resume to Sal Guarino at [sjgimarc@bellsouth.net](mailto:sjgimarc@bellsouth.net)



**SonTek/YSI Inc.**, a thriving manufacturer of high quality acoustic Doppler instruments used for water velocity and flow measurement, is presently seeking an energetic individuals to join our San Diego-based team for the following position:

#### Repair Center Coordinator Underwater Electroacoustic Instrumentation

This position will coordinate instrument repair, servicing, and RMA activities for our local and worldwide customer base. This includes scheduling, prioritizing, quoting, and liaising with external customers and our internal technical support, sales, and engineering/operations teams. Ideal candidates will have five to ten years of experience and a four year degree in electronic engineering or equivalent technical/industry qualifications. The position requires excellent organizational skills with good attention to detail. Additional preferred requirements listed below:

- Must possess excellent written and verbal communication skills
- Field or repair experience in underwater electronics
- Strong computer skills and ability to analyze/troubleshoot problems
- Willingness to engage in hands-on work when required

Additional information on these, and other jobs opportunities available at SonTek/YSI, can be found by visiting [www.sontek.com](http://www.sontek.com). SonTek offers competitive salaries and great opportunities for advancement. SonTek is an employee-owned company and a division of YSI Incorporated.

#### Resumes accepted by:

Email (in Word, PDF, or plain text format) to: [jobs@sontek.com](mailto:jobs@sontek.com)  
(Subject: \*Title of position you are applying for\*) Fax at +1 (858) 546-8150

Mail your resume to:  
SonTek/YSI, Inc.  
Attn: Human Resources  
9940 Summers Ridge Road  
San Diego, CA 92121-3091



**Technology Profile:** As one of the world's multidisciplinary marine research centers, PML delivers highly innovative research and solutions for national and international marine and coastal programs. The research at PML is timely and highly relevant to UK and international societal needs

### Optech Incorporated

300 Interchange Way  
 Vaughan, Ontario L4K 5Z8, Canada  
 Tel: 905-660-0808; Fax: 905-660-0829  
 www.optech.ca  
 Email: shoals2@optech.ca  
 President: Donald Carswell  
 Vice President: Dr. J. Douglas Houston  
 Marketing Director: Dr. Robert D. Richards  
 Engineering Director: Dr. Paul LaRocque

Optech's product line includes SHOALS (Scanning Hydrographic Operational Airborne Lidar Survey), the ALTM (Airborne Laser Terrain Mapper), the CMS (Cavity Monitoring System) and ILRIS ground-based scanning/imaging systems. Applications include: airborne



and its research, development and training programmes have a core mission to contribute to issues concerned with understanding global change and the health and sustainability of marine ecosystems.

### QinetiQ

Cody Technology Team, Ively Road,  
 Farnborough, GU14 0LX  
 Tel: +44 8700 100942; Fax: +44 252 393399  
 E-mail: CustomerContact@QinetiQ.com

QinetiQ is a defense and security technology company that was formed in July 2001 from the U.K. Government's Defense Evaluation & Research Agency (DERA). Today, QinetiQ has over 11,500 employees, who deliver technology-based services and exploit QinetiQ's strengths in technology research by selling systems solutions, products and licenses to government and commercial customers in a spectrum of defense, security and other commercial markets.

marine and terrestrial surveying, ground-based industrial and 3D imaging, and space systems and advanced technologies. Optech began as an R&D firm specializing in laser applications. It has grown from small business to a leader, with more than 200 employees and a wholly-owned U.S.-based subsidiary. **Technology Profile:** After several years of operations, Optech's Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) bathymeter has proven to be an accurate, cost-effective, rapid, safe and flexible method for providing depth solutions ranging from approximately 1.5 to 50 meters in clear water. Historically, various approaches have been attempted to recover lidar points within the very shallow water region (<1.5 m). However, over the past two years Optech has made significant progress in the development and implementation of an automated

### RBR Ltd.

27 Monk St. Ottawa, Ontario, Canada K1S 3Y7  
 Tel: 613-233-1621; Fax: 613-233-4100  
 Email: info@rbr-global.com  
 Web address www.rbr-global.com

Since 1976, RBR Ltd. has been manufacturing high precision instruments for oceanographic, freshwater, groundwater and cryospheric research. Founded by Richard Brancker, the company is now run by a team of enthusiastic engineers and oceanographers and produces instruments calibrated to WOCE standards. The product line includes submersible data loggers for CTD, turbidity, fluorescence, dissolved oxygen, pH/ORP, PAR, and other sensors, thermistor chains, tide gauges, and wave gauges. Recent products include a versatile data buoy controller, and laboratory salinometer. Our instruments are all built on a modular platform to permit rapid custom configuration. Calibration equipment at



shallow water algorithm that has not only extended the depth-sounding capability of the SHOALS bathymeter in extremely shallow waters but also enabled the system to provide a seamless lidar depth solution across the land-water boundary unlike any other surveying technique or tool.

RBR permits traceable calibration for oceanographic instruments including temperature to +/- 0.002 degrees, conductivity to +/- 0.003 mS/cm and pressure to +/- 0.015%. In house calibration of DO, pH, ORP and turbidity complement those for the fundamental physical measurements.

### Rockland Scientific International

520 Dupplin Road, Victoria BC Canada V9A 4B6  
Tel: +2503701688; Fax: +2503700234  
E-mail: Fabian@rocklandscientific.com

Rockland Scientific designs and manufactures high-accuracy instrumentation for oceanographic research, and is a supplier of measurement systems for microstructure turbulence in natural waters. The company was founded by Rolf Lueck and Fabian Wolk, both physical oceanographers, who translated their academic careers into a thriving business that supplies researchers and ocean industry with tools and know-how for ocean turbulence measurements. Rockland Scientific's achievement is to have turned this specialized research equipment into turn-key, compact, and reliable instrumentation that can be operated by a variety of researchers. For example, the Vertical Microstructure Profiler (VMP) can be configured for deployment in coastal areas, as well as for deep sea applications up to 5500 m depth.

### Rotech Subsea USA, LLC

11261 Richmond Avenue G110, Houston, TX  
Tel: 281-759-1245; Fax: 281-759-1246  
E-mail: sarah.hargrave@rotech.co.uk

Rotech Subsea provides mass flow excavation services for multiple applications such as pipeline trenching, wellhead excavations, platform pile excavations, rock dump excavations, and cable trenching. The tools were designed with precise excavation power and stability in mind. Water is brought in through two counter-rotating impellers and redirected to

the seabed in the form of a high velocity, high volume, yet low pressure water column that can move materials with shear strengths of up to 60 Kpa. While hung from the vessel's crane or A-Frame, a multibeam sonar system that is attached to the tool shows a picture of all hard materials which aids in locating problem areas and shows trench depth.

### Science Applications International Corporation

221 Third Street, Building A, Newport, RI 02840  
Tel: 401-847-4210; Fax: 1.401.849.1585  
www.saic.com

CEO/Chairman of the Board: Ken C. Dahlberg  
CFO/Vice President: Mark W. Sopp  
Ph.D. Executive Vice President for Special Projects: Donald H. Foley  
Senior Vice President and Director for Business Development: Greg Henson  
EVP, Homeland Security: Larry J. Peck  
EVP and Chief Technology Officer: Trey P. Smith, III  
EVP for Strategic Initiatives: Joseph P. Walkush  
Facilities: SAIC and its subsidiaries have more than 44,000 employees at locations in more than 150 cities worldwide.  
Number of Employees: 44,000  
Annual Sales (US\$): Revenue for the year increased 7 percent from \$7.8 billion in fiscal year 2006 to \$8.3 billion.

Founded by J. Robert Beyster, Ph.D., and a small group of scientists in 1969, Science Applications International Corporation (SAIC), a Fortune 500 company. SAIC is a provider of scientific, engineering, systems integration and technical services and products to all branches of the U.S. military, agencies of the U.S. Department of Defense (DoD), the intelligence community, the U.S. Department of Homeland Security (DHS) and other U.S. Government civil agencies, as well as to customers in selected commercial markets. Increasing demand for services and products is driven by priorities including the ongoing global war on terror and the transformation of the U.S. military. SAIC offers a broad range of services and products, including: Defense Transformation Intelligence, Homeland Security and Defense, Logistics and Product

Support Systems, Engineering and Integration, Research and Development, and Commercial Services.

**Technology Profile:** SAIC's Marine Science and Technology Division, located in Newport, RI, offers a comprehensive capability in both the design and integration of complex marine survey systems and the application of those systems to meet stringent survey specifications for marine survey in the United States and around the world. Experience has demonstrated that SAIC technology and procedures are compliant with NOAA and International Hydrographic Office (IHO) specifications for hydrographic surveys. SAIC/MSTD's Quality Management Program has been accredited to ISO 9001 standard, with accreditation by Bureau Veritas Quality International (NA), Inc. since 1998. Additionally, SAIC's software processes used in the US Navy-funded ISS-60 project were appraised by a Carnegie-Mellon University Software Engineering Institute-authorized Lead Appraiser with the compliance to CMMI (Capability Maturity Model Integration) Maturity Level 2 in November 2005.

### Seimac Limited

271 Brownlow Avenue, Dartmouth  
NS Canada BBBIW6  
Tel: +9024683007; Fax: +9024683009  
E-mail: info@seimac.com

Seimac Limited is a 28 year old company that specializes in the design and manufacture of specialized mission critical tracking and telemetry products for use by search and rescue, law enforcement and science professionals throughout the world. Seimac currently produces radios for: Search and Rescue; COSPAS\_SARSAT Beacons; Direction Finders; Datum Marker Buoys; Telemetry and Tracking;

**RESON A/S**

Fabriksvangen 13 Slangerup  
 Denmark DK-3550  
 Tel: +45 46 38 00 22  
 Fax: +45 46 38 00 66  
 Email: reson@reson.dk  
 www.reson.com  
 CEO/President: Allan J. Vestergaard  
 Global Sales: Kim Christiansen  
 Global Marketing Manager: Michael Giese  
 Executive VP Global Delivery: Mikael Nadelmann  
 Testing Capabilities: Test tanks for calibration and pressure tests

RESON focuses on underwater acoustic sensors, state-of-the-art echosounders, multibeam sonar systems, transducers, hydrophones, and software. RESON's SeaBat sonars and NaviSound echosounder systems have become an industrial standard in areas such as hydrography, dredging, offshore operations, marine research and defense & security.

RESON was established in 1976 as a manufacturer of transducers. The company is growing and expanding into new markets and application areas - and its fourth generation of

sonar systems will provide unprecedented performance for naval and commercial systems in terms of accuracy, resolution, depth rating, and range. RESON has its corporate headquarters in Denmark, with subsidiaries in Italy, the U.K., the U.S., the Netherlands and Germany.

**Technology profile:** RESON launched in May 2007, the first multibeam sonar systems on the market with dual frequency for remotely operated vehicles (ROV) down to depths of 6000 m. The new SeaBat 7125 is designed to enable exploration missions to map the sea faster, and more accurately than ever before.

Offering dual frequency for ROV down to 6000m, the SeaBat 7125 can perform multiple missions from the same vehicle without costly and time-consuming system reconfigurations. An innovative design means switching frequencies can be done in sec-

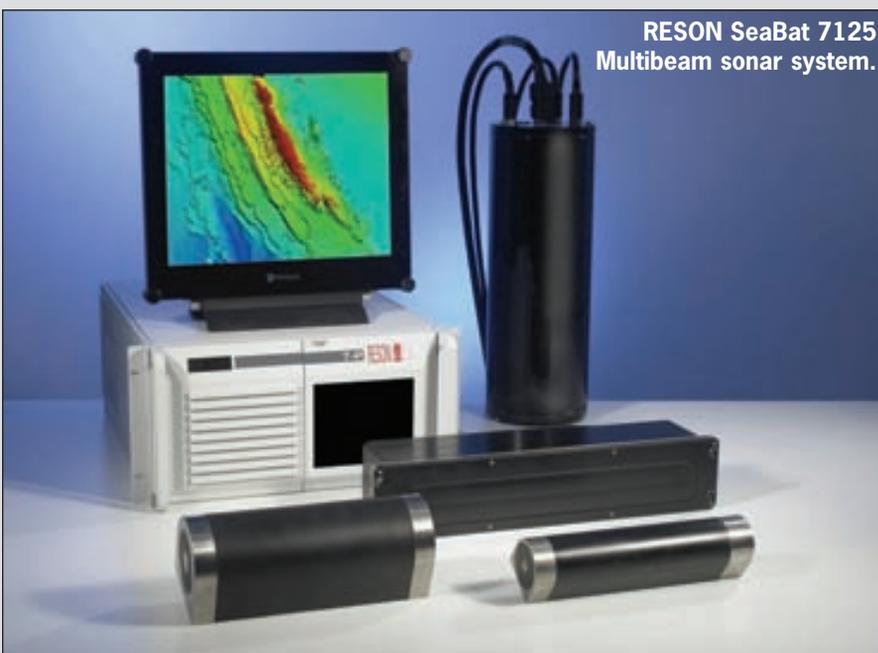


Allan J. Vestergaard, CEO

onds - simply by loading a new software file - so deep-depth survey operations get more time in the water.

Since 2005, RESON has been collaborating closely with users, and conducting extensive sea tests. The result is a host of new functions that make the SeaBat 7125 one of the most feature-rich sonar platforms on the market, and ideal for multiple applications. Innovative features include high-density flexible beam-forming, beam data recording, Built-in Test, automatic operation, and AUV configuration.

Users can operate two systems as a dual-head configuration, enabling them to detect small diameter pipes and other objects with unparalleled accuracy. By reducing both data collection and processing times, SeaBat 7125 maximizes surveying productivity by operating on either 200kHz or 400kHz, it provides high-quality bathymetry data over a swath of 128 degree perpendicular to the direction of travel. A ping rate of 50Hz with 512 equidistant beams per swath ensures exceptionally high data density.



RESON SeaBat 7125 Multibeam sonar system.

Miniaturized ARGOS Satellite Transmitters; GOES Satellite Transmitters; NOVATECH VHF Beacons & Xenon Flashers.

The headquarters for Seimac are in Nova Scotia, Canada. Seiman's capabilities include design, development, manufacture, sales, and support of rugged, remote, reliable radios. Our manufacturing capability includes a number of specially designed jigs, fixtures, automatic test fixtures, and environmental test facilities for production testing of our products. Seimac is a fully owned subsidiary of Cobham plc.

### Sohre Turbomachinery

PO Box 1099, Monson, Mass. 010507  
Tel: 413 267-0590; Fax: 413-267-0592  
info@sohreturbo.com • www.sohreturbo.com

Sohre Turbomachinery Inc., founded in 1971 by John S. Sohre P.E., designs and manufactures shaft grounding brushes and related systems. More than 2000 Sohre Shaft Grounding Brushes have been installed and are being used in many kinds of rotating equipment including, steam turbines, gas turbines, compressors, pumps, propeller shafts, reduction gears etc. Sohre Turbomachinery Inc. provides bristle type fiber brushes for use in shaft grounding (shaft earthing) of all types of stray electrical shaft currents. The brushes can also be used for instrument signal transmission and generator or electric motor on-line diagnostic work.

### Subconn Inc.

PO Box 2793, Duxbury, MA 02331  
Tel: 781 934 0790; Fax: 781 934 3281  
Email: mac-us@macartney.com  
www.subconn.com

In January 1999 Subconn Inc. was established to service the underwater connector market in the Americas. The company is a joint venture between LVMM Inc., the manufac-

turer and MacArtney A/S. Subconn Inc. has its headquarters at the new manufacturing facility in Burwell and a sales and marketing base in Boston.

**Technical Profile:** The connectors, all based on a simple but rugged contact design, are accepted as a cost effective solution by the offshore, military, geophysical, nuclear and ocean science markets.

Subconn concept has been adapted to produce a number of special application connectors. These range from the geophysical telemetry connectors for transition zone applications; high power connectors for subsea systems; field installable and oil filled harness connectors; proximity switches and a complete range of compatible metal shell bulkhead and flange mount connectors.

### Superior Offshore International

717 Texas Avenue Ste.# 3150  
Houston, TX 77002-USA  
Tel: 713-910-1875  
Fax: 713-910-1881  
Email: andy.morales@superioroffshore.com  
www.superioroffshore.com  
CEO/President: Jim Mermis  
President: Jim Mermis  
Vice President: David Weinhoffner- V.P of Business Development  
Marketing Director: Andy Morales  
Engineering Director: Gerard Ledet- Marine Technical Manager  
Facilities: Houston, TX- Corporate Headquarters, Houston, TX- ROV Facility, Lafayette, LA- Operations  
Broussard, LA- Training, Amelia, LA- Construction/Fabrication Facility, Durban, South Africa- Subtech Offshore (subsidiary)  
Number of Employees: 500  
Annual Sales: \$250,000,000

Superior Offshore International is a provider of subsea construction and commercial diving services. With one of the largest subsea construction work forces in the Gulf of Mexico, and with a fabrication business that supports our subsea construction and commercial diving operations, Superior Offshore International owns and operates a specialized and growing fleet of vessels set to expand into

the deepwater and international markets. Superior Offshore's fleet includes company-owned and chartered DP II and 4PT DSV/RSVs, ROVs and portable saturation diving systems.

### Teledyne Benthos, Inc.

Member of Teledyne Marine  
49 Edgerton Drive, North Falmouth, MA 02556  
Tel: +1 508-563-1000; Fax: +1 508-563-6444  
E-mail: benthos@teledyne.com  
www.teledynebenthos.com  
President: Ron Marsiglio  
Vice President, Sales & Marketing: Francois Leroy  
Vice President, Finance: Frank Dunne  
Director of Engineering: Bob Melvin

Teledyne Benthos, Inc. is located in North Falmouth, MA and was established in 1962. The company designs, manufactures, and sells a variety of oceanographic and underwater products for use in marine environments including: acoustic releases, modems; hydrophones; geophysical survey equipment; ROVs; glass flotation spheres; and locating devices. Markets include the geophysical industry where Teledyne Benthos products and systems are used in the search for offshore gas and oil deposits, as well as the military, homeland defense, scientific research, and environmental markets. The company also manufactures FAA



## Sonardyne International Ltd.

11210 Steeplecrest Drive, Ste. 360  
Houston, Texas 77065  
Tel: 281-890-2120  
Fax: 281-890-7047  
sales@sonardyne.com  
www.sonardyne.com  
Chairman: John Partridge  
Managing Director: Barry Clutton  
VP Americas: Spencer Collins  
Marketing Director: Rob Balloch  
Engineering Director: Simon Partridge  
Square Footage: 70,000 sq. ft.  
No. of Employees: 200  
Annual Sales: \$58,000,000

Within the offshore and oceanographic industries, the name Sonardyne has been synonymous with pioneering solutions for subsea navigation, positioning and communications for over 30 years. Established in 1971, Sonardyne International's manufacturing, research and development headquarters are located in Yateley, 40 miles south-west of London, UK. Operating subsidiaries in Singapore, Aberdeen, Brasil, Norway and Houston provide global sales, field engineering and customer support. With more than 200 employees and an engineering team of over 65, Sonardyne invests heavily in new technology. Its core expertise centers on ultra-low power subsea processing systems combined with robust mechanical construction and reliable acoustic communications. In recent years this core capability has expanded to include inertial navigation, digital signal processing and composite sonar technology.

Examples of how this core capability is being applied can be seen in two of the company's most recent product launches. Sonardyne's Tsunami Detection System is being deployed across the Indian Ocean to provide

valuable early warnings to coastal communities of an approaching tsunami wave. In the area of homeland security, Sentinel is a new, lightweight Intruder Detection Sonar designed to counter the threat of underwater attacks against ships, harbours, coastal industrial installations and offshore oil platforms.

Sonardyne equipment is in use across the globe and is the system of choice for demanding applications in the world's harshest subsea environments. Sonardyne continue to focus on its core capability and develop innovative world class solutions for the subsea market. Investment in people, processes and techniques is leading to a substantial period of growth for this family owned business with strong principles of dedicated customer support that is second to none

### Products

Sonardyne offer a complete family of acoustic positioning and navigation products ranging from very shallow water to full ocean depth. Compatt 5, the workhorse of the company's subsea transponder family will achieve a major milestone in 2007 with the shipment of the 2,000th unit. New developments include a system that tracks divers as they carry out the inspection of a ship's hull and Av-Trak 2, a combined acoustic positioning and communication instrument for installation onboard AUVs.

Sonardyne has recently completed the development of the innovative uComm technology platform that enables robust, high speed acoustic communications. The first product

to use the new platform was shipped in June 2007.

Sonardyne acoustic releases are relied upon by many of the world's leading oceanographic institutions for the recovery of equipment and data. The company offers a wide range of acoustic releases to meet a diverse market requirement including heavy loads up to 50 tonnes, remote switch actuation and dual redundant for critical applications.

Subsea target marking and relocation is another core capability. In 2006, the company's ROV-Homer was deployed to the Black Sea where it was successfully used to relocate a crashed airliner's 'black-box' flight recorders within 24 hours of beginning its search.

Behind the scenes, the company has been busy adding new depths to their established capabilities. The Lodestar Inertial Navigation system that was launched earlier this year is one such example. Starting with a blank piece of paper, Sonardyne took the unique approach of combining both a true gyro-compass algorithm and INS algorithm in the same unit. This allows the unit to act as a stand alone north seeking AHRS system or as a fully aided inertial solution. Tightly coupled subsea positioning solutions will start delivery in early 2008.

pingers that are used on aircraft "black boxes."

**Technology Profile:** Teledyne Benthos technology includes: acoustic systems, flotation products, geophysical survey systems, hydrophones, locator products, remotely operated vehicles, and tele-sonar modems. It's specialty is remote sensors for harsh environments. Currently, Teledyne Benthos is focused on developing and marketing systems and sensors for a multitude of undersea applications, including wireless subsea communications, hydrography, and oceanographic sensor systems.

**Tritech International Limited**

Peregrine Road, Westhill Business Park, Westhill  
Aberdeen, AB32 6JL UK  
Tel: ++ 44 (0)1224 744111  
Fax: ++ 44 (0)1224 741771  
Email: sales@tritech.co.uk  
www.tritech.co.uk

The company started trading in 1990 with the aim of producing a range of sub-sea products available. Beginning life as a two-man operation working from a converted house, Tritech now produces sensors and tools for ROV (Remotely Operated Vehicles) and AUV (Autonomous Underwater Vehicles) markets. As the name implies, Tritech embraces three different technologies; sub-sea imaging and measuring systems with both acoustic and video sensors, and many state of the art mechanical and electrical products. **Technology Profile:** Tritech specializes in the production and provision of high performance acoustic sensors, video cameras and



www.seadiscovery.com

mechanical tooling equipment for professional, underwater markets. Tritech Provides full acoustic survey packages including ROV obstacle avoidance sonars, profiling sonars, sidescan sonar systems, bathymetric systems, altimeters and sub-bottom profilers.

**TSS (International) LTD.**

1 Garnett Close, Greycainc Industrial Estate  
Watford Hertfordshire  
UK WDZ47GL  
Tel: + 44(0) 1923470800  
Fax: + 44 (0) 1923470842  
Email: tcurley@tssusa.com  
www.tss-international.com  
Managing Director: John Frost  
Chairman: Terry Madden  
Business Development Manger: Guthrie Robertson  
Finance Director: Angela Suggate  
Technology Director: Steve Cowsls  
Facilities: Headquarters Watford, England. Offices in Houston TX and Aberdeen Scotland.  
18,00 sq ft.  
Testing Capabilities: Motion table, temp. oven  
Number of Employees: 70  
Annual Sales (US\$): \$24,000,000

TSS (International) LTD. has a century of experience in marine navigation, gyrocompasses, and steering controls. This is combined with a range of high-tech, accurate sensors for heading and motion measurement, and subsea pipe and cable survey and detection. As well as its commercially available products, the company offers a bespoke engineering service to meet increasing naval demands specifically in the realm of steering controls and navigation technology. **Technology Profile:** Its line of motion sensors are used in a wide variety of applications that require highly accurate motion detection (single and multibeam echosounders, ROVs and AUVs, acoustic and dynamic positioning systems). Its newest generation of Dynamic Motion Sensors incorporates solid state accelerometers and rate sensors, entirely new technology that had not been previously available. TSS has also been on the forefront in the



development and design of aided Inertial Navigation Systems. Through a partnership in the '90s, TSS helped develop the POS/MV (Position and Orientation Systems for Marine Vessels), an inertial navigation system made up of three accelerometers, three gyrocompasses, and two GPS antennas. The product, like the motion sensors, became an industry standard providing advanced navigation, motion compensation & vessel analysis to the marine industry. The Orion INS incorporates its latest version of the TSS INS algorithm with three single axis ring laser elements and three highly accurate accelerometers.

**Turner Designs, Inc.**

845 W. Maude, Sunnyvale, CA 94085  
Tel: 408-749-0994; Fax: 408-749-0998  
E-mail: sales@turnerdesigns.com  
www.turnerdesigns.com  
CEO/President: James Crawford  
Vice President: Tom Vasconcellos  
Marketing Director: Chelsea Donovan  
Engineering Director: Patrick Sanders  
Facilities: 1  
Number of Employees: 25

Turner Designs, Inc. was founded in 1972 by George Turner and for three decades, has manufactured rugged and reliable field, laboratory, submersible and on-line instrumentation. Turner has produced thousands



**Teledyne RD Instruments**

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 Poway CA 02644  
 Tel: +1-858-842-2600  
 Fax: +1-858-842-2822  
 Email: rdisales@teledyne.com  
 www.rdinstruments.com  
 General Manager: William Kikendall  
 Vice President Sales/Marketing: Harry Maxfield  
 Marketing Manager: Margo Newcombe  
 Engineering Manager: Joe Geisemann  
 Facilities: Teledyne RD Instruments, Poway, CA,  
 Teledyne RDI Europe, La Gaude, France Teledyne  
 RD Technologies,  
 Shanghai, China  
 Square Footage: 80,000 sq ft.  
 Testing capabilities: Test tank, company boat  
 Number of employees: 210

Teledyne RD Instruments, Inc., located in Poway, CA, specializes in the design and manufacture of underwater acoustic Doppler products for a wide array of current profiling and precision navigation applications. Originally founded as RD Instruments, the company was formed in 1982 by Fran Rowe and Kent Deines as a result of their development of the industry's first Acoustic Doppler Current Profiler (ADCP), a revolutionary device capable of profiling currents at up to 128 individual points in the water column. Through the years, RD Instruments experienced steady growth and remained dominant in the industry by providing an unwavering commitment to new product development, superior data quality, and the highest level of customer

service and support. In August 2005, RD Instruments was purchased by Teledyne Technologies, and now operates as a wholly owned indirect subsidiary of Teledyne Technologies, Inc. Upon acquisition, the company's name was changed to Teledyne RD Instruments. Teledyne RDI is also now a member of the growing Teledyne Marine group, which also includes: Teledyne Benthos, Teledyne Geophysical Instruments, Teledyne DG O'Brien, and ODI. Through market growth and product diversification, the Teledyne RDI is now comprised of three distinct business units: Acoustic Doppler current profiling and wave measurement products for coastal and deep water oceanographic environments. Teledyne RDI continues to lead the industry by providing our customers with innovative Doppler technology backed by unparalleled customer service and support.

**Technology Profile:** From its inception in 1982, Teledyne RDI has expanded its core acoustic Doppler technology to create a wide array of current profiling products for environments ranging from the shallowest stream to the deepest ocean. Today, Teledyne RDI's ADCP's are the de facto standard instrument used worldwide by scientists and field

engineers to improve their understanding of water current circulation. There are more than 10,000 ADCPs delivered worldwide. Teledyne RDI's ADCPs offer the following technical advantages include: Patented



BroadBand processing for significantly improved data quality, power efficiency and error detection; a patented two (2) dimensional phased array transducer design for significantly reduced size, weight, and deployment complexity; and a unique 4-beam configuration to ensure data quality and reliability.

Teledyne RDI has also applied its leading edge ADCP technology to a line of Doppler Velocity Logs (DVLs) and diver navigation products. Teledyne RDI's highly acclaimed Workhorse Navigator DVL provides high rate, high precision velocity and altitude updates for a wide array of applications spanning the military, commercial, and scientific markets. Most recently, Teledyne RDI launched the new Explorer DVL. Explorer's compact size, weight, and low power requirements make it ideally suited for today's littoral vehicles. Teledyne RDI's standard and specially engineered DVLs are currently aiding in the navigation of nearly 100% of the world's AUVs as well as a growing number of ROVS vessels, UUVs, and other underwater platforms.



of fluorometers, which allow scientists, engineers and technicians to take field and laboratory measurements in accordance with strict analytical standards. Turner Designs' mission is to provide innovative fluorescence based instruments for basic research, water quality analysis, pollution control analysis and specialized OEM industrial applications. It strives to meet the needs of its worldwide customer base, while promoting scientific research and preserving the environment. Turner is an employee-owned company. **Technology Profile:** Turner Designs has a reputation for developing reliable laboratory, field and submersible fluorometers that vary in functionality, size and price to fit any type of user need. Its traditional applications were developed for in vivo and extracted chlorophyll a pigments as well as dye tracers. Turner is continuously enhancing its line of optical configurations that now encompass blue green algae pigments, active fluorescence, applications utilizing ultra violet wavelengths such as colored dissolved organic matter (CDOM) and inorganic ammonium, as well as infra red wavelengths used to detect turbidity. It has recently developed absorbance capabilities for its laboratory instrument that will lead to the evolution of new applications.

### Tyco Telecommunications

60 Columbia Road, Morristown, NJ 07960  
Tel: 866.892.6611; Fax: 978.656.8131  
Email: sales-hq@tyco telecom.com

Tyco Telecommunications, a pioneer in undersea communications technology and marine services, is a supplier for today's undersea communications requirements. The company strives to deliver reliable solutions to customers with undersea communications needs vital to its core mis-

sion. With more than five decades of operation, Tyco Telecommunications has designed, manufactured, and installed more than 80 undersea fiber optic systems around the world.

### Veolia ES Special Services

2135 W Nordale Dr., Appleton, Wis. 54914  
Tel: (920) 749-8100; Fax: (920) 749-8110  
Email: Brent.Dubois@veoliaes.com  
www.veoliaes.com  
Contact Person: Brent DuBois  
CEO/President: F. Mike Rose  
Vice President: Christopher M. Hogol  
Marketing Director: Brent Dubois  
Engineering Director: James Parker  
Facilities: Multiple  
Testing Capabilities: chambers, test tanks  
Number of Employees: 300+  
Annual Sales (US\$): \$100,000,000  
(special services only)

Veolia ES Special Services is a full Service subsea construction and inspection company. Providing offshore, inland, and ROV services through the US Gulf of Mexico and the US. **Technology Profile:** Veolia ES Special Services has just taken a delivery of two \$400 M rated Triton XCS ROVs from Perry Slingsby, and they are in the process of completing a 1000 ft. rated SAT diving system. Additionally, Veolia expects delivery of the MPDV Swordfish in July of 2007.

### VideoRay LLC

580 Wall Street, Phoenixville, PA 19460  
Tel: 610-458-3000; Fax: 610-458-3010  
E-Mail: info@videoray.com • www.videoray.com  
President: Scott Bentley  
VP Finance & Administration: Tom Glebas  
Sales & Marketing Director: Chris Gibson  
Director of Research & Development: Marcus Kolb  
Sales Manager: Erick Estrada  
Facilities: 20,000sq ft with machine shop, warehouse, production floor, and corporate offices.  
Testing Capabilities: 2,000 Gallon Acrylic Testing Tank; 300 PSI Pressure Testing Chamber  
Number of Employees: 23  
Annual Sales (US\$): \$5,000,000

VideoRay was founded in 1999 on the premise of making ROVs (Remotely Operated Vehicles) accessible to more people who want to explore and capture underwater worlds on video. Starting at \$5,995 and weighing eight pounds,



Scott Bentley, President

VideoRay is designed as a versatile, portable, affordable, and reliable solution for underwater operations including surveys, offshore inspections, search & recovery, homeland & port security, science & research, fish farming, and other unique applications in underwater environments. VideoRay is currently available on the United States General Services Administration (GSA) schedule. **Technology Profile:** The line of Remotely Operated Inspection Systems combines state-of-the-art materials, electronics, optics, and hydrodynamics. "Plug and play" technology allows users to quickly attach sensors and accessories in the field so they can complete their mission. VideoRays have been deployed all over the world — from the warm, clear, calm waters of the Caribbean to hostile environments in the Arctic. VideoRays have been used in water too polluted for humans and in many places too confined or dangerous for divers to enter.

Tough materials—acrylic domes, anodized aluminum, stainless steel, and Kevlar — used in the VideoRay ensure it will withstand repeated and extended use.

**Woods Hole Group**

81 Technology Park Drive, E. Falmouth, MA 02536  
 Tel: (508) 540-8080; Fax: (508) 540-1001  
 Email: inquiries@woodsholegroup.com  
 www.woodsholegroup.com  
 CEO/President: David Aubrey, Ph.D.  
 VP, Business Development: Robert Hamilton, Jr.  
 VP, Science Operations: Robert Catalano

The Woods Hole Group, Inc. was founded in 1986 by Dr. David Aubrey, who assembled a team of coastal sciences, engineering, and planning personnel. Earliest projects involved shore protection, coastal measurements, numerical modeling, and environmental permitting in the U.S., Gulf of Mexico, and Caribbean. The firm then established an international reputation for improving transboundary environmental policy with projects in the Black and Caspian Seas. To bolster offshore capabilities, an oceanographic equipment company was acquired in 1991, adding

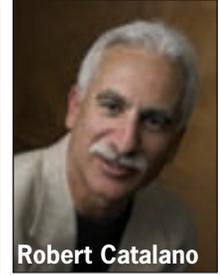
oceanographic and engineering personnel. An analytical chemistry laboratory also was acquired in 1996. Building upon a standard product line of wave, tide, and current meters (WHISL™), the emerging oceanography and measurement systems team grew to specialize in real-time systems, and developed proprietary software for data display and management.

The team specializes in real-time measurement systems and physical oceanographic/engineering studies for offshore energy and port/harbor applications worldwide, including a network of international representatives in 20 countries.

So far in the 21st century, Woods Hole Group added an office in Houston, TX to service the growing needs of the offshore oil and gas



**Bob Hamilton**



**Robert Catalano**

industry. A mid-Atlantic operation also was established in Delaware to support multi-year government contracts for operation and maintenance of NOAA's Physical Oceanographic Real Time System (PORTS). Building on its international experience, Woods Hole Group also established an office in Riyadh, Saudi Arabia to service its extensive client base in the Middle East, and to strengthen the environmental assessment & remediation team.

**Saab Seaye Ltd**

Lower Quay Rd, Fareham, Hampshire, United Kingdom PO16 0RQ  
 Tel: +44 1329 289000; Fax: +44 1329 289001  
 E-mail: rovs@seaye.com  
 CEO: Chris Tarmey  
 Managing Director: Matt Bates  
 Engineering Director: Jon Robertson  
 Marketing Director: Chris Tarmey  
 Sales Director: Dave Eggers  
 Number of Employees: 55  
 Annual Sales (US\$): \$12 million

SAAB Underwater System recently acquired Seaye Marine for \$25.7m to strengthen current products and create more business opportunities. As a subsidiary company of about 170 employees, SAAB Underwater System focuses on developing and producing underwater systems such as ROVs in the Double Eagle and Seaowl families and torpedo shaped AUVs for military and security purposes. Seaye has, since the late 1980's, been a supplier of electric powered ROVs to the offshore oil and gas industry with more than 250 systems operating worldwide in this sec-

tor conducting everything from diver support, pipeline survey, and drill support to IRM and light construction tasks. In 2002 Seaye introduced its first ROV built to offshore standards but aimed at the requirements of coastal and inshore operators. This Falcon ROV has since become a leading product in its class with sales of around 75 systems achieved by mid 2006. Sales and marketing activities for Falcon and the new deeper rated Falcon DR has introduced Seaye to a much wider audience beyond oil and gas resulting in sales of Lynx, Tigers, and Panther Plus to various navies, research organizations and environmental groups including the Russian Navy who use their Panther Plus for submarine rescue operations and the French Navy who use theirs for torpedo recovery.

**Technology Profile:** Seaye Pioneered the use of brushless DC



**Lars Tossman and Chris Tarmey.**

motors for reliable use in ROV thrusters and were the first to use modern plastics and composite materials in the construction of ROV frames and electronics pods.

Seaye's Falcon was the first vehicle in its class to make use of modern distributed intelligence in the control system that improves reliability and ease of use but also adds to the inbuilt diagnostics capability of the system and reduces the weight of the vehicle by eliminating a heavy electronics pod.

# Technology Blossoms on the West Coast

*In compiling the MTR100 for this edition, it became increasingly evident that the West Coast of North America — from San Diego, Calif., to Vancouver, BC and all points in between — is a veritable hot-bed for advanced subsea marine technology. An impressive 24 of the 100 companies profiled in this edition hail from the region.*

## AXYS Technologies Inc.

PO Box 2219, 2045 Mills Road West, Sidney,  
 British Columbia, Canada V8L 3S8  
 Tel: +250-655-5850; Fax: +250-655-5856  
 E-mail: jholding@axys.com

AXYS Technologies Inc. (AXYS) has more than 30 years experience in the design, manufacture and installation of environmental monitoring systems. AXYS provides technical field services to train and support customers in the operation and maintenance of products. AXYS is a leader in meteorological, oceanographic and water quality data acquisition systems. Its products include the TRI-AXYS Directional Wave Buoy and the Watchman500-based meteorological buoys.

## Birns, Inc.

1720 Fiske Place, Oxnard, CA 93033  
 Tel: 805-487-5393; Fax: 805-487-0427  
 E-mail: service@birns.com • www.birns.com  
 CEO: Eric Brins

Founded in 1954, Birns manufactures lighting and connector systems for deep-ocean and nuclear use. In addition to the Snooper, Kelvin, Corona and Blackbirn, BIRNS manufactures over 40 other types of lighting products, and six different connector ranges. Connectors include Aquamate wet-mateables and Millennium high-density deep-submergence styles. Birns' mission is to provide zero-defect lighting and connector products, on time, at value-for-money prices. Birns' Vision is to be the dominant supplier of high-performance lighting and connector systems to the Marine and Military markets, and lighting systems to the nuclear power generating industry.

## Carrillo Underwater Systems

PO Box 6217, Brookings, OR 97415  
 Tel: 888-728-2226; Fax: 541-469-009  
 E-mail: robc@carrillounderwater.com  
 www.carrillounderwater.com

CUS has been manufacturing C-Lites for more than 15 years, for use in the harshest marine applications. Now special computer designed reflectors enhance the capabilities of the custom made high intensity halogen lighting elements. In 1999 CUS introduced a new design for the C-Lite shell. Molding specialists assisted by advanced computer design systems created a compact, more functional design without sacrificing any of the necessary design requirements of the C-lites

## Deep Development Corp.

301-31127 Wheel Ave., Abbotsford,  
 BC V2T 6H1 Canada  
 Deep Development Corp. - USA  
 446 Harrison Street. Sumas, WA 98295  
 Tel: 1-604-864-9671; Fax: 1-604-864-8472  
 http://www.deepdevelopmentcorp.com  
 Managing Director: Tim J. MacFarlane

Rugged High Resolution Digital Video Recorder for Feet Wet Applications.

- Viperfish MSX (Marine Spec. Xtreme): Designed for top side applications, the Viperfish MSX is a shock and vibration proof digital recorder that converts analog video to digital format. It records high res video (720 x 486 pixels), at full-speed 30 frames/second with zero latency.
- Viperfish Amphibian: Designed for intense environments, Viperfish Amphibian is a ruggedized all-weather, digital video recorder. Viperfish Amphibian converts analog signals to digital format and records non-multi-

plexed video up to 640 x 480 pixels to a high capacity hard drive. The digital platform has four video inputs and combines a 1 GHZ host processor board with MPEG 4 compression.

- Viperfish Deep: Record high resolution video at depths up to 1,000 ft. on a rugged digital platform. Clear, real-time, full-speed, non-multi-plexed video is recorded to a rugged hard drive. This battery operated submersible digital recorder is power self sufficient providing flexibility and reliability for all your underwater recording needs.

## DeepSea Power & Light

3855 Ruffin Rd.  
 San Diego, CA 92123-1813  
 Tel: 858-576-1261  
 Fax: 858-576-0219  
 E-mail: sales@deepsea.com  
 www.deepsea.com

DeepSea Power & Light's growth has it moving to a 36,000 sq. ft. facility just up the road from its current location. The company's new address, as of September 1, 2007, will be: 4033 Ruffin Road San Diego, CA 92123-1817. DeepSea Power & Light has designed and manufactured oceanographic equipment for more than 20 years, including underwater lights, underwater video cameras and batteries.

## ESRI (Environmental Systems Research Institute)

380 New York St.  
 Redlands, CA 92373-8100  
 Tel: 909-798-1260 1-2641; Fax: 909-307-3051  
 E-mail: bshields@esri.com • www.esri.com  
 President: Jack Dangermond

ESRI has been a leader in the geo-

**Boeing - Marine Systems**

1145 Ocean Circle (MC: 031-EA01)  
 Anaheim, CA 92806-1911  
 Tel: (714) 762-5838; Fax: (714) 762-0661  
 Email: jameson.a.garrett@boeing.com  
<http://www.boeing.com/defense-space/ic/sis/ais/marine.html>  
 CEO: Jim McNerney  
 President, Integrated Defense Systems: Jim Albaugh  
 Director, Advanced Information Systems: Dan Jones  
 Engineering Director, AIS-Marine Systems: Tom Drury  
 Facilities: Located on Boeing's Anaheim campus, Marine Systems occupies two buildings which include engineering and support offices, high capacity computer networks, and test, integration and manufacturing areas including high bay test areas with 10- and 40-ton cranes.  
 Square Footage: Boeing AIS has over 200,000 sq ft of engineering, test, integration and production space, of which 40,000 sq ft is dedicated to undersea programs.  
 Testing Capabilities: In addition to the above, Marine Systems' footprint includes certified battery recharging facilities, a 10,000 psi test chamber, and a 120'L x 90'W x 33'D test pool which is enclosed to handle various levels of security.  
 Number of Employees: 180  
 Annual Sales: \$80 million

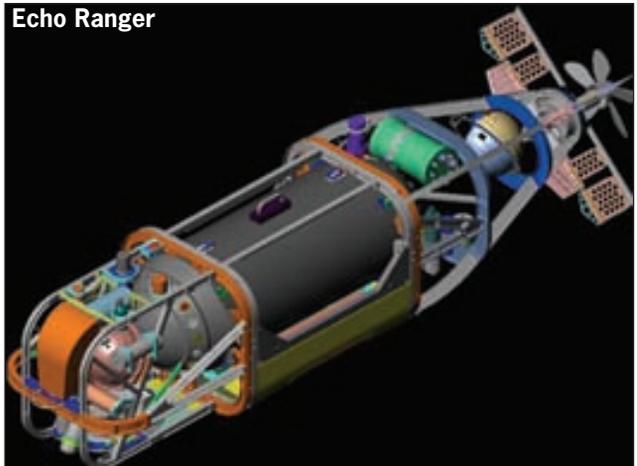
Within Boeing's Space and Intelligence Systems, Advanced Information Systems (AIS) resides Marine Systems - Boeing's organization for core expertise in undersea systems. Formerly part of Rockwell International, Marine Systems has produced more than 36 undersea systems during its 40-year history. The expertise gained from this legacy includes submarine systems integration, autonomous software, complex low power systems design, launch and recovery design, mission/sortie planning, open systems command and control, real-time/faster-than-real-time simulation, undersea systems networking, and acoustic processing, to name only a portion of their technical disciplines.

A sampling of early programs in the 1960's and '70 does include the Dolphin UUV, Powered Underwater Research Vehicle (PURV) and Beaver. A few of their other milestone programs were MK40, Unmanned Free Swimming Submersible (UFSS), and the initial Remote Mine Operational

Prototype (RMOP).

In parallel with the vehicle design, Boeing has invested in development of high-level, fault-tolerant autonomous software. Current field-tested and operational systems include the Navy's AN/BLQ-11 (mine survey AUV) and the Echo Ranger LDUUV (recently transitioned from commercial surveying to a DoD development testbed). Marine Systems' acoustic processing heritage is also impressive with over 30 years of providing hardware, software and interface design for airborne, shore based and shipboard acoustic processing. Current programs include the analyzer subunit (ASU) of the USQ-78B for the P-3 Orion and the acoustic processing suite for the P-8A Poseidon. Combined, these two programs provide sonobuoy acoustic processing for all US Navy fixed-wing ASW aircraft. **Technology Profile:** The AN/BLQ-11 autonomous Unmanned Undersea Vehicle (UUV) provides the US Navy with a covert mine countermeasure capability that can be launched and recovered through the submarine's torpedo tube while underway. It is currently the US Navy's only submarine-qualified 21-in. heavyweight vehicle. The autonomous UUV carries multiple sonar and navigation systems and control software for the mine reconnaissance mission. The BLQ-11 system is a temporary alteration (TEMPALT) and the vehicles and shipboard deployed equipment is all handled and loaded like a torpedo.

In January, 2006 several UUV "firsts" were accomplished including

**Echo Ranger**

full impulse torpedo tube launch, repetitive helo recovery, following an SSN through 180-degree turns, and successful docking to an SSN while underway. Upcoming SSN tests in September, aboard the USS HARTFORD, will validate the system robustness through repeated launch and recovery (L&R).

AN/BLQ-11's sister vehicle is Echo Ranger, an autonomous large displacement unmanned undersea vehicle (LDUUV). This COTS-designed system with a maximum operating depth of 3000 meters and 28-hour endurance has logged over 2000 miles in tests and surveys. Currently, Echo Ranger is transitioning from commercial survey missions to an operational LDUUV testbed for Marine Systems' government customers.

Field testing of the AN/BLQ-11 has demonstrated the required level of autonomy, navigational accuracy and mine-like object detection. After successful end-to-end L&R tests this fall, BLQ-11 will validate the Navy's plan for a submarine-deployed UUV. As an LDUUV demonstrator, Echo Ranger will validate open hardware/software architectures and future USW technologies. Marine Systems sees these as critical steps forward in realizing the Navy's UUV Master Plan.

graphic information system (GIS) software industry for more than 35 years. ESRI offers mapping technology solutions from oceanography to hydrography, navigation to exploration, and from coastal shoreline to the bathymetric bottom. Public and private sectors users worldwide use ESRI's GIS solutions extensively for research and analysis and to disseminate data and maps. Hydrographic mapping services use GIS for complex projects such as charting seafloor topography. Industry sector organizations use GIS technology for very specific purposes such as the petroleum industry's use of GIS for offshore exploration and production and asset/facility management.

**Geometrics, Inc.**

2190 Fortune Dr., San Jose, Ca. 95131  
 Tel: 408-954-0522; Fax:408-954-0902  
 www.geometrics.com

Geometrics has been in the design and manufacture of geophysical instrumentation since 1968. Using the latest technologies, Geometrics

designs and manufactures highly portable instruments to provide the user with a subsurface 'picture' of the earth. The instruments we design, sell and service are well suited for harsh land, sea and airborne environments.

**Gregg Drilling & Testing, Inc.**

2726 Walnut Avenue, Signal Hill, CA 90755  
 Tel: 562-427-6899; Fax: 562-427-3314  
 E-mail: info@greggdrilling.com  
 www.greggdrilling.com

Gregg Drilling & Testing, Inc. and Gregg In Situ, Inc. offers a wide range of environmental drilling, geotechnical drilling and cone penetration testing (CPT) services for site investigation and remediation. On or offshore, experienced personnel and extensive resources allow us to solve the most complex technical problems and save time and money, without sacrificing quality. Services Include: Offshore drilling using jack-up boats, barges or Gregg's drill boat (the Quin Delta)/ Sediment/soil sampling and continuous coring/ Cone penetration testing (CPT) services/ Offshore foundation

and liquefaction services/Vibracore Gregg Marine Services offers offshore drilling, sediment sampling, and cone penetration testing (CPT) services. The drill ship Quin Delta is a self-propelled ocean going vessel with a draft of only three ft. This allows for offshore drilling in a wide range of locations, from deep waters, to harbors, rivers and shallow inland locations. The Quin Delta is equipped with 80-ft. spuds that can be used for stable anchoring in waters up to 70-ft. deep. Gregg also operates vibra-core and gravity core sampling systems that can be used to collect near surface soil cores. The vibra-core system can be used to collect core samples to depths up to 20 ft. The gravity core system is useful for quickly sampling soils to a depth of 5 ft. For deeper coring, Gregg uses an OW coring system. The OW system is capable of obtaining 2 in. cores and 3 in. Shelby tube or 3 in. split spoon samples.

**LinkQuest Inc.**

6749 Top Gun Street, San Diego, CA 92121  
 Tel: (858) 623-9900, 623-9916 ext 116; Fax: (858) 623-9918  
 Email: sales@link-quest.com • URL:www.link-quest.com

LinkQuest manufactures precision acoustic instruments for offshore oil exploration, construction, drilling, survey, environmental study and other oceanographic applications. Our innovative Broadband Acoustic Spread Spectrum (BASS) Technology sets new standard for acoustic communication and positioning. LinkQuest is the dominant supplier of Underwater Acoustic Modems in the world. Its high-speed underwater acoustic modems transport more than 95% of the world's acoustic communication data. These systems have set a series of technical performance records in field deployments all over the world. LinkQuest's lines of TrackLink Acoustic Tracking Systems provide robust, accurate and cost-effective Ultra Short Baseline (USBL) solutions. LinkQuest's FlowQuest Acoustic Current Profilers and NavQuest Doppler Velocity Logs (DVL) provide highly competitive solutions for current profiling or precision underwater navigation applications. These products offer significantly longer range with high accuracy. The Micro DVL is the world's smallest and lightest Doppler Velocity Log. Over years, LinkQuest has earned an extraordinary reputation in terms of product performance, product quality and customer support. **Technology Profile:** LinkQuest has recently moved to 6749 Top Gun Street, San Diego. This move has more than doubled LinkQuest's space for R&D, manufacturing and training. LinkQuest will further invest heavily in developing new models for the FlowQuest Acoustic Current Profiler and NavQuest Doppler Velocity Log products. LinkQuest will also invest aggressively in developing faster and more cost-effective underwater acoustic modems and further enhancing its leading-edge spread spectrum TrackLink USBL systems.



**Schilling Robotics LLC**

201 Cousteau Place, Davis, California 95618-5412

Tel: 530-753-6718; Fax: 530-753-8092

Email: sales@schilling.com

www.schilling.com

CEO: Tyler Schilling

President: John Wetzel

Marketing Directors: Wes Gerriets, Jason Stanley

Engineering Director: Steve Callori

Facilities: Davis, California; Houston, Texas;

Aberdeen, U.K.

Square footage: 75,370 sq. ft. (total.)

Testing facilities: In-ground test tank

Number of employees: 200

Since its founding in 1985, Schilling Robotics has designed and manufactured remotely operated equipment for underwater environments. The company's initial products were remote manipulator systems, and Schilling became a supplier of manipulator systems for the ROVs and cable trenching machines used in offshore oil, telecommunications, scientific, and military operations. More than 20 years later, the company continues to specialize in the design, development, manufacture, and field service of remotely operated systems. Products now include electric and hydraulic work-class remotely operated vehicles (ROVs), and Schilling's QUEST ROV was the first commercially available electric work-class system.

The company's engineering specialties include control systems, equipment packaging for marine environments, high-pressure hydraulics, global design, system micro-miniaturization, high-speed digital electronics, data acquisition, robotics, power transmission, and precision machining.

The company has also developed a comprehensive support system, and with the largest field service team of any ROV manufacturer, Schilling Robotics can support clients on site, 24 hours a day, with factory-trained

technicians experienced in operations and technical support. Schilling's support system also includes 24-hour telephone hotline support by qualified technical staff; full spares and service support based in the U.S. and U.K., with manipulator spares and service also based in Norway; detailed technical manuals with full part lists, engineering drawings, and schematics; instant on-line access to up-to-date technical manuals and service bulletins; and a web-based customer feedback system.

Schilling Robotics is headquartered in Davis, California, U.S.A., and has regional offices in Aberdeen, U.K., and Houston, Texas. The company is privately owned. **Technology Profile:** Schilling Robotics produces the Remote Systems Engine (RSE), a set of modular equipment items for underwater propulsion, actuation, control, and communication. Company products include the QUEST electric work-class remotely operated vehicle (ROV) system, a complete family of hydraulic ROVs, an ROV simulator for training and mission planning, and four standard remote manipulator systems. All Schilling ROVs are based on RSE building blocks.

The QUEST electric ROV, which delivers performance equivalent to a 100-hp system, offers speed, simplicity, small size, light weight, and exceptional capability.

The UHD is an ultraheavy-duty work-class ROV with power pack options of 100, 150, and 200 hp. It produces an unmatched combination of vertical and horizontal thrust, and can direct full system power to tooling or propulsion as required.

All Schilling ROVs use advanced



Tyler Schilling, CEO

intelligence for automatic control modes (heading, depth, altitude, attitude, StationKeep, and AutoTrack).

Schilling's Digital Telemetry System (DTS) provides telemetry and power control for virtually any remotely operated system. It accommodates serial, video, and Ethernet data, allowing extremely flexible setup and control of cameras, lights, and instruments. The DTS is suited for any subsea (full-ocean depth) or hazardous environment.

Schilling offers four standard tele-robotic manipulator systems (TITAN 4, CONAN, ORION, and RigMaster) with a wide range of functions, sizes, lift capacities, and control systems. In the seven-function, titanium TITAN 4, all subsea electronics are inside the manipulator arm, which increases reliability, enhances troubleshooting, and decreases weight and spares requirements.

Schilling provides spare parts, maintenance/repair services, and operations/maintenance training for all of its products.

**InterOcean Systems**

4241 Ponderosa Avenue, Suite A  
 San Diego, CA 92123-6501  
 Tel: 858-565-8400; Fax: 858-268-9695  
 E-mail: sales@interoceansystems.com  
 www.interoceansystems.com

InterOcean Systems is a leader in the design and manufacture of oceanographic and environmental equipment and systems. It continually improve and broadens its line of products. The product line includes S4 Current Meters, Wave & Tide Gauges, Meteorological/Oceanographic (METOC) Buoys, Acoustic Releases, Winches & Marine Handling Systems, Hydrophones, and Remote Oil Spill Detection and Sampling.

**Markey Machinery**

4634 East Marginal Way So., Suite C-140  
 Seattle, WA 98134  
 Tel: 206 - 622- 4697; Fax: 206 - 623 - 9839  
 Email: bagriffin@griffinassociates.com  
 URL: www.markeymachinery.com  
 Contact Person: Barry Griffins

Founded in 1907, Markey Machinery Company is in the design and manufacturing of high quality custom deck machinery for workboat, scientific, and dockside applications. The company established a rep-

utation for quality by delivering machinery that is built for the long haul every time. Markey maintains a high level of quality by applying sound marine engineered designs, and by handling almost every phase of manufacturing using craftsman skilled in all areas of fabrication, machining, and final assembly.

**Measurement Technology NW**

4211 24th Avenue West, Seattle WA, 98199  
 Tel: 206-634-1308; Fax: 206-634-1309  
 Email: Daveh@mtnw-usa.com  
 www.mtnw-usa.com  
 President: Tim Oneill  
 Vice President: Richard Burke  
 Marketing Director: Dave Heiss  
 Engineering Director: Tomas Rezanka  
 Square Footage: 700 sq ft.  
 Testing Capabilities: Environmental Chambers  
 Number of Employees: 18  
 Annual Sales (US\$): 2,500,000

Measurement Technology NW's Seattle-area production facilities consist of 7,000 sq ft. of office, laboratory, and manufacturing space, as well as an experienced staff of engineers and service technicians for customer support and onsite service work. Installed equipment and capabilities include: AutoCAD and Rhino CAD licenses, schematic capture and cir-

cuit board design tools, a full complement of electronic test instrumentation, UL approved electronic panel assembly shop, complete machine shop, vacuum-laminating station for composite production, fully equipped mechanical assembly area, welding and brazing facilities, in-house software development, creation of dedicated microprocessor-based devices. MTNW's winch instrumentation systems have been sold worldwide to oceanographic research organizations, military/government entities, and commercial marine operations supporting the offshore oil and gas industry.

**Rapp Hydema**

4433 27th Avenue W., Seattle, WA 98199  
 Tel: 206-286-8162; Fax: 206-286-3084  
 Email: kirkn@rappus.com • www.rappmarine.com

Rapp Hydema AS manufacturers and suppliers of Hydraulic deck machinery to the Marine and fishing Industries for 100 years. The company located in Bodø, Norway, founded in 1907, offers a wide range of winch systems for anchor handling, vessel mooring, towing, trawling and lifting

**OceanWorks International**

# 3-1225 E. Keith Road, North Vancouver BC V7J 1J3, Canada  
 Tel: +1 604 986 5600; Fax: +1 604 986 7125  
 Email: abradly@oceanworks.com • www.oceanworks.com  
 CEO: Rod Stanley • COO/President: John Jacobson  
 Vice President of Finance & Admin.: Laurie Bristow • General Manager: Glen Viau  
 Vice President of Special Projects: Jim English  
 Facilities: Vancouver - office/shop facility,  
 Square Footage: Vancouver - 22,000 square feet, Houston - 24,000 square feet  
 Testing Capabilities: 2 x 10 ton overhead cranes  
 Number of Employees: 120 • Annual Sales (US\$): \$27,000,000

OceanWorks provides the military and commercial industry with a full range of subsea systems development, engineering, manufacturing, operations and logistics support. OceanWorks International specializes in the design and manufacturing of underwater systems and specialized equipment for key commercial marine industries, academic institutes and military clients worldwide. There are approximately 100 employees in the Vancouver, BC Canada, Office. **Technology Profile:** As oil exploration moves beyond the traditional shallow water fields to more hostile environments where greater depths, currents, and lower visibility prevail, the benefits of ADS systems have become more pronounced. In 2006, OceanWorks International introduced its latest line of ADS systems; the Quantum. With over 30 years at the cutting edge of deep submergence and diving technology OceanWorks is a leader in ADS design, manufacture and operations. It provides innovative solutions to unique underwater problems by combining our technical skills and creative thinking with practical, hands on experience.



## International Submarine Engineering Ltd.

1734 Broadway Street  
 Port Coquitlam, BC V3C 2M8  
 Tel: 604-942-5223  
 Fax: 604-942-7577  
 www.ise.bc.ca  
 Email: info@ise.bc.ca  
 President: James McFarlane  
 Vice President: Mike Macdonald  
 Vice President: James Ferguson  
 Facilities: 45,000 sq. ft., consisting of ISE and ISER engineering, manufacturing and administration facilities  
 Testing Capabilities: In-ground, on-site test tank (45'x15'x15') and 25 meter trials/testing vessel  
 Number of Employees: 65  
 Annual Sales (US\$): \$10,000,000

International Submarine Engineering Ltd designs and develops autonomous and remotely operated underwater vehicles as well as a sys-

tems integrator of robotic platforms. Since 1974, ISE has developed and sold Remotely Operated Vehicles (ROVs), Autonomous Underwater Vehicles (AUVs), Unmanned Surface Vehicles (USVs) and manned submersibles. While the primary focus is on marine platforms, ISE also builds and supplies manipulators, hydraulic components and tools for use with ROVs and other robotics systems.

Notable product achievements include the HYSUB series of ROVs, the Theseus AUV, which holds the endurance record for AUVs, the Explorer Class of AUVs, Shell SmartPump refuelling robot and the STM Crew training robot for the Canadian Space Agency. ISE's equipment is found in all sectors of the underwater activity including offshore, cable maintenance, marine science and oceanography and naval mine countermeasures.

Based in Port Coquitlam, BC, ISE's facilities are conveniently located 10km from the Vancouver harbor where the company maintains and operates a 25 m research vessel. Local sheltered water depths are from 20 to 240 m and provide an ideal undersea vehicle testing site. **Technology Profile:** ISE's specialty lies in the design and



James McFarlane, President

integration of complex systems for the sub-sea industry with a focus on working to provide clients with solutions that address their specific needs. This experience is represented by the 210 underwater vehicles ISE has built and delivered to clients in 20 countries. Of these vehicles, over 25 are AUV's. These range from a 25 kg suitcase size vehicle known as Sea Squirt, to the longest-range AUV that currently exists in the world.

Complementing design and manufacture, ISE has built a framework for control systems that span a wide range of remotely controlled applications. A unified control system design is used across all unmanned vehicles based on common core software for command and control. Since cost is becoming a greater factor in capital purchase, ISE's aim is to provide vehicles with longevity. Many of ISE's underwater vehicles have been used for over 15 years. As one example, ARCS, our first AUV saw 18 years of service, three owners, six major upgrades and over 800 dives supporting five distinct applications. One of our ROVs has also just recently completed its 3000th dive after 18 years of service.



operations along with the associated control-monitoring systems. Rapp operates a total engineering management and supervision system for all products also offerings full maintenance and service support worldwide. Rapp recently launched its "Offshore Solutions" division offering a new range of Hi-Performance winch-handling systems, specifically designed for deep-water ROV systems used in subsea drilling and offshore construction support industries. These custom build winches are available in Hydraulic or Electric formats with optional Computerized Active Heave Motion Compensation (AHC) systems and Traction control modules. Rapp's Soft-touch deployment & recovery control systems offer more finite umbilical control available in Standard or Custom designs. Rapp also offers Winch-Handling Systems for the Geophysical, Seismic and Survey Industries.

### Sea-Bird Electronics, Inc

1808 136th Pl. N.E.  
Bellevue, WA, 98005 USA  
Tel: 425-643-9866  
Fax: 425: 643-9954  
E-mail seabird@seabird.com  
www.seabird.com  
President: Dr. Norge Larson, Oceanographer  
Vice President: John Backes  
Marketing Director: Doug Bennett  
Engineering Director: Dave Murphy  
Facilities: Engineering and Administrative offices, laboratories, manufacturing, CNC machine shop, warehouse.  
Square Footage: approx. 30,000  
Testing Capabilities: conductivity, temperature, and dissolved oxygen calibration baths (12), 10,000 psia hydrostatic pressure test vessels (3), deadweight testers, metrology laboratory - water triple-point cells, galium melting point cells, 8400B Autosals, IAPSO Standard Seawater  
Number of Employees: 92  
Annual Sales (US\$): 19,000,000

Sea-Bird Electronics, Inc is a manufacturer of marine instruments for measurement of salinity, temperature, pressure, dissolved oxygen, and related oceanographic variables. Major products include Conductivity/

Temperature/Depth (CTD) profilers, multi-bottle in-situ water samplers, moored CT recorders, dissolved oxygen sensors and wave/tide/tsunami pressure instruments. Sea-Bird was incorporated in 1979, and currently employs 92 people, including 5 oceanographers. The company has been profitable each year, and has always devoted more than 10% of its yearly revenue to research and development. **Technology Profile:** CTD instruments have been developed to meet the expanding scope of oceanographic research. Application specific CTDs are available for conventional profiling, fixed moorings, moored profilers, autonomous drifting profilers (ARGO floats), surface floats, AUVs, autonomous Gliders, and Ocean Observatories. SeaBird's calibration technology (conductivity, temperature and dissolved oxygen) is at the cutting edge of accuracy and stability and provides not only the production and service calibration capacity to perform over 40,000 calibrations per year, it also serves as a powerful R&D tool. Recent R&D initiatives include next generation inductive modem technology, dissolved oxygen and surface salinity sensors for ARGO floats, an underway CTD profiler, a long-term water quality monitor, and a small low cost water sampler.

### SeaBotix Inc.

1425 Russ Blvd, T112D, San Diego, CA 92101  
Tel: +1-619-239-5959  
President: Donald Rodocker

SeaBotix is a manufacturer of Mini-ROV systems, since the introduction of the LBV in 2001. Founder Donald Rodocker has been involved in the underwater industry for over 30 years. SeaBotix is a small company of 40 employees with offices in San Diego and also Perth, Australia.



LBC

**Technology Profile:** SeaBotix Inc. manufactures a comprehensive line of MiniROVs. Each SeaBotix system is designed with unique aspects in the MiniROV market. Such aspects include powerful thrusters including lateral, small diameter umbilical, umbilical lengths to 750 meters, 270° field of view, video overlay, highly intuitive control system, auto functions and a multitude of options.

In addition to the LBV SeaBotix has developed a hybrid system. The LBC enhances the capabilities of the LBV by adding a unique attractor and 4-wheel drive mechanism. Each SeaBotix system is designed as a flexible sensor platform. With this in mind there are a diverse range of options to suit each individual requirement such as sonars, lighting, cameras, manipulators, probes and more.

### Sidus Solutions

2785 Kurtz St. Ste. 1, San Diego, Calif. 92110  
CEO: Leonard Pool

Founded in September 2000, SSI's team encompasses more than 40 years of combined experience. The primary business sectors Sidus Solutions has marketed to have been the oil & gas E&P, refineries, oceanographic research and power generation industries. **Technology Profile:** Sidus Solutions offers a line of state-of-the-art security and surveillance products. In addition to our new flagship system, the SSI Robotic Positioning System, Sidus also offers

a full range of lights, camera stations and monitors designed specifically for operation in subsea and hazardous areas.

**Sound Ocean Systems, Inc.**

17455 N.E. 67th Court, Suite 120  
 Redmond, WA 98052  
 Tel: 425 869-1834; Fax: 425 869-5554  
 Email: inquiries@soundocean.com  
 www.soundocean.com  
 CEO/President: Ted Brockett  
 Vice President: James McFarlane  
 Marketing Director: Brian Reid  
 Engineering Director: Paul Hauser  
 Facilities: 10,300 square foot shop and office area. Equipment and areas for light machine work and welding, 3000 gal. test tank under a 4000# verhead lift. 40% of floor space is dedicated to office space.  
 Test Capabilities: Most electronic test capabilities plus low pressure hydrostatic

Number of Employees: 14  
 Annual Sales (US\$): \$4,000,000

SOSI was established in 1978 with the goal of providing quality marine and undersea systems at realistic costs through innovative engineering. This has included: ocean observation systems such as oceanographic data buoys and ocean data platforms, underwater time-lapse video recorder systems, moorings and instrumented moored systems, high-speed / low-speed tow-bodies, self-propelled seafloor vehicles, large ROV umbilical winches, cable handling systems, launch and recovery systems, and other specialized deck equipment.



**Diesel generator buoy.**

Recent history shows continued product evolution for commercial, scientific, and government customers worldwide. **Technology Profile:**

**Deep Ocean Engineering**

1431 Doolittle Drive, San Leandro CA 94577  
 Tel: 510-562-9300; Fax: 510-430-8249  
 Email: customersolutions@deepocean.com • www.deepocean.com

Deep Ocean designs, builds and tests its ROV's from its plant in California. Deep Ocean has been in continuous operation for 25 years and has sold more than 530 ROV systems in over thirty countries worldwide. Deep Ocean's ROV systems have been utilized in a broad range of industry applications - military, security, salvage, long tunnel and pipeline inspection, customs, nuclear and hydroelectric power plants, dams and lakes, offshore oil and gas servicing, scientific research and education, fisheries and broadcast filming. Customers include the military organizations of eighteen (18) countries (including the U.S. Navy, Naval Surface Warfare Center, Explosive Ordnance Disposal, Naval Facilities Engineering and Service Center and Army Corps of Engineers), the FBI, Canadian Defense, UK Customs, various utility power companies, science, law enforcement and security groups. **Technology Profile:** In addition to offering a complete range of standard ROV systems, Deep Ocean provides customized solutions for clients with specific requirements. Tailor-made solutions are engineered from component technologies, which have been proven in various industry applications. The engineering and manufacture of appropriately configured submersible delivery systems also include the integration of a wide variety of sensors, tools, electronic navigational controls and tracking systems, instrumentation packages and accessories.

**Deep Ocean Engineering's 25th Anniversary:** What started off in California during 1982, as a small manufacturer of Remotely Operating Vehicles (ROV's), turned into Deep Ocean Engineering celebrating 25 years of supplying ROV's to more than 30 countries. Though the company has continued to grow and spread around the world, it never forgot about its roots in California. Deep Ocean still has partnerships with agencies like California Fish & Game, The Monterey Bay Aquarium Research Institute, NOAA, and The City of San Diego, and Pacific Gas & Electric. Deep Ocean Engineering has also been a supplier to the nuclear power plant industry, hydro electric power industry, scientific, as well as academic research, and it has even been involved in law enforcement. In fact, a victim was able to be located in California because the FBI used a Phantom HD2+2, one of Deep Ocean's ROV's. To celebrate the company's anniversary, it will be introducing their new line of all-digital ROV's. This includes the introduction of the Vector L4 and M5, as well as the digital software for the new Vectors. The Vector L4 and M5 have been designed to be lighter, provide a rapid installation, and accommodate a range of depths. This includes shallow waters to 1500m deep. The software also allows for scalable and modular applications for the products. With 25 years of experience in ROV technology under its belt and its continuous customer increase, Deep Ocean Engineering will be around introduce new types of ROV's on it's 50th anniversary.

Sound Ocean Systems, Inc. (SOSI) has always had a diverse offering of products and services for customers. Consumable products in its repertoire include leak detection modules, deep submersible GPS receivers, and support for the large numbers of customer's systems needing spares and repair services.

#### SonTek/YSI Inc.

9940 Summers Ridge Road, San Diego CA.921  
Tel: (858) 546-8327; Fax: (858) 546 8150  
Email: inquiry@sontek.com  
www.sontek.com  
President and CEO: Rick Omlor  
Executive Vice President: Gayle Rominger  
Number of Employees: 250

Founded in 1992, SonTek/YSI manufactures a range of affordable, reliable acoustic Doppler systems for water velocity measurement in oceans, harbors, rivers, estuaries, and laboratories. Since the invention of the Acoustic Doppler Velocimeter, the SonTek/YSI product line has grown into a diverse, multi-faceted mix of high-technology instrumentation. In July, 2001, YSI Inc., of Yellow Springs, Ohio, acquired the assets of SonTek and formed a new company, SonTek/YSI, that operates as a wholly-owned subsidiary of YSI Inc. The synergistic relationship between SonTek and YSI now makes for an integral solution to monitoring, testing and measuring global water ecosystems-our most important

life-sustaining resource.

A strong commitment to customer service is a cornerstone of our philosophy. Our professional staff includes experts in fluid dynamics, oceanography, hydrology, and all the engineering disciplines. **Technology Profile:** SonTek's first product, the 10-MHz Acoustic Doppler Velocimeter (ADV), was developed in cooperation with the U.S. Army Corps of Engineers' Waterways Experiment Station. Originally designed for laboratory use, the ADV is a single-point, high-resolution Doppler current meter used for detailed studies of 3D velocity fields. The ADV product line includes laboratory and field instruments with options for integrated sensors (temperature, pressure, compass/tilt) and autonomous operation.

The SonTek product line expanded to include a wide range of current measurement instruments. The Acoustic Doppler Profiler (ADP) is a current profiler with profiling ranges of up to 200 m. At its introduction in 1994, the ADP revolutionized the market for current profilers. SonTek later refined current profiling by introducing the Pulse-Coherent ADP (PCADP) - one of the highest resolution acoustic Doppler current profilers available. With the introduction of the Argonaut-MD, SonTek pro-

duced a new level in user-friendly, low-power Doppler current meters for field applications. The Argonaut line expanded to include the Argonaut-SL and Argonaut-XR for hydrological and harbor monitoring applications and the Argonaut-ADV for single point measurements where power is limited. The flexibility of our RiverSurveyor system was expanded with the introduction of our RiverCat integrated system, which can be used in shallow streams or in areas inaccessible by boat. The RiverCat is a self-contained, compact, discharge measurement solution that incorporates GPS, telemetry, and a shallow-water catamaran.

#### Washington Chain & Supply, Inc.

P O Box 3645, Seattle, WA 98124.3645  
Tel: 206-623-8500, Fax: 206-621-9834  
Email: Bert@wachain.com

Washington Chain has one of the largest inventories of new and used anchor chain, anchors, wire rope and fittings for towing, lashing and anchoring in the United States. Certified testing by ABS, Lloyds, DNV, ILO. Defense Quality Std. MIL-I-45208A. It has testing facilities to 2,000,000 lbs, allowing proof testing, physical pull testing, tension testing and destruction testing. The company's latest addition is the MarQuip Mooring and Vessel Approach System, combining our new compact LNG release hooks with an accurate, real-time monitoring system developed with Measurement Technology Northwest for vessel approach and mooring line tension resulting in improved terminal safety and efficiency. This comprehensive monitoring package has been specifically designed to support a wide range of input and output requirements, providing a complete mooring solution.



## Deck Machinery, Ropes, Cables, Connectors

### Advanced Automation Technologies 640 Rice Blvd.

Exton, PA 19341  
Tel: 610-458-8700  
Fax: 610-458-0606  
Email: rschultz@aatcranes.com  
URL: www.aatcranes.com  
Contact Person: Richard L. Schultz  
Products: The company is a crane manufacturer and its products include whirler, gantry, bridge cranes, and controls.

### Agrico Sales, Inc.

3413 River Road  
Bridge City, LA 70094  
Tel: 504-436-9400  
Fax: 504-436-9458  
Email: brieck@agricosales.com  
URL: www.agricosales.com  
Contact Person: Bob Rieck  
Products: Agrico Sales is a general contractor and manufacturer of bulk equipment. Its products include bulk conveyors, shiploaders, bins, barns for grain, aggregates, fertilizer, coal, pet coke, gypsum and wood chips.

### Appleton Marine, Inc.

3030 E. Pershing St.  
Appleton, WI 54911  
www.appletonmarine.com  
Tel: 920-738-5432  
Fax: 920-738-5435  
Email: sales@appletonmarine.com  
Products: Appleton Marine has supplied custom shipboard handling and deck machinery for military and commercial shipbuilding for over 30 years. Manufacturer of cranes, winches, windlasses, capstans, hose reels and custom designed marine machinery.

### BIRNS, Inc.



1720 Fiske Place Channel Islands Business Center  
Oxnard, CA 93033-1863  
Tel: 805-487-5393  
Fax: 805-487-0427  
Email: service@birns.com  
URL: www.birns.com  
Product: BIRNS is in its sixth decade of manufacturing high-performance lighting systems; MPI equipment; and electrical, electromechanical and electro-optical connectors and cable systems for deep-submergence use. These include BIRNS diving and ROV lights, and BIRNS Millennium,

Aquamate, Elastomeric, Polymeric, Metal Shell connectors, electro-optical high-voltage hybrid connectors, and penetrators for PVHO's.

### Brooke Ocean Technology Ltd.



Co-owner Geoff Lebars  
50 Thornhill Drive, Unit 11  
Dartmouth, Nova Scotia B3B 1S1  
Canada  
Tel: 902-468-2928  
Fax: 902-468-1388  
Email: glebars@brooke-ocean.com  
URL: www.brooke-ocean.com  
Products: Brooke Ocean Technology Ltd. (BOT) is a manufacturer of advanced water column profiling systems, data collection platforms, instrumentation, cable handling hardware and launch/recovery systems. Other products include custom slip ring winches, towed bodies, metering sheave systems, and launch/recovery systems for AUVs, unmanned surface vehicles, towed bodies, CTD rosettes, atmospheric diving suits and submarine pod posting. The company's new US arm, Brooke Ocean Technology (USA) Inc. began operation in the summer of 2005 in New Bedford, Mass.

### Burrard Iron Works

Tel: 604-684-2491  
Fax: 604-684-0458  
Email: sales@burrardironworks.com

### Coastal Marine Equipment

20995 Coastal Parkway  
Gulfport, MS 39503  
Tel: 228-832-7655  
Fax: 228-832-7675  
Email: sales@coastalmarineequipment.com  
www.coastalmarineequipment.com  
Contact Person: Anthony Gauthier  
Products: Coast Marine manufactures marine deck machinery. Such products include: Anchor Windlasses, Mooring Winches, Anchor Winches, Hose Reels, Capstans, Escort Winches, Towing Winches, Tugger Winches, Ramp Winches, Spud Winches, Cable and Storage Reels.

### Cortland Fibron BX Limited

Unit C, Belcon Industrial Estate,  
Bingley Road  
Hoddesdon, Hertfordshire, EN11  
ONX United Kingdom  
Tel: +44 1992 471444

Fax: +44 1992 471555  
nmcadam@cortlandfibron.co.uk  
www.thecortlandcompanies.com  
Contact Person: Neil McAdam  
Products: Cortland designs and manufactures cables and umbilical for the offshore oil & gas market.

### Crane Repair Service

4322 70th Ave E Unit c  
Fife, WA 98424  
Tel: 253-848-9473  
Fax: 253-848-1790  
Email: lance@lancecrane.com  
URL: www.lancecrane.com  
Contact Person: Lance Crane  
Products: The company repairs cranes by using specialized reeving of wire rope operated equipment.

### CS Controls Inc.

101 Dickson Road  
Houma, LA 70363  
Tel: 985-876-6040  
Fax: 985-876-0751  
Email: info@cscontrols.com  
URL: www.cscontrols.com  
Contact Person: James Butts  
Products: CS Control Inc manufactures anchors, windlass, and cranes.

### DC Fabricators Inc.

Tel: 609-499-3000 Ext. 288  
Fax: 609-499-4214  
Email: rasarraio@dcfab.com  
URL: www.dcfab.com  
Products: DC Fabrication products include: heat transfer products, equipment and components, shell & tube heat exchangers, pressure vessels, main power plant condensers, ejectors, filters, prototype and custom alloy fabrics.

### Desmond-Stephan Mfg. Co.

www.swirloff.com  
Tel: 937-653-7181  
Fax: 937-653-5511  
Email: desmondmfg@ctcn.net  
URL: www.swirloff.com  
Products: Desmond has a swirl-off scarifier tool that removes barnacles and rust.

### Diversified Lifting Systems Inc.

4702 Distribution Dr.  
Tampa, FL 33605  
Tel: 800-752-1214  
Fax: 813-248-6057  
Email: lbernier@diversifiedlifting.com  
URL: www.diversifiedlifting.com  
Contact Person: Les Bernier  
Products: Diversified Lifting rigs, manufacturers, and distributes wire rope, chain, slings, web products, tow wires, wire lubrication, deck lashing and hardware.

### DMW Marine, LLC

Tel: 610-827-2032  
Fax: 610-827-1199  
Email: dw@dmwmarine.com  
URL: www.dmwmarine.com  
Products: The company products include: palfinger marine cranes, radio remote controls, hydraulic power units, and winches.

### Engineered Special Products

2425 Sherwin Dr.  
Twinsburg, OH 44087  
Tel: 330-425-8819  
Fax: 330-963-6858  
Email: superchief87@adelphia.net  
URL: www.engineeredspecialproducts.com  
Contact Person: Charles R. (Bob) Shaw  
Products: Engineered Special designs and manufactures cable end fittings for armored, aramid or spectra EM ROV umbilical cables.

### Hawboldt Industries

via della costituzione 43  
Poviglio (RE), 42028  
Italy  
Tel: +390522688244  
Fax: +3902700429028  
Email: mtmagazine@heila.com  
URL: www.marine-cranes.com  
Contact Person: Ivan B. Zwijnenburg  
Products: Manufacturer of Marine Cranes in a wide variety of models and configurations. Fixed Box Booms, Telescopic, Foldable, Knuckle boom, and custom build cranes up to 1500 tm. Heila products are used for cranes Offshore Platforms, fishing Industrie, ROV handling, Workboat, Supply vessels, anchor handling, aquaculture, fish farm food supply and many other applications. Cranes with ABS - DNV - LRS - GL - RINA of other certification.

### Hawboldt Industries Ltd.

P.O. Box 80, 220 Windsor Road  
Chester, B0J 1J0  
Canada  
Tel: 902-275-3591  
Fax: 902-275-5014  
Email: richard.macleod@hawboldt.ca  
URL: www.hawboldt.ca  
Contact Person: Richard MacLeod

### Hydra-Pro, Inc.

2260 West  
Commodore Way  
Seattle, WA 98119  
Tel: 206-285-9578  
Fax: 206-285-9579



# Deck Machinery, Ropes, Cables, Connectors

Email: info@hydrapro.com  
URL: www.hydrapro.com  
Contact Person: Reed Okawa  
Products: Hydra manufactures marine cranes for workboat, offshore, and military applications.

## Impulse Enterprise

8254 Ronson Road  
San Diego, CA 92111  
USA  
Tel: 858-565-7050  
Fax: 858-565-1649  
Email: impulse@impulse-ent.com  
URL: www.impulse-ent.com  
Contact Person: Andy Gardner  
Products: Impulse is a manufacturer of electrical and optical connectors and cable assemblies for harsh environments.

## Intercon

P.O. Box 9055  
Kansas City, MO 64168  
Tel: 985-212-9272  
Fax: 504-362-6989  
Email: srheams@intercon.com  
URL: www.intercon.com  
Contact Person: Steve Rheams  
Products: The company designs and manufactures heavy machinery for marine, industrial and defense markets products include: ATB coupler systems, deck machinery, mooring systems, heavy fabrication and machining.

## JonRie InterTech LLC

982 Whispering Oak Cir.  
Manahawkin, NJ 08050  
Tel: 609-978-3523  
Fax: 609-978-4959  
Email: bjdme@marinewinch.com  
URL: www.marinewinch.com  
Contact Person: Brandon Durar  
Products: JonRie produces an assortment of winches that include: escort winches, towing winches, capstans and anchor winches.

## Key Account

Waters View Drive  
Sugarland, TX 77478  
Tel: 281-565-4056  
Fax: 281-565-4061  
Email: spalmer@compagnie-deutsch.com  
URL: www.compagnie-deutsch.com  
Contact Person: Steve Palmer  
Products: Key Account manufacturer's subsea and marine electrical and fibre optic connectors and relays.

## Kirkpatrick Wire Rope Lubrication Systems

701 East 15th St., Suite 101  
Plano, TX 75074  
Tel: 972-509-2468  
www.seadiscovery.com

Fax: 972-509-2554  
Email: sales@thekirkpatrickgroup.com  
URL: www.thekirkpatrickgroup.com  
Contact Person: R.T. Kirkpatrick  
Products: The company manufactures wire rope lubricants and wire rope lubrication systems.

## LANTEC Winch & Gear Inc.



5827 Production Way  
Langley, BC V3A 4N5 Canada  
Tel: 604-530-0737  
Fax: 604-530-2889  
Email: jlambert@lantecgear.com  
URL: www.lantecgear.com  
Contact Person: Jeff Lambert  
Products: LANTEC is a designer and manufacturer of winches, hoists, planetary gear reducers and brakes. Since 1965 LANTEC has been supplying standard, custom and semi-custom equipment to the marine industry around the world.

## Marine Electric Systems

550 Huyler Street  
S. Hackensack, NJ 07606  
Tel: 201-531-8600  
Fax: 201-531-8606  
info@marineelectricsystems.com  
www.marineelectric.com  
Contact Person: G. Mandell  
Descr: Electronic Systems Manufacturer  
Products: Marine Electric products include: PA. Systems, crane proximity sensor, battery chargers, helicopter starting power supplies.

## Markey Machinery Co. Inc.

4634 E Marginal Way So Suite C140  
Seattle, WA 98134  
Tel: 206-622-4697 Ext.229  
Fax: 206-623-9839  
bdempke@markeymachinery.com  
URL: www.markeymachinery.com  
Contact Person: Blaine Dempke  
Products: Markey is a deck machinery manufacturer that has products such as: towing winches, escort



winches, ship-assist winches, anchor windlasses, capstans, and custom application-engineered winches.

## Measurement Technology NW

4211 24th Avenue W  
Seattle, WA 98199  
Tel: 206-634-1308  
Fax: 206-634-1309  
Email: daveh@mtnw-usa.com  
URL: www.mtnw-usa.com  
Contact Person: Dave Heiss  
Products: MTNW's popular LCI-90 and LCI-100 displays are used to monitor line tension, speed, and pay-out (cable or chain) in single or multi-winch systems used for equipment deployment, towing and ship assist activities, barge positioning, fixed-place mooring, dredging, and wherever accurate and reliable line control is required. For additional versatility, MTNW's WinchDAC software will control and display all winch line parameters (single or multiple winch installations) at a central PC computer interface.



## Mobile Pulley

Ward Faulk  
Ph: 251-653-0606  
Fax: 251-653-0668  
Email: ward.faulk@Spimpw.com

## Morgan Marine

8555 Sultana Ave.  
Fontana, CA 92335  
Tel: 909-427-9822  
Fax: 909-427-9823  
Email: Will@morgancrane.com  
URL: www.Morgancrane.com  
Contact Person: Will Morgan  
Descr: Equipment Distributor  
Products: Morgan Marine products include: marine cranes and winches.

## Nabrico

Neil Langdon  
Tel: 615-244-2050  
Fax: 615-792-8251  
Email: Neal.langdon@Trin.Net

## North Pacific Crane Company

11000 Lake City Way N. E. Ste. 302  
Seattle, USA 98125  
Tel: 206 361 7064  
Fax: 206 361 7065  
Email: info@northpacificcrane.com  
URL: www.northpacificcrane.com  
Contact Person: Joseph Rajkumar  
Products: North Pacific Crane Company designs, manufactures, and services marine and offshore cranes. The cranes are also marketed under the North American Crane

and Alaska Marine Crane trade names.

## ODIM Spectrum Ltd.

597 The Queensway  
Peterborough, on K9J 7J6  
Canada  
Tel: 705-743-9249 Ext. 281  
Fax: 705-743-8003  
Email: kfurevick@odim-spectrum.com  
URL: www.odim-spectrum.com  
Contact Person: Keith Furevick  
Products: Automated Handling Systems are ODIM's main products.

## Parker Hannifin Corporation

6035 Parkland Blvd.  
Cleveland, Ohio 44124-4141  
Tel: 216-896-3000  
Fax: 440-266-7400  
Email: cparker@parker.com  
URL: www.parker.com  
Contact Person: Sherrill I. Owens  
Products: Parker Hannifin deals with motion and control technologies and systems. The company's products include: pumps, motors, cylinders, valves, rotary actuators power units, accumulators, filtration, fluid connectors, instrumentation, and seals.



## Peck & Hale, L.L.C.

180 Division Avenue  
W. Sayville, NY 11796  
Tel: 631-589-2510 Ext.200  
Email: jszeglin@peckhale.com  
URL: www.peckhale.com  
Contact Person: John Szeglin  
Products: Peck & Hale is a designer and manufacturer of cargo securing systems and products like twistlocks, deck fittings, sockets, d-rings/straps, lashing bars, chain, and web and wire tiedown assemblies.

## Pine Hill Equipment, Inc.

655 Pine Hill Rd  
Westport, MA 02790  
Tel: 508-636-5971 Ext. 215  
Email: sales@pinehillequipment.com  
URL: www.pinehillequipment.com  
Contact Person: Owner Robert Haines  
Product: Pine Hill sells, manufactures, and supports all types of hydraulic machinery. Cranes, winches, capstans, controls, etc. The company specializes in custom Winch Systems for all applications, Planematic and Planetary Drives, Winches off the shelf from 1,000 lb to 75,000 lb line pull. Pine Hill manufactures and installs level winds, sales and service on all sizes of winches and capstans.

# Cranesmart's Wireless Technology Means More Reliable Load Calculations for Knuckleboom Crane Operators

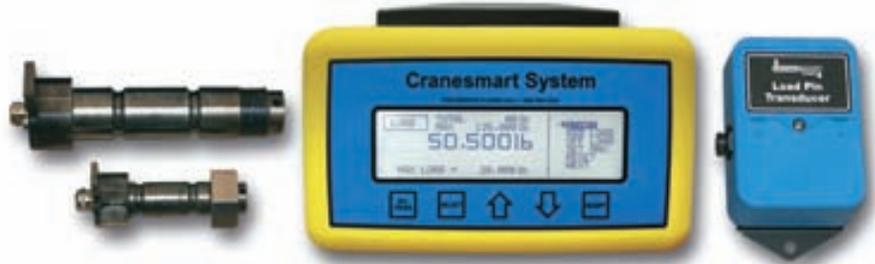
**R**elying on pressure transducers in the hydraulic system of a knuckleboom crane to accurately calculate the load on the hook is a thing of the past for operators. The new wireless load pin system from Cranesmart Systems Inc. virtually eliminates the risk of inaccuracy due to temperature and pressure variances in hydraulic systems and pressure transducer devices.

Cranesmart Systems is a specialty manufacturer of load pins, load cells, anti-2-block systems, LMIs, wind speed indicators and boom angle indicator systems for all types of mobile cranes. The new wireless knuckleboom load pin system was introduced late last year in answer to customer demand for simple-to-install operator aids for this style of lifting.

***"The knuckleboom crane industry needed this new technology to make their cranes safer and easier to use."***

"Constant feedback from crane owners all over the world has confirmed wireless products have become the main choice of people in the industry," says Jeff Crane, Vice President, Sales & Marketing for the Edmonton, Alberta, company. "The knuckleboom crane industry needed this new technology to make their cranes safer and easier to lift to capacity, as well as many other benefits." An accurate and reliable load monitoring system aids in ensuring the lifting process with a knuckleboom crane is much safer on every lift, he adds.

The new wireless system consists of a load pin, transmitter, display panel and antenna. This simple system was designed to be installed at the OEM level or retrofitted



Infinitely repeatable wireless load pin ensures safer operations with accurate load readings at the tip of the knuckleboom crane.

easily on an existing knuckleboom crane in the field. "It takes about an hour to install, and is repeatable for years," says Crane. "It is infinitely repeatable because there are no moving parts."

The load pin is installed at the shackle point on the boom tip, and the display panel is mounted with screws in a convenient location at the operators' control. The load pin transmits data to the display panel via repeatable strain gauges which are more accurate, says Crane, because the operator is "measuring the lift at the load as opposed to a hydraulic cylinder measuring the weight of some or all of the boom" in addition to the load.

Designed and engineered to replace the pin in the C-shackle, the wireless load pin requires no additional hardware or attachments that might interfere with normal operation. The pin replaces a component already on the boom tip. "No hydraulic hoses, no cables are involved; it's completely wireless and all solid-state," says Crane. Plus, the display panel is mounted easily at the operators' control.

The load pins are more accurate, he says, because the system is "measuring the actual load below the hook as opposed to hydraulic pressure transducers, which in turn calculate hydraulic pressures, into load readings." Hydraulic systems which use these pressure transducers can be susceptible to temperature and expansion issues, as well as the risk

of hydraulic leaks within the crane's system – all which affect accuracy and reliability, states Crane. "For added convenience and simplicity, Cranesmart knucklepin systems do not require calibration, either."

The system provides an accurate load indication in any boom angle or position, and, according to product literature, it enhances crane operations by eliminating the need to calculate each load. The weight on the hook is displayed along with a totalizing feature, which enables the operator to see the total weight of multiple lifts in succession. This feature ensures transport vehicles are loaded to correct capacity with the added benefit of eliminating overload fines.

The system is engineered for marine applications as well as land crane use, and in oilfield work. Cranesmart systems are also approved for use in hazardous area operations. Battery life in the transmitter is warranted for five years. An angle indicator, anti-2-block function, or LMI features can be added to the system's capabilities at the time of order, or retrofitted later with a simple telephone call. This load pin system can replace any sheave pin or load bearing pin in many other applications, according to product literature.

Cranesmart's new load pin system was in the prototype stage this winter, and its release was expected this spring, according to Crane. ■

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

# Deck Machinery, Ropes, Cables, Connectors

## Pro-Tect Plastic and Supply,

PO Box 1377  
Jacksonville, OR 97530  
Tel: 541-774-5506  
Fax: 541-774-5508  
Email: pro-TECT@pro-TECT.net  
URL: www.pro-TECT.net  
Contact Person: Sharri Griffin  
Products: Pro-Tect products are for heat shrink films and accessories for packaging, containments, and weatherization and include: heat shrink film, tapes, equipment, accessories and technical services.

## Puget Sound Rope

1012 Second St.  
Anacortes, WA 98221  
Tel: 360-293-8488  
Fax: 360-293-8480  
Email: sales@psrope.com



www.psrope.com  
Contact Person: Dick Kilburn  
Products: Puget Sound is a company that manufacturer's high performance ropes.  
Products include: Plasma

12x12, BOB, double braided nylon, double braided polyester,

## Pullmaster Winch Corporation

8247 - 130th Street  
Surrey, BC V3W 7X4 Canada  
Tel: 604-594-4444  
Fax: 604-591-7332  
Email: info@pullmaster.com  
URL: www.pullmaster.com  
Contact Person: Gary Wong  
Products: Pullmaster Winch Corporation manufactures a comprehensive range of planetary winch products with line pulls of 1,000 to 85,000 lb. oEqual Speed or Rapid Reverse modelsoFree Fall options available on selected modelsoStatic & Dynamic integral brake.

## Rapp Hydema

4433 27th Avenue W.  
Seattle, WA 98199  
Tel: 206-286-8162  
Fax: 206-286-3084  
Email: kirkn@rappus.com  
URL: www.rappmarine.com  
Products: RAPP HYDEMA AS manufacturers and suppliers of Hydraulic deck machinery to the Marine and



www.seadiscovery.com

fishing Industries for 100 years. The company located in Bodø, Norway, founded in 1907, offers a wide range of winch systems for anchor handling, vessel mooring, towing, trawling and lifting operations along with the associated control-monitoring systems. Rapp operates a total engineering management and supervision system for all products also offerings full maintenance and service support worldwide.

## Scan Pacific Northwest, LLC.



649 5th Street, suite 201  
Mukilteo, WA 98275  
Tel: 425-355-4652  
Fax: 425-355-4671  
Email: info@scanpacificnw.com  
URL: www.scanpacificnw.com  
Contact Person: Rapp Mareq  
Products: Scan Pacific products include: davits, cranes, and quick release hooks.

## Schoellhorn-Albrecht

575-105 Rudder Road  
Fenton, MO 63026  
Tel: 314-351-3333  
Fax: 314-351-5780  
Email: brianpav@schoellhorn-albrecht.com  
URL: www.schoellhorn-albrecht.com  
Contact Person: Brian Pavlisin  
Products: Schoellhorn designs and manufactures mooring equipment including capstans, deck fittings, and special fittings designed for synthetic lines.

## Ships Machinery International

8375 NW 56 St.  
Miami, FL 33166  
Tel: 305-428-3835  
Fax: 305-559-8223  
Email: ctorres@shipsmachinery.com  
URL: www.shipsmachinery.com  
Contact Person: Cesar Torres  
Descr: Distributor of Marine Equipment  
Products: Ships Machinery distributes marine equipment such as: deck machinery cranes, winches, davits, rescue boats, anchors, moorings, FiFi Systems, Bowthusters, and CPP Propellers.

## Sound Ocean Systems, Inc.

P.O. Box 2978  
Redmond, WA 98073  
Tel: 425-869-1834  
Fax: 425-869-5554  
Email: brian.reid@soundocean.com  
URL: www.soundocean.com  
Contact Person: Brian Reid  
Product: The company designs and manufactures custom winches, LARS, HPUs, and towfish.

## Southwest Synthetic Systems

CUT slings  
1357 Sheffield Blvd.  
Houston, TX 77015  
Tel: 713-451-9341  
Fax: 713-451-9835  
Email: kshepherd@swssi.com  
URL: www.swssi.com  
Contact Person: Keith Shepherd  
Products: The company products include: web slings and round slings, synthetic ropes including plasma, spectra, vectran, nylon, polyester, polypropylene, splicing of mooring lines, tow lines, face lines, and wing wires.

## Superior Industries

315 East State Highway 28  
Morris, MN 56267  
Tel: 320-589-2406  
Fax: 320-585-5644  
Email: deb.gorder@superior-ind.com  
URL: www.superior-ind.com  
Contact Person: Deb Gorder  
Products: Superior Industries is a manufacturer of innovative bulk material handling equipment. Superior provides customers with cost effective and durable conveying solutions, customized for any application. Products include: teleStacker conveyors, powerstacker conveyors, portable radial stacking conveyors, extender series conveyors, transfer conveyors, feed systems, and truck unload systems.

## Superior Lidgerwood Mundy Corporation

302 Grand Ave  
Superior, WI 54880  
Tel: 715-394-4444  
Fax: 715-394-6199  
Email: sales@lidgerwood.com  
URL: www.lidgerwood.com  
Contact Person: Vici McCusker  
Products: Superior Lidgerwood products include: capstans, windlass, and tow haulage.

## Tech Crane

Farhad Shad  
Tel: 985-871-0056  
Fax: 604-921-1941  
Email: Fshad@Techcrane.net

## Teledyne-ODI

1026 N. Williamson Blvd  
Daytona Beach, USA 32114  
USA  
Tel: 386-236-0780 Ext.1443  
Fax: 286-236-0906  
Email: jflynn@odi.com  
URL: www.odi.com  
Contact Person: John Flynn  
Product: Teledyne designs and manufacture high reliability electrical and optical wet mate and dry mate connectors and assemblies for harsh environment sub sea applications. The company also provides engineering services, test services, integration, and program management.

## Timberland

Tel: 713-444-2893  
Fax: 519-539-5853  
Email: Sbarsetti@Tewinch.com

## W.K.M. Cornelisse Trading B.V.

Tel: +31-(0)345-517122  
Fax: +31-(0)345-684230  
Email: info@wkmcornelisse.com  
URL: www.wkmcornelisse.com  
Products: W.K.M. products include: Marine aux, equipment, such as winches, and capstains.

## Washington Chain & Supply Co. Inc.

2901 Utah Ave South  
Seattle, WA 98134  
USA  
Tel: 206-623-8500  
Fax: 206-621-9834  
Email: craig@wachain.com  
URL: www.wachain.com  
Contact Person: Craig Clarey  
Product: The company distributes anchors, anchor chain, deck hardware, rigging hardware, rope and wire rope.

## Kongsberg Wins Navy Mine Hunting Contract



Kongsberg Maritime AS and Kongsberg Defence & Aerospace AS signed a contract for the new Finnish Navy Mine Hunting Vessel program. The contract has a value of \$19.1m and includes HUGIN 1000 MR, EM 710 and HiPAP 500, three of each. KDA acts as an integrator of all hydroacoustic products into the tactical system (C2) delivered by Atlas Electronics, Germany. Intermarine, Italy is the shipbuilder and the prime contractor. The first ship is planned to be delivered to the FN in 2010.

## EBDG Contracts with ONGC

The Oil and Natural Gas Corporation of India has contracted with Elliott Bay Design Group to provide consultancy for the design, construction and delivery of a 360 x 62 x 30.3 ft. (110 x 19 x 9.3 m) well stimulation vessel. The function of the vessel is to provide well stimulation services in open ocean environments, primarily in the Arabian Sea offshore India. The overriding requirement is for a ship which can perform advanced offshore well stimulation operations while under redundant Dynamic Positioning (DP Class 2) functions within internation-



al regulations, International Association of Classification Society, Indian Registry of Shipping and Directorate of General Shipping certification. The vessel is to be equipped for high pressure pumping operations and storage facilities with various blends of chemicals including sand, flow back facility and burner boom, and will feature a helicopter deck and three cranes.

EBDG has completed the concept design and currently is preparing the preliminary design. Contract design completion is scheduled for late Summer 2007.

## Schwarzenegger Announces Appointments

Susan Golding, 61, of San Diego, has been appointed to the Ocean Protection Council. Since 2001, she has served as president and chief executive officer for the Golding Group Incorporated. Golding previously served two terms as both mayor of San Diego from 1992 to 2000 and on the San Diego County Board of Supervisors from 1984 to 1992. Prior to that, she served as deputy secretary for the Business, Transportation and Housing Agency from 1983 to 1984. Golding is chair of the Marine Lands Protection Act Blue Ribbon Task Force. This position does not require Senate confirmation and the compensation is \$100 per diem. Golding is a Republican.

## EdgeTech Side Scan Sonar installed on ROTV

An EdgeTech 4200 Series Side Scan Sonar System installed on two MacArtney Focus-2 ROTVs owned and operated by Noordhoek Survey has just completed its first project; a pipeline inspection in the North Sea. The Focus-2 vehicles were used to inspect roughly 600 km of pipeline and utilized EdgeTech's 4200 Series Side Scan System with high frequency 300/600 kHz arrays. Aboard the vessel during the pipeline inspection campaign, the onboard geophysicist Professor Jean Lanckneus commented, "The side scan data acquired was of outstanding quality. The stability and maneuverability of the ROTV combined with the noiseless environment provides the obvious choice for all future side scan operations".



Additionally, representatives at Noordhoek had the following to say: "The data recorded was quite simply excellent, proven by the sample below. The pipeline entering the protective structure is seen quite clearly and even the gaps between the mattresses covering the pipeline on the port channel are displayed." EdgeTech can provide systems for most ROTVs as well as engineered to order systems for custom marine applications where gathering of sonar data is required.

## Teledyne Acquires Tindall Technologies

Teledyne Technologies Incorporated said that its subsidiary, Teledyne Cougar, Inc., has completed the acquisition of Tindall Technologies, Inc., a designer and supplier of microwave subsystems for defense applications. Terms of the

transaction were not disclosed. Tindall designs and manufactures high performance Instantaneous Frequency Measurement (IFM) based systems and subsystems, including integrated frequency locked sources and set-on receiver-jammers used for USN and Air Force training. Following the acquisition, it is anticipated that the Tindall operations, based in Pleasanton, Calif., will be consolidated with the operations of Teledyne Cougar in Sunnyvale, Calif. Tindall Technologies had revenue of \$2.7m for its FY 2006.

### **High Grade Assays Confirmed**

Nautilus Minerals Inc. announced that new assay results confirm the high grade gold-copper-zinc mineralisation of its recent Solwara 5, 6 and 7 discoveries, located in the territorial waters of Papua New Guinea. Laboratory testing of 24 samples across the three prospects returned an average grade of 17.5 g/t gold, 8.94% copper, 16.84% zinc and 298 g/t silver. David Heydon, Nautilus CEO said "These results further validate the Solwara district's prospectivity and more specifically our highly successful May exploration programme which yielded four new prospects in four weeks prior to the survey ship returning to Solwara 1 for a major drilling program." "Whilst the company's focus is to bring to production its first mine at Solwara 1 with a name plate production being designed around 2 million tonnes per annum, these additional high grade prospects provide a potential pipeline of projects which would be necessary if the company is to look at expanding production with the addition of a second ship or at extending the 'mine life' of a single ship operation."

### **LinkQuest Moves**

LinkQuest moved its corporate headquarter to 6749 Top Gun Street, San Diego, Calif., effective May 2007. Occupying a significant portion of a state-of-the-art two-story building at the heart of the high tech region in San Diego, LinkQuest has more than doubled its space for R&D, manufacturing and training. This expansion is a direct result from significant growth of the company in the past few years and the tremendous opportunity to meet further increased demand for its best-selling underwater acoustic modems, acoustic tracking systems, acoustic current profilers and Doppler velocity logs in the worldwide market. This new location is less than 3 miles from the previous location at 6339 Nancy Ridge Drive, San Diego. The telephone and fax numbers for the company remain unchanged.

**For more information, Email [sales@link-quest.com](mailto:sales@link-quest.com)**



### **IXSEA Appoints Hoof**

IXSEA appointed Arne Hoof as Sales Manager based in the new IXSEA subsidiary in Hannover, Germany. Hoof will develop the market for IXSEA products and managing sales in Germany. He holds an Engineering Diploma in Geodesy from the University of Hannover and a Certificate of Academic Proficiency in Hydrographic Surveying from the University of New Brunswick, Canada.

He previously worked in customer support and software training and as project engineer at Hamburg Port Authority with CARIS Geographic Information Systems bv.

### **Aker Kvaerner to Deliver Process Tech**

Aker Kvaerner signed a contract for delivery of equipment and modifications to Aker Floating Production's SMART 1 Floating Production Storage Offloading (FPSO) vessel. This new contract is an amendment to a contract awarded in November 2006 for both SMART 1 and 2 vessels. The total contract value for Aker

Kvaerner related to SMART 1 is now approximately NOK 610 million, representing an increase of NOK 430 million since November 2006.

The scope of work which will be undertaken by the Aker Kvaerner subsidiary Aker Kvaerner Process Systems includes delivery of two separation modules, one utility module and two skids for the flare system.

### **NAVMAR Wins Navy Deal**

NAVMAR Applied Sciences., Warminster, Pa., is being awarded a \$9,173,860 cost-plus-fixed-fee contract for the design, manufacture, installation, and repair of Navy Special Projects Systems associated with the Electro-Optic and Special Mission Sensors Program.

This effort will include nine digital recording systems, spares for digital recording systems, one over the horizon communication system, and one light detection and ranging review. Work will be performed in Chester, Pa., and is expected to be completed in July 2009.

Contract funds will not expire at the end of the current fiscal year.



Under the Sails at the Vancouver Convention & Exhibition Centre  
Photo credit: Tourism Vancouver



Logo by Phil Nuytten

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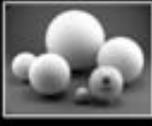
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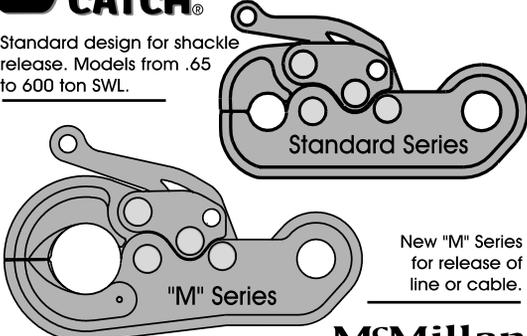
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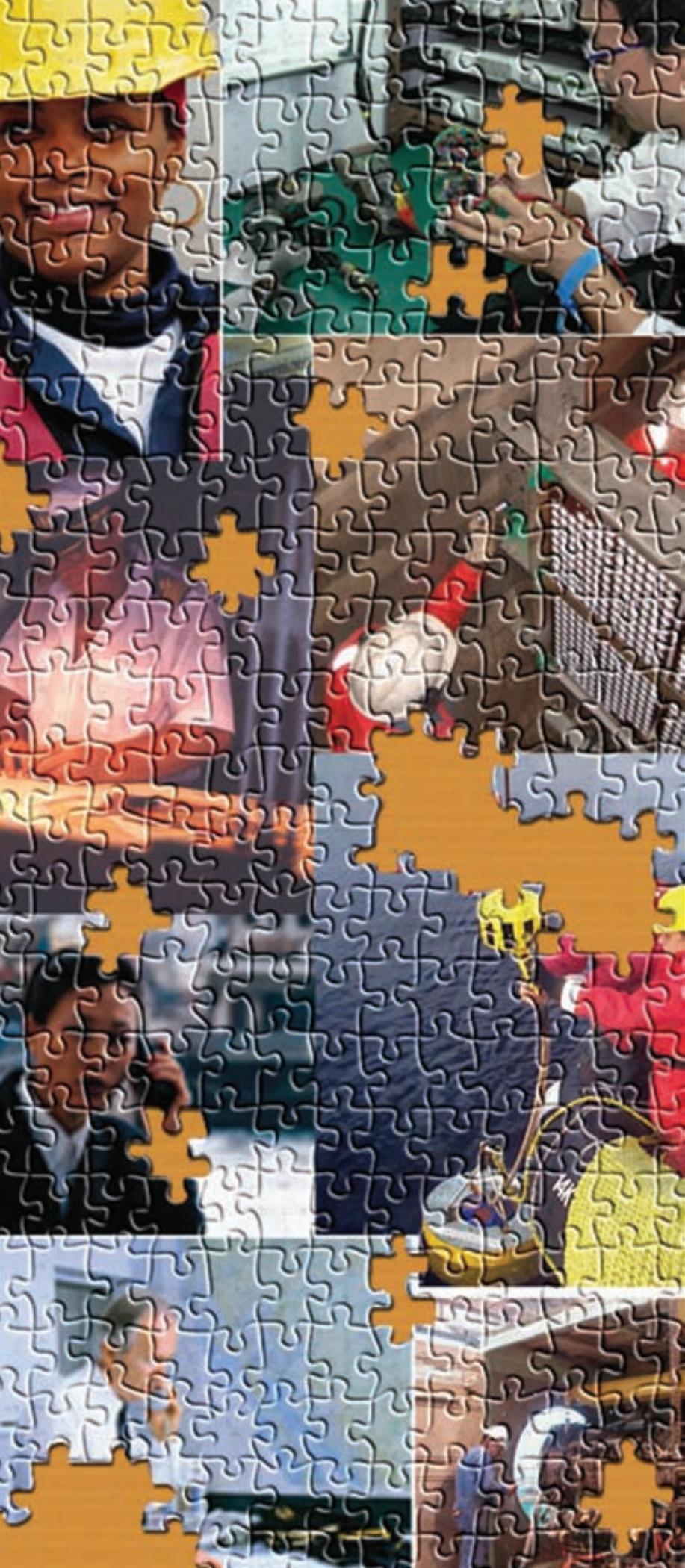
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Location: United Kingdom, Edinburgh

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## Software Production Manager

Location: United Kingdom, Edinburgh

As a result of continuous expansion SeeByte are looking for an experienced engineer to lead the production of its software products. SeeByte produces high quality systems to work in hostile, constrained environments such as AUVs and ROVs. The team operates in extremely challenging working conditions and there is a growing amount of offshore work, potentially anywhere in the world. The successful candidate will have at least 5 years commercial software engineering experience at a senior level, experience of managing commercial software engineering projects and a strong experience with, and belief in, commercial software engineering practises and quality control. Understanding of electronics and manufacturing requirements are highly desirable. Offshore Industry experience is also an advantage. For more information please refer to [www.seebyte.com](http://www.seebyte.com). To apply please email a full CV with covering letter.

## Protective Coatings Technical Manager

Location: Houston, Texas

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- Designing and delivering training programs to develop staff
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- Represent the company by producing technical papers and attending committee meetings, focus groups and carrying out academic liaison to further projects
- Manage, monitor, develop and review Research & Technology staff

### REQUIREMENTS:

- Bachelors Degree in Chemistry, Material Science or Polymer Science.
- Preference will be given to candidates with Ph. D's or Master Degree's.
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## Program Analyst - NOAA

Location: Silver Springs, MD

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[www.imsg.com](http://www.imsg.com) is looking to hire a Program Analyst with a background in one of the following areas: climate observation and analysis, commerce and transportation, or water and weather meteorology to work at NOAA's Office of Program Planning & Integration (PPI). This office was created to address the need to 1) foster strategic management among NOAA Line and Staff Offices, Goal Teams, Programs, and Councils, 2) support planning activities through greater opportunities for active participation of employees, stakeholders, and partners, 3) build decision support systems based on the goals and outcomes set in NOAA's strategic plan, and 4) guide managers and employees on program and performance management. A PPI detail should be viewed as a developmental detail requiring trust, dedication and hard work. This assignment benefits the Home Office by having direct input to developing corporate policy and decisions on the full range of NOAA's issues.

### Job Duties and Requirements:

- Understand NOAA's organization structure and the relationship with the NOAA strategic goals.
- Basic knowledge of the budget structure including Planning, Programming, Budgeting and Execution System (PPBES) processes, and management priorities for their Line/Staff Office.
- Possess strong background in the natural sciences and technical knowledge pertaining to the Line/Staff Office missions in order to promote effective and efficient communication with scientists and managers working in NOAA programs.
- Ability to review, analyze and recommend improvement to systems, processes and measures of performance.
- Ability to acquire and synthesize information into goal, program and NOAA planning documents such as the NOAA Strategic Plan, program assessments and Annual Guidance Memorandum.
- Work well in a team environment.
- Ability to manage time given varying priorities and short deadlines, and
- Be receptive to focusing on NOAA by learning the "corporate NOAA view" and establishing, and promoting, connections across line offices for the betterment of NOAA.
- Have good interpersonal and communication skills, as they will be required to network with an array of individuals and groups internal and external to NOAA.
- Be able to develop concise and informative analyses, talking points, visual presentations and one page memos for use by PPI leadership on a variety of subjects incorpo-

rating the corporate NOAA view. This entails coordinating with Line/Staff Offices, councils, goals team leads and program managers, doing extensive subject matter research and maintaining awareness of the significant public affairs issues in the topic areas.

- Be able to conduct special evaluation studies which provide information on specific topical areas, program plans, performance and/or requirements.
- Possess reasonable data handling skills to efficiently complete studies that pool and report data from various sources in various forms.
- Ability to consult with program staff and other professionals to obtain required data and information.
- Can readily acquire, review and apply appropriate literature to interest areas and

- Develop well-constructed and appropriate evaluation criteria and executes studies.

### Education Requirements:

- Requires a minimum of a Masters degree.
- Job experience in one of these desired areas is preferred: Meteorology, Atmospheric Sciences, Physical Science, Systems Engineering.
- Operational experience in one of the Line Offices a plus.

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