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MARINE TECHNOLOGY REPORTER

January 2007
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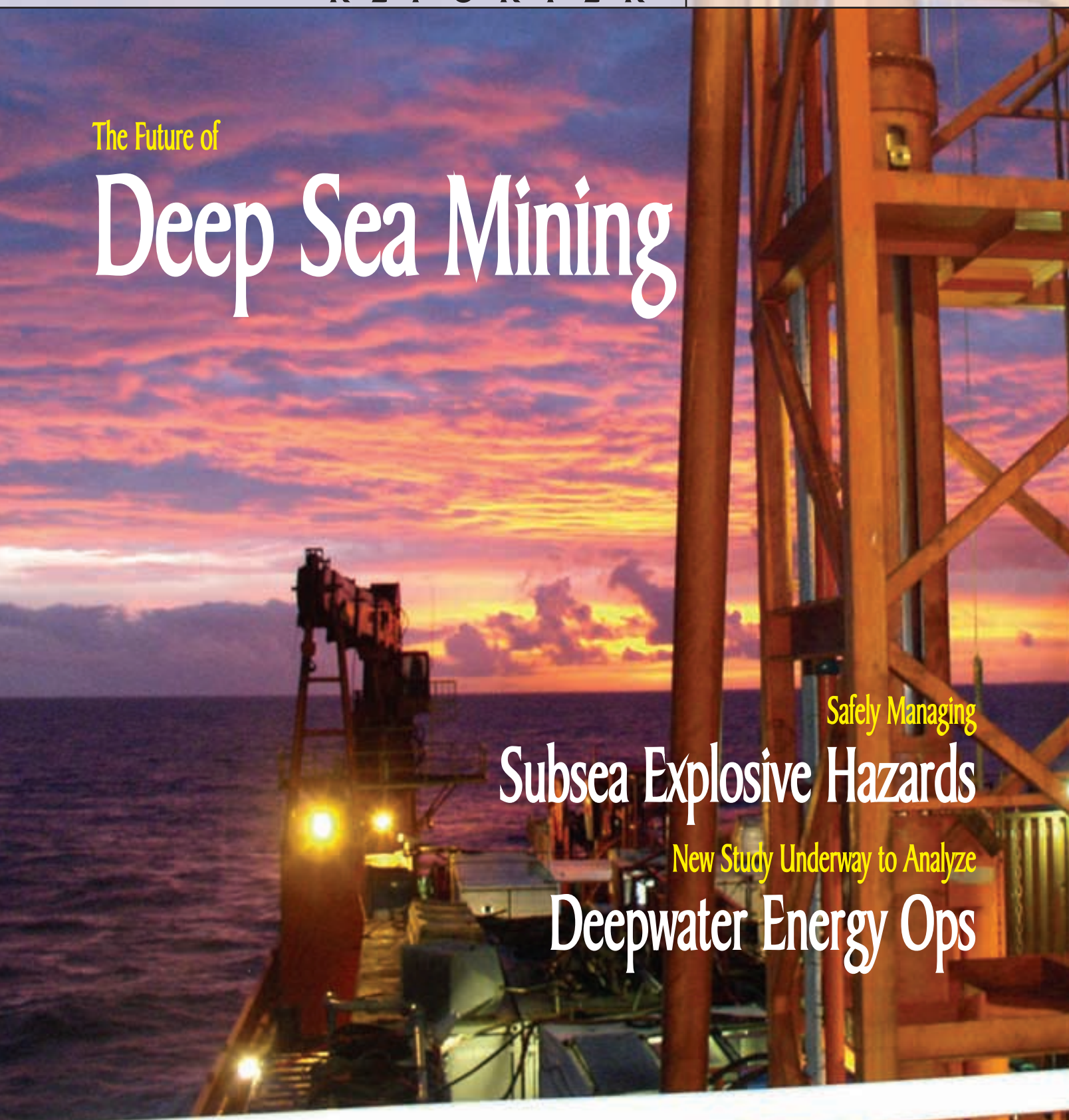

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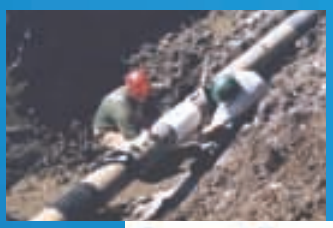

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Pictured in the background is Seafloor Massive Sulphide inspected by Placer Dome geologists — on site Suzette field PNG v2. (Photo Credit: Nautilus Minerals)

on the Cover

Pictured on this month's cover is a drilling derrick at dawn. The hunt for valuable minerals is expanding rapidly under the world's oceans.

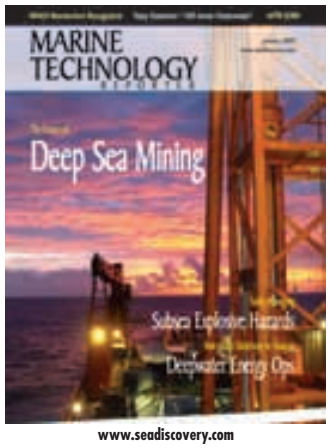
(Photo Credit: Neptune Minerals)

the Authors

Maggie Linskey Merrill is the founding editor and publisher of *Marine Technology Reporter*. She has 20 years experience communicating marine science, technology, environmental and engineering news and information. She has held positions at the Woods Hole Oceanographic Institution, Massachusetts Institute of Technology, HA Perry Foundation and Sea Data Corporation. **(Story on page 22)**

Ken Du Vall has served as President and COO of Lighthouse R & D Enterprises (www.lighthousehouston.com) since January 2005. He came from Cal Dive International to assist in the development of international operations. From 1991 - 2002, Du Vall was operations manager for Oceaneering International. His background at OI concentrated on international vessel and project management with an emphasis on international project development and business relations. From 1989 - 1991 he was a marine scientist/engineer at Texas A & M University in support of the Ocean Drilling Program, an international consortium of universities for ocean research. Prior to 1989, Du Vall worked for the National Marine Fisheries Service, NMFS, in Alaska and a participant in the Tropical Oceans Global Atmospheres (TOGA) project. Du Vall graduated from the University of Washington, with a degree in Oceanography. (Story on page 34)

also in this Edition



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NEW YORK
118 E. 25th St., New York, NY 10010
Tel: (212) 477-6700; Fax: (212) 254-6271

FLORIDA
215 NW 3rd St., Boynton Beach, FL 33435
Tel: (561) 732-4368; Fax: (561) 732-6984

PUBLISHER
John C. O'Malley • *jomalley@marinelink.com*

Associate Publisher & Editor
Gregory R. Trauthwein • *trauthwein@marinelink.com*

Editorial Director
Maggie Merrill • *martrep@aol.com*

Production Manager
John Guzman • *guzman@marinelink.com*

Asst. Production Manager
Irina Tabakina • *tabakina@marinelink.com*

Manager, Information Services
Tina Veselov • *veselov@marinelink.com*

Manager, Accounting Services
Esther Rothenberger • *rothenberger@marinelink.com*

Manager, Public Relations
Mark O'Malley • *momalley@marinelink.com*

Manager, Information Technology Services
Vladimir Bibik • *bibik@marinelink.com*

CIRCULATION
Kathleen Hickey • *mtrcirc@marinelink.com*

ADVERTISING

Vice President, Sales and Marketing
Rob Howard
howard@marinelink.com
Tel: (561) 732-4368
Fax: (561) 732-6984

Advertising Sales Manager
Lucia M. Annunziata
annunziata@marinelink.com
Tel: (212) 477-6700
Fax: (212) 254-6271

International Sales Manager
Tony Stein
tony.r.stein@btinternet.com
12, Braehead, Bo'ness, West Lothian EH51 0BZ, Scotland, U.K.
Tel: +44 (0) 1506 822240
Fax: +44 (0) 1506 828085

editorial

2007 starts where 2006 left off: unprecedented workload and prospects for many companies serving this market, driven by a steady demand for military work and a torrid offshore Exploration & Production market. But common sense should warn that bull markets don't run infinitely, and while it is foolhardy to guess market direction, prudent business planning and a diversified portfolios are proven to smooth the most violent market swings. Demand for undersea technology in the military sector appears solid, but there are some concerns regarding the legs for the offshore business. First, there continues to be a dearth of qualified workers throughout the undersea technology and maritime markets, meaning that companies often are relegated to poaching top talent from competitors, driving up costs while doing nothing to address the long-term issues. A top-agenda item for industry leaders in 2007 and beyond must be programs designed to attract, train and retain good employees. This is easier said than done, particularly when many companies are running 110% just to keep up with demands. But a small investment now will yield huge dividends in years to come.

Of equal concern is the real potential for corporate consolidation among the oil majors: aka 'Big Oil.' Just last month Norwegian energy giants Statoil and Norsk Hydro announced a $30B deal to create an international energy behemoth, a development that some industry experts consider the harbinger of additional consolidation to come. If 2007 starts with Big Oil corporate consolidations, prepare for a slowdown in the offshore sector, as this traditionally triggers a drop in oil exploration spending for a few years — and subsequently impacts offshore service providers — as the consolidating companies assimilate.

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Companies & People with editorial mention in this edition

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Toss-A-Sensor

Fishing boat crews who have traveled from Norwegian coast to the small town of Fosnavåg, to check out an annual exhibition would participate in a PI Sensor Toss. Representing yet another example of American 'ingenuity', the "toss" has made it across the ocean and debuted at the Pacific Marine Expo.

The goal: throw a 15-lb. Simrad trawl egg the furthest with an underhand toss
The entry fee: Free
The prize: $100 and a bottle of Aquavit
The winner: Brian Will, pictured, from the longliner F/V Sea Dog
The winning toss: 58.5 ft.

Homemade "Sub" Caught With Cocaine

Tipped off by three plastic pipes mysteriously skimming the ocean's surface, authorities in Costa Rica seized a homemade submarine packed with 2.7 tons of cocaine off Costa Rica's Pacific coast, according to an AP report Four men were inside the 49-ft. (15-m) wood and fibreglass craft, breathing through the pipes. The craft sailed along at about 10 km an hour two meters beneath the surface. U.S. Coast Guard, U.S. Drug Enforcement Administration agents, FBI and Colombian officials reportedly aided Costa Rican authorities in the operation. In March, the Colombian navy seized a 59-ft. (18-m) fiberglass submarine that officials believe was used to haul cocaine out to speedboats in the Pacific for transportation to Central America and on to the U.S.

(Source: AP)

India Carves Niche in Deep Sea Mining

Exploring minerals, buried deep in the ocean, is one of the most daunting tasks for scientists around the globe. And making a major breakthrough, Indian scientists have taken deep sea mining technologies to a new level, according to a report on www.dnaindia.com.

The scientists from the National Institute of Ocean Technology (NIOT) have, for the first time, developed a world class Remote-Operated Vehicle (ROV), an Underwater Crawler and an In-Situ Soil Property Measurement System (SPMS). Through these devices, India can now explore greater depths in the ocean and sea-bed as the machines are capable of working in extreme weather conditions and tumultuous seas. They will also assist in rescue operations, taking measurements and samples from the sea bed, repairing instruments and gadgets in the water, and will also help companies involved in offshore drilling.

(Source: www.dnaindia.com)

Zui Gao Dian

TV Drama Aims to Lure Workers

Most companies reading this magazine are currently seeking qualified employees. Few if any are considering television show production to achieve this end.

In a twist of the saying "art imitates life," a group of companies serving the Singapore Offshore, marine and maritime interests have banded together to produce and air a 21-part drama television series aimed at attracting a future generation of workers. In a move to enlarge the talent pool of potential workers to fuel the industry's future growth, industry partners have jointly commissioned a television drama serial to showcase the diversity and dynamism of this vibrant industry that currently employs more than 80,000 people.

Initiated and led by Keppel Offshore & Marine Limited (Keppel O&M), the main sponsors for the drama also include the Maritime and Port Authority of Singapore (MPA), Singapore Maritime Foundation (SMF) and the Association of Singapore Marine Industries (ASMI). The other sponsors are equipment vendors Natoil Varco and Wartsila, class society America Bureau of Shipping, insurer NHM and the Workforce Development Agency.

Touted as the drama for 2007, the 21-episode Mandarin serial, entitled "The Peak" or "Zui Gao Dian", is produced by MediaCorp Studios, and premiered January 8, 2007.

"The Peak" has a star-studded cast including Christopher Lee, Dawn Yeoh, Jeanette Aw, Elvin Ng, Qi Yuwu, Huang Wen Yong and Ann Kok.

Directed by award-winning directors, Chong Liung Man and Lai Lee Thin, the drama serial is written by Mediacorp's golden script writer, Ang Eng Tee and produced by Chia Men Yiang. Eng Tee and Men Yiang both contributed to the famous Holland Village drama serial.

Filming took place in Keppel FELS, MPA's Integrated Simulation Center, Jurong Port, the main deck of a 225-m long container ship and gargantuan offshore oil rigs.

In a move to attract future generations of offshore workers, a group of Singapore companies have taken a unique approach: launching a TV Drama on the industry.

ROV Event Focuses on Poles

The Marine Advanced Technology Education (MATE) Center and the Marine Technology Society's (MTS) Remotely Operated Vehicle (ROV) Committee are issuing an icy challenge to students interested in underwater technology. Next June, the annual international ROV competition, sponsored and organized by the MATE Center and the MTS ROV Committee and supported by the National Science Foundation (NSF), will focus on the earth's Polar Regions. The competition will be held in the Canadian province of Newfoundland and Labrador.

The 2007 international competition will be held June 22-24, 2007 in St. John's, Newfoundland and Labrador, Canada, at the facilities of the Marine Institute (MI) and the Institute for Ocean Technology (IOT). Part of Memorial University, MI is Canada's leading center of fisheries and marine training. The IOT is a federal government research laboratory that conducts ocean engineering research through modeling of ocean environments, predicting and improving the performance of marine systems, and developing innovative technologies that bring benefits to the Canadian marine industry. State-of-the-art facilities at MI and IOT include:

- The largest flume tank in the world, with a water capacity of 1.7 million liters, and water velocity ranging from 0-1 meters per second.
- An engineering basin that is used to simulate the extreme ocean environment; waves, wind, and currents can be controlled to achieve various sea states.
- An ice tank where the water surface can be frozen and the air temperature maintained at a uniform -30 to 15 degrees Celsius to simulate the polar environment. Before the June event, teams from across the world will participate in regional events. Currently, 14 regional competitions are part of the MATE Center's ROV competition network.

For more information visit www.marinetech.org/rov_competition/index.php

Naval Diving and Salvage Training Center instructor provides a problem-solving scenario to a dive student during an exercise at the pool confidence-training portion of the student's course. Students are trained to stay calm during loss of air situations while following carefully supervised procedures to regain their air supply without going to the surface. The school is located in Panama City, Fla., and is the center for Navy diver training. See this month's SALVAGE DIRECTORY, starting on page 42. (U.S. Navy photo by Mass Communication Specialist 2nd Class Jayme Pastoric)

100 Years Ago

A novelty in the way of diving apparatus is the invention of M. de Pluvy, a prominent hydrographic engineer of Paris. The suit is built of light and strong sheet metal. The joints and coupling points are made of pressed leather and rubber. The air is not brought to the diver from the outside, as usual, but the air he breathes is sent by a tube into a special regenerating chamber containing certain chemical products that renew the supply of oxygen. M. d Pluvy has personally been able to go down as far as 300 feet with the new diving suit. (Source: Scientific American, December 2006)

Noise Measurement Tops Agenda

The development of a new commercial standard for "Underwater Noise Measurement of Ships" will commence in early 2007. ANSI-Accredited Standards Committee, S12 Committee on Noise recently voted unanimously to form a Working Group (WG) for the development of an underwater noise measurement standard. For many years, the field of underwater noise from ships has been the exclusive specialty of the U.S. Navy. However, non-navy vessels are looking to be just as quiet so that they can perform better science. One such quiet ship is a new FRV currently being built by the National Oceanic and Atmospheric Administration (NOAA) in Mississippi. The goal of this project is to develop an American National Standard for the measurement of underwater noise levels of ships using commercial technology. One aim is that the standard would be applicable to any open ocean site in the world and not require traveling to a special acoustic test range.

However, the committee's scope of work will include neither regulatory actions nor the development of any underwater noise level limit. (Since 1995, recommendations for underwater noise levels for these types of research vessels have been available [ICES CRR209]).

Organizations procuring or operating quiet ships, naval architects, and acoustical engineers are being invited to participate in developing this new standard. The Working Group is being formed at this time. Accredited Standards Committee S12 is administered on behalf of the American National Standards Institute (ANSI) by the Acoustical Society of America (ASA) as a public service. All directly and materially affected parties are encouraged to participate in the Working Group. Organizational membership in S12 is also available to organizations and companies wishing to participate. Contact Susan Blaeser for details at (631) 390-0215 sblaeser@aip.org. Learn more by clicking the "Standards Info" button at:

http://asa.aip.org

Subsea 7 Orders DSV

Merwede Shipyard won a $200 million contract for the design and construction of a new Diving Support/Offshore Construction vessel for Subsea 7. The introduction of this DSV to the market will provide Subsea 7 with a versatile and advanced vessel built to a high specification. The vessel is being built to fulfill the requirements of a contract obtained by Subsea 7 from Shell for diving support services in the North Sea. Delivery of the vessel is scheduled for the first quarter of 2009.

The ship has been designed by Merwede Shipyard in collaboration with Subsea 7 and the dive spread Manufacturer, Divex. It will be a fully Dynamic Positioned Diving Support/Offshore Construction Vessel, suitable for worldwide operation.

The vessel will be designed for saturation and air diving support work. The integrated saturated diving system will be accommodated in the midship of the vessel and will be suitable for a total capacity of 24 persons; eight diving teams, each consisting of three people. The maximum diving capacity will be six persons based on two diving bells, each for three persons. The dive system will be designed for operations up to 350 m water depth. Twin air dive stations, twin observation class ROV deployment systems and a well treatment system will be integrated in the vessel. In addition the vessel will be capable of carrying a 3000 ton carousel, work class ROVs and a 12 m long air diving support craft on the aft deck.

The ship will have a 6.6 kV integrated electric power generation system and it will be propelled by three electromotor driven fixed pitch propellers.

Principal characteristics of the DSV

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Length, b.p. . . . . .128.9 m
Breadth, molded . . . . . .26 m
Depth, maindeck molded . . . . . .12 m
Draft, design molded . . . . . .7 m
Draft, scantling molded . . . . . .8 m
Deadweight (incl. Payload) at design draft approx. 7,815 metric tons
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Classification . . . . . .Lloyd's Register 100A1, Diving Support Vessel, UD strength for load of 10t/m2, Helicopter Landing Area, LMC, UMS, DP(AAA), CAC(2), EP, ICC and further to the regulations of the Isle of Man Authorities

California Prisoners Trained for Commercial Diving

A landlocked California men's prison aims to keep inmates from returning to jail by putting them in deep water - training them for undersea construction and dam repair.

The California Institution for Men in Chino sits on a stretch of former farmland about 64 km east of Los Angeles and just about as far away from the Pacific Ocean. But it houses a prison-based marine technology training program where inmates serving sentences of 14 months to four years learn skills authorities hope will help them find jobs when they return to society. No more than 12 percent of the more than 1 600 inmates who have participated in the program have returned to prison - far below the average recidivism rate of 50 percent in California prisons, officials said. (Source: http://www.iol.co.za)

Egyptian Dive Vessel Debuts

The Red Sea is noted as one of the finest dive destinations in the world. Many visit Egypt's coastal resorts and hire boats to take them to nearby reefs. With the launching of the 39 by 8.6-m M/S Royal Evolution the area that is open to divers has been significantly increased. With a 2000 nautical mile cruising range and licensed to operate up to 600 miles from refuge, the new BV-classed SOLAS compliant vessel can take visitors to some of the best dive spots in the region.

Powered by a pair of 1100 hp Cummins KTA38 M1 main engines the boat has a 14-knot maximum speed and 12-knot cruising speed. Accommodation is provided for 24 passengers and 16 crewmembers. For dive support, scuba and nitrox filling stations are provided along with individual dive lockers for the 24 guests and four guides.

For more information visit www.royalevolution.com

NOAA Recommends New East Coast Ship Traffic Routes

NOAA urged ship captains to use new recommended routes when entering or leaving the Florida ports of Jacksonville and Fernandina, and Brunswick, Ga., as well as in Cape Cod Bay off Massachusetts. These new routes are expected to reduce the chances of ship strikes with endangered right whales. The recommended routes take into account safety and economic impact to the mariner. Although the routes are voluntary, they will appear on both electronic and paper NOAA nautical charts. The new designations will help mariners decrease whale strikes by reducing vessel activity in areas frequented by ships and whales. "This is an important part of our ship strike reduction strategy for critically endangered right whales," said Dr. Bill Hogarth, assistant administrator for NOAA Fisheries Service. "Mariners need to be aware of these voluntary routes before the winter calving season when pregnant females and females with calves migrate to waters off of Florida and Georgia. With a population so low, even one whale death can set back recovery efforts dramatically." North Atlantic right whales are among the most endangered marine mammal populations in the world, and are highly vulnerable to ship collisions. Pregnant females and females with calves are known to have been struck by ships along the east coast in recent years. The right whale population is small, about 300, and many scientists believe recovery has stalled, making the few reproductively active females even more important to population recovery.

SubOptic 2007 Announces New Tutorials

SubOptic 2007 Program Chairman Dave Robles said three newly scheduled tutorials continue the SubOptic tradition of covering all aspects of the undersea telecommunications industry and the many fields related to it. Admittance to all tutorials is included in the registration fee. The three new tutorials are:

"Maintenance of Undersea Cable Networks"

Presented by James H. Coble of AT&T and Frederic Exertier of France Telecom Marine. Coble has more than 20 years of industry experience and is responsible for the maintenance of AT&T's undersea cable network. Exertier joined France Telecom Marine four years ago as EVP in charge of the Mediterranean depot and as MECMA Project Manager.

"Our tutorial will cover many factors that need to be considered when determining how an undersea network will be maintained, including the reliability of the components and the route planned for the cable," said Coble and Exertier. Maintenance of undersea cable networks actually begins during the planning stage for construction, they said. The duo will also discuss planning for the frequency of network failure as well as highlighting some popular post-installation maintenance options.

"High Performance Hybrid Optical-Packet Networks: Developments and Potential Impacts"

Presented by Donald R. Riley, Ph.D. and Jerry Sobieski. Riley is Professor of Information Systems at the Robert H. Smith School of Business, and affiliate Professor of Mechanical Engineering, at the University of Maryland, College Park. He serves on several boards at the collegiate and national level and has been recognized by the Chinese Academy of Sciences as "Senior Technical Advisor" to China's Science and Technology Network. Sobieski is the Director for Research Initiatives at Mid-Atlantic Crossroads in Washington, DC. He has a background in high performance parallel and distributed computing, advanced networking, and specializes in the application of these technologies to e-science.

"This tutorial will provide insight into developments, driving motivations, potential future developments and possible implications for the submarine cable industry," said Riley. "The session will include overviews of GLIF and DRAGON objectives and technology developments and other related projects."

"Legal Aspects of Bandwidth Sales for New and Existing Systems"

Presented by Mike Conradi, a senior lawyer at London's technology specialist firm, Kemp Little LLP. Conradi has extensive experience in the submarine fiberoptic cable world and has written and presented extensively on various submarine telecommunication topics. "The tutorial will focus on the legal issues surrounding buying and selling submarine fiber capacity," said Conradi. "We will discuss everything from the contents of a submarine capacity contract to ensuring continuous quality."

SubOptic 2007 will take place at the Marriott Waterfront Hotel in Baltimore's Inner Harbor from May 14 through May 17, 2007.

For more information visit www.suboptic.org

Davidson Lab Towing Tank Re-Opens

The towing tank at the Davidson Laboratory - part of Stevens Center for Maritime Systems - has been a major force in maritime research since it opened in 1944. It re-opened recently after a 16-month expansion project. Some of the new capabilities will assist in: detecting attackers in ocean and harbor waters; protecting the shoreline from devastating storms and climate change; designing fast, stealthy ships for commerce, pleasure and national defense.

Davidson Laboratory is located near the Hudson River shore in Hoboken, N.J., directly across the river from midtown Manhattan. "Today, we face critical challenges - ranging from terrorist threats to natural disasters to the need to enhance trade and competitiveness through advanced technologies. All of those challenges have a bearing on - and will be met by - state-of-the-art maritime research. We will be better able to address those challenges with the knowledge created by the new tank, which will be the most advanced facility of its kind in the United States," said Hal Raveche, president of Stevens.

The recently completed renovations have significantly enhanced the facility's capabilities. The Towing Tank is now 65 percent larger; it is equipped with better viewing areas to allow researchers to visualize the effects of water on hull forms and shorelines; and it is equipped with a new Planer Motion Mechanism, which simulates complex lateral wave movements against a hull that is moving forward, modeling the full complexity of interactions between a ship and the ocean.

The expansion and renovation was conducted with the help of funding from the U.S. Navy as well as a Department of Defense University Research Instrumentation Program (DURIP) award. "The U.S. Navy and the Defense Department are vital partners of the laboratory, and we are pleased that we are able to contribute to security through our research," Dr. Bruno said.

"In an age of computer modeling, sometimes there's still no substitute for physical testing, and the Towing Tank allows us to conduct it with a high degree of accuracy," Dr. Bruno said. The Towing Tank will be engaged in major projects, including: designing advanced multi-hull ships for the U.S. Navy; studying the impact of major coastal storms on the New Jersey shoreline in order to take steps to better protect it in the event of a Katrina-like hurricane; working with, America's Cup participant, Team Oracle to make their fast racing yachts even faster.

For more information visit www.Stevens.edu

Superior Offshore Orders Vessel

Merwede Shipyard received the contract for the design and construction of a new Diving Support/ROV Support/Deepwater Construction vessel for Superior Offshore International. This vessel is the first to be built at the newly commissioned fourth slipway of the group in Krimpen aan den IJssel (the Netherlands). Merwede Shipyard was granted this order because of its ability to design and offer a fixed price for the vessel including the integration of the complete ROV spread and cranes within the required short delivery time. The vessel is scheduled for delivery in mid-2008.

The vessel will be built in accordance with the Rules and Regulations of DNV, to obtain the following notation: DNV X 1A1, EO, SF, Dynpos, AUTRO, HELDK, DSV-SAT.

The ship was designed by Merwede Shipyard in concert with Superior Offshore based on an enhanced version of Merwede Shipyard's versatile 22 m beam design. It will be a fully Dynamic Positioned Diving Support/ROV Support/Deepwater Construction Vessel, suitable for worldwide operation. Superior Offshore will install a modular 12-man 300 m Saturation Diving System with Hyperbaric Rescue Chamber. The ship will have the capability to support a modular 24-man dual bell 300-m Saturation System with dual Hyperbaric Rescue Chambers when required. The Trition XL ROV's System will be fully integrated into the vessel.

Cranes will include a 70/140 metric ton heave compensated offshore crane; a 160-metric ton offshore crane and a 300-metric ton heave compensated A&R winch that can either work over the side (port or starboard) or through the large work moonpool. The large clear deck area provides scope for a range of other applications.

Superior Offshore International LLC performs its services in both surface and saturation diving modes in water depths of up to 1,000 ft. The acquisition of this new DP III vessel, combined with their work class ROV's, will allow Superior to achieve the long range goal to enter the deepwater construction market worldwide.

Main Particulars

Length, o.a.	432 ft. (131.7 m)
Length, bpp, on design draft	386.2 ft. (117.7 m)
Breadth, molded	72.2 ft. (22 m)
Depth main deck molded	31.2 ft. (9.5 m)
Draught design molded	20.5 ft. (6.25 m)
Draught scantling molded	22.1 ft. (6.75 m)
Deadweight at design draft approx. Metric tons	7,400
Deadweight at scantling draft approx. Metric tons	8,600
Ship's complement	158

Hydro to Merge with Statoil

The Board of Directors of Hydro and Statoil have agreed to recommend to their shareholders a merger of Hydro's oil and gas activities with Statoil, creating the world's largest offshore operator. The new company will have a combined production of 1.9 million barrels per day in 2007 and proven oil and gas reserves of 6.3 billion barrels of oil equivalents. Hydro's shareholders will hold 32.7 percent and Statoil.s shareholders will hold 67.3 percent of the new company. Hydro's shareholders will receive 0.8622 shares in the new company for each Hydro share and continue as owners of Hydro. Statoil shareholders will maintain their holdings in the new company on a one-for-one basis. The Norwegian State will hold approximately 62,5 percent in the merged entity.

SBM Offshore Books $1.2b Lease, Supply Orders

SBM Offshore N.V. received a number of orders in both the lease and the turnkey supply segments of its offshore oil activities. A lease contract has been signed with Murphy Exploration & Production Company USA and its co-producers Dominion Exploration & Production Inc., Hydro Gulf of Mexico, L.L.C and Marubeni Offshore Production (USA) Inc. for the provision of a new built semi-submersible floating production unit for installation in Mississippi Canyon (MC), Block 736 offshore Louisiana in the Gulf of Mexico and will further process production from MC 734.

The Thunder Hawk Facility, which will be based on Atlantia's DeepDraft Semi design, will be moored in 1,800 m water depth and equipped to produce up to 60,000 barrels of oil and 70 million standard cubic feet of gas per day from the initially installed equipment and deck area. The contract is based on a production handling agreement providing the Thunder Hawk partners firm capacity of the facility for an initial period of five years.

Another FEED (Front End Engineering Design) contract has been signed with Talisman Energy Norge AS, operator of the PL316 license offshore Norway, for a MOPU Stor, a production jack-up installed on a sub sea storage tank. The purpose of the FEED work is to adapt the patented design of SBM Offshore subsidiary GustoMSC, previously used in the Danish sector of the North Sea in the Siri field, towards a final investment decision and the submission, late 2006 or early 2007, of a PDO (Plan for Development and Operation) for the re-development of the Yme field. In view of the then prevailing low oil price environment the previous operator abandoned production from the Yme field in 2001.

In addition the SBM announced receipt of three Letters of Intent from Brazilian drilling contractors for the supply of Dynamically Positioned Semi-Submersible Drilling Units. These LoI's were issued in the context of ongoing negotiations between the drilling contractors and Petrobras for the award of long term drilling contracts, starting in 2009.

Vietnam May Spend $6b on O&G Exploration

Vietnam Oil & Gas Corp. may spend $6 billion on oil and gas exploration through 2010 as demand for energy grows in the expanding economy. Vietnam's oil production, the third-highest in South-East Asia after Indonesia and Malaysia, slid by 8 percent in the first three quarters of the year to about 354,000 barrels a day, based on PetroVietnam figures.

The nation's gross domestic product increased by 8.4 percent in 2005, the fastest pace in a decade. Growth in the first three months of 2006 was 7.8 percent. Output from the country's largest field, Bach Ho, operated by a Vietnamese-Russian joint-venture known as Vietsovpetro, fell 7 percent from last year

Technip to Provide Spar Hull and Moorings to Shell

Technip won a contract from Shell Offshore Inc. to provide the engineering, procurement and construction (EPC) of a Spar(1) hull and mooring system for the Perdido Regional Host Project. This project is located in the Gulf of Mexico, approximately 200 miles south of Freeport, Texas. Moored in about 8,000 ft. of water, the record breaking Spar will be the deepest spar production facility in the world and the first with DVA (direct vertical access), which will reduce the drilling cost, simplify workovers and facilitate access to subsea equipment. First production from Perdido is expected around the turn of the decade, with the facility capable of handling 130,000 boe/d.

The Perdido Regional Host will be the fourteenth Spar delivered by Technip, and is in a water depth that is nearly a half of a mile deeper than any other Spar. Shell's concept for regional development includes a common processing hub in Alaminos Canyon Block 857 near the Great White discovery that incorporates drilling capability and functionality to gather, process and export production within a 30-mile radius of the facility. This concept will provide regional synergies, reduced cost and lower risk. This regional concept will also reduce the number and size of the facilities and operations in this challenging frontier area, resulting in a lower environmental impact. The Perdido Regional Host will be jointly owned by Shell (35%), Chevron (37.5%) and BP (27.5%).

to 193,000 barrels a day. Vietnam exports its oil production as it lacks a refinery to process the fuel into products such as gasoline and diesel. PetroVietnam is building a facility at Dung Quat that will start operations in 2009.

Premier Oil Plc reported that it finished drilling a well on the Blackbird field in block 12E offshore Vietnam's southern coast that found four oil bearing zones. Premier last month announced a successful production test at the Dua field, also in Block 12E. Soco International plc on October 9 said it conducted a positive trial at the Ca Ngu Vang structure in Block 9-2. Future oil production may result from exploration in the Phu Khanh basin offshore the central coast. Vietnam has licensed blocks to California-based Chevron Corp and Malaysia's Petroliam Nasional Bhd; Texas-based Pogo Producing Co; and India's ONGC Videsh Ltd. (Source: Bloomberg)

ConocoPhillips Announces Successful Exploratory Well

ConocoPhillips successfully tested the Barossa-1 exploration well in the NT/P69 license located offshore Northern Territory, Australia. Drilling of the Barossa-1 well commenced in July this year and was drilled to a total depth of 4,310 m. Logging and two drill stem tests were completed, confirming the presence of gas. One test flowed gas at a rate of approximately 30.1 million cubic feet per day through a 56/64 inch choke. This gas flow rate was constrained by limitations of the surface equipment. The other test, of a lower-quality reservoir interval, flowed gas at a rate of approximately 0.8 million cubic feet per day through a one inch choke. Barossa-1 has been plugged and abandoned as planned.

Drilling has now commenced on the Caldita-2 well to appraise the Caldita accumulation. A 3D seismic survey over both

Barossa and Caldita will commence in early December. NT/P 69 is located in the Timor Sea approximately 295 km north-west of Darwin. The Barossa-1 well was drilled in 233 m of water.

Tyrihans Contract For Fugro

Fugro Structural Monitoring, a division of Fugro Global Environmental & Ocean Sciences Ltd., won a contract from FMC Technologies to provide a riser management system for the completion/workover riser for Statoil's Tyrihans Field in the Norwegian North Sea.

Working in partnership with MCS, Fugro Structural Monitoring will supply its riser management system, IRIS-RMS, for the project's C/WO rig. Tyrihans is one of the biggest development projects on the Norwegian continental shelf in coming years, and due to come on stream in 2009.

"We are very pleased to win this second IRIS-RMS contract for a Norwegian field, and to be working with FMC Technologies," said Divisional Head, Alan Dougan.

Combined Technologies

Sperry Drilling Services and IntelliServ, a wholly owned subsidiary of Grant Prideco, have interfaced technologies and successfully tested a system using The IntelliServ Network drill string telemetry to transfer all the data and information generated by down hole drilling and formation evaluation tools to the surface in real time, at rates up to 10,000 times those available today. Utilization of The IntelliServ Network, which is fully compatible with Sperry's INSITE logging-while-drilling services, offers new drilling and formation evaluation capabilities, including the transmission of high-resolution images of the subsurface in real time.

WHOI Researchers Recognized

Four researchers have been recognized by the Woods Hole Oceanographic Institution (WHOI) for their contributions to ocean sciences research and engineering. All will receive funding provided by the endowed awards to support their research over periods of three to five years. The awards are effective January 1, 2007.

Three of the researchers have been named recipients of endowed senior scientist chairs that provide financial support for five years, allowing the recipient the freedom to pursue a variety of career interests. One investigator received a technical staff award that provides support over three years.

Dr. Wayne Rockwell "Rocky" Geyer, recipient of the Mary Sears Chair for Excellence in Oceanography, received a bachelor's degree in geology from Dartmouth College in 1977 and M.S. and Ph.D. degrees in physical oceanography from the University of Washington in 1981 and 1985, respectively. He joined the WHOI staff in 1985 as a postdoctoral scholar in the Applied Ocean Physics and Engineering Department, spent another year as a postdoctoral investigator, and was appointed assistant scientist in 1987. Geyer was promoted to associate scientist in 1991 and to senior scientist in 2001.

Rocky Geyer served as director of the Institution's Rinehart Coastal Research Center from 1996 to 2001 and was chair of the Applied Ocean Physics and Engineering Department from 2001 to 2005. Geyer's research has centered on estuarine and coastal transport processes, sediment transport, and numerical modeling of estuaries and river plumes. He has conducted projects in the Hudson River in New York, looking at sediment contamination from PCBs from electrical companies on the river, and the Eel River in California, where flooding has carried large amounts of sediment into coastal areas. More recently he has conducted experiments in the Merrimack River in Massachusetts, studying the interaction between fresh and salt water and the ability of a river to disperse material into the Gulf of Maine.

The Sears chair is named for Dr. Mary Sears, one of the first staff members of the Institution and a guiding force in its development. A biologist, she also served as clerk of the Institution's corporation for many years and was a major presence in uniting the international oceanographic community. She passed away in 1997 at the age of 92.

Dr. Scott Doney, recipient of the W. Van Alan Clark, Sr. Chair for Excellence in Oceanography, is a senior scientist in the Marine Chemistry and Geochemistry Department. He received a bachelor's degree in chemistry from Revelle College at the University of California, San Diego in 1986 and a Ph.D. in chemical oceanography in 1991 from the MIT/WHOI Joint Graduate Program. He returned to WHOI in 2002 following eleven years in the Advanced Study Program and Climate and Global Dynamics Division at the National Center for Atmospheric Research (NCAR) in Boulder, CO.

Doney was a Fellow of the Institution's Ocean and Climate Change Institute from 2003 to 2005 and serves as co-chair of the Biogeochemistry Working Group of the Community Climate System Model. He was chair and editor of Ocean Carbon and Climate Change: An Implementation Strategy for U.S. Ocean Carbon Research, released in 2004. His research interests include the global carbon cycle, marine biogeochemistry and ecosystem dynamics, large-scale ocean circulation and tracers, and air-sea gas exchange.

Dr. W. Brechner Owens, recipient of the W. Van Alan Clark, Jr. Chair for Excellence in Oceanography, is a senior scientist in the Physical Oceanography Department. He

received a B.S. degree in chemical engineering from the University of Michigan in 1968, an M.S. degree in chemical engineering from the University of Colorado in 1972, and a Ph.D. in physical oceanography from The Johns Hopkins University in 1976.

Breck Owens joined the WHOI staff in 1975 as a postdoctoral investigator and was appointed an assistant scientist in 1978. He was promoted to associate scientist in 1982 and to senior scientist in 1992. His research interests include the general circulation and eddy variability in the world's oceans, ocean-atmosphere coupling dynamics, the use of models to interpret observations and the development of float technology and autonomous vehicles for ocean monitoring. He is one of the co-developers of the Spray glider, the first autonomous underwater vehicle to cross the Gulf Stream, and is one of the principal investigators for the U.S. Argo float program for climate change studies.

The W. Van Alan Clark Chairs were established in 1986 and are named for the late W. Van Alan Clark, Sr., and W. Van Alan Clark, Jr., longtime friends and supporters of the Institution.

W, Van Alan Clark, Sr., was a businessman and philanthropist who served as board chairman of Avon Products, Inc. He was one of the first Woods Hole Oceanographic Institution Associates and served the Institution as a Corporation Member and Honorary Trustee. W. Van Alan Clark, Jr., was President and Chairman of Sippican Corp. of Marion, MA, and a former professor and associate dean at the Massachusetts Institute of Technology.

He served the Institution as a Corporation Member, Trustee, Associate and was chairman or a member of several Institution committees. Both he and his father were well-known sailors, with W. van Alan Clark, Sr., involved in international cruising and racing.

Steven J. Manganini, a research specialist in the Geology and Geophysics Department, is the recipient of the Allyn Vine Senior Technical Award. He received a bachelor's degree in biology from Nasson College in 1974.

He joined the WHOI staff in 1977 and has participated in numerous research cruises around the world. Steve has spent much of his career studying how particles travel from surface waters into the deep sea, and has developed instrumentation and analytical methods to further characterize particle and sediment materials.

The Vine award is named for former WHOI physical oceanographer and visionary Allyn Vine, for whom the submersible Alvin is named.

Vine was widely recognized as a leading proponent for manned exploration of the deep sea, and championed construction of other tools for the national community, often producing new techniques and unusual equipment. He passed away in 1993 at age 79.

It is awarded for a three-year period and is presented to a member of the Institution's technical staff who "has distinguished himself or herself through extraordinary accomplishments in engineering, instrument development, information systems, or oceanography, and who has demonstrated a commitment to mentorship and partnership with junior technical staff members." Nominations are solicited from the scientific and technical staff, with selection based on the individual's record of excellence.

The endowed senior scientists chairs are each awarded for a five-year period to tenured members of the Institution's scientific staff who have "distinguished themselves through extraordinary scientific research and education." Nominations are solicited from the scientific staff, with selection based on the individual's record of scientific excellence.

The Institution's Director and Executive Committee of the Board of Trustees approve the awards.

NOAA Tide Stations Upgraded

NOAA upgraded 33 tide stations in an effort to detect tsunamis quicker as part of the National Water Level Observation Network. Network tide stations normally equipped to record tidal data once every hour can now collect tidal data every six minutes, and can transmit that date through NOAA's Geostationary Operational Environmental satellites (GOES).

The upgraded tide gauges also collect one minute averaged tide data that are available to the Pacific Tsunami Warning Center and the West Coast/Alaska Tsunami Warning Center. This enhances the tsunami detection and confirmation capability of the centers, allowing forecasters to view real-time data of any station in the network. "Tsunami detection and confirmation can be vital in preventing the loss of human life," said John H. Dunnigan, assistant administrator of NOAA's National Ocean Service. "Efficient data collection is an essential tool to coastal managers for rapid forecasting and the issuance of critical warnings that can help save lives of people in the tsunami's path."

"We have upgraded equipment at the 33 water level stations, and have added 15 new stations in Alaska, Puerto Rico, Virgin Islands, and on the West Coast," said Mike Szabados, director of NOAA's Center for Operational Oceanographic Products and Services. "Near the end of 2007, NOAA will incorporate all tide gauges on the West, East and Gulf coasts to create an unprecedented array of more than 150 stations."

Tsunami Detection for IOR

NOAA has joined the government of Thailand in launching the first Deep-ocean Assessment and Reporting of Tsunami (DART) buoy station in the Indian Ocean to assist in detecting tsunamis. Following a ceremony in Phuket, Thailand, where the December 26, 2004 tsunami caused the most extensive damage in Thailand, the MV SEAFDEC set sail to deploy the buoy about mid-way between Thailand and Sri Lanka. NOAA scientists and engineers were onboard to provide technical assistance during the launch operations. With funding from the U.S. Agency for International Development (USAID), NOAA built and provided the DART station on behalf of the U.S. government. The buoy will be maintained by the Thai Meteorological Department and National Disaster Warning Center. The station's data will be available to all nations through the World Meteorological Organization Global Telecommunications System and will be part of the GEOSS.

South Korea's First Deep Ocean Observatory System

Global Marine Systems Limited, a subsea cable installation and maintenance company, has installed South Korea's first deep sea ocean observatory system to help detect high levels of seismic activity. The 20 km seismic cable installed in November, as part of a test project for the Korea Meteorological Administration (KMA), stretches from the island of Ulleungdo, 135km east of the Korean peninsula, out to sea. If successful, similar systems could be installed along the rest of the Korean Peninsula. Global Marine's Wave Mercury ship installed the seismic cable and OBU (Ocean Bottom Unit) at a depth of 2,000 m on behalf of its client KIT Valley, providers of seismic monitoring systems. The OBU acts as a "listening device" on the seafloor, by sensing changes in water pressure and acoustic vibrations. This data is then relayed back in real time via the seismic cable direct to staff at the KMA.

For more information, email deborah.bartlett@globalmarinesystems.com

Supercavitation-Based Underwater Naval Transport

100 Knots Underwater

A team led by Northrop Grumman Corporation won a $5.4m contract from the Defense Advanced Research Projects Agency (DARPA) to determine the feasibility of using supercavitation technology for stable, controllable, high-speed underwater transport.

The Underwater Express program is a DARPA technology research and evaluation program to establish the potential of a new technology. Supercavitation creates a gas cavity between the vehicle surface and the water, thereby reducing drag and increasing vehicle speed. The

program's ultimate goal is a new class of underwater craft for littoral missions that can transport small groups of Navy personnel or specialized military cargo at speeds up to 100 knots.

In Phase 1 of the contract, which will last for 13 months, Northrop Grumman and its teammates will establish the technology basis for supercavitation transport through a series of testing and modeling activities, and produce a concept design for an underwater demonstrator vehicle.

Most of the work will be divided between Northrop Grumman's Undersea Systems facility in Annapolis, Md., and Pennsylvania State University's Applied Research Laboratory in State College, Pa. Other organizations contributing to the team include the University of Minnesota, the University of Maryland, the Naval Undersea Warfare Center in Newport, R.I., and BBN Technologies of Cambridge, Mass. "Supercavitation technology has great potential to increase the speed of underwater vehicles," said John Golombeck, vice president of Naval and Surface Systems for Northrop Grumman's Systems Development and Technology business unit. "By drawing on university research into supercavitation physics and adapting this technology for real-world use, we are opening up new naval transport opportunities." The contract comes with two 15-month options. Phase 2, worth up to $17 million, would include continued technology research at a larger scale and establish the detailed design of the demonstrator vehicle. Phase 3, worth up to $23.4 million, would include building a Demonstration Super-fast Supercavitating Transport (DSST) vehicle which would operate at 100 knots for durations of up to 10 minutes. The potential value of all three phases is $45.8 million.

Hafmynd Logs Military Sales

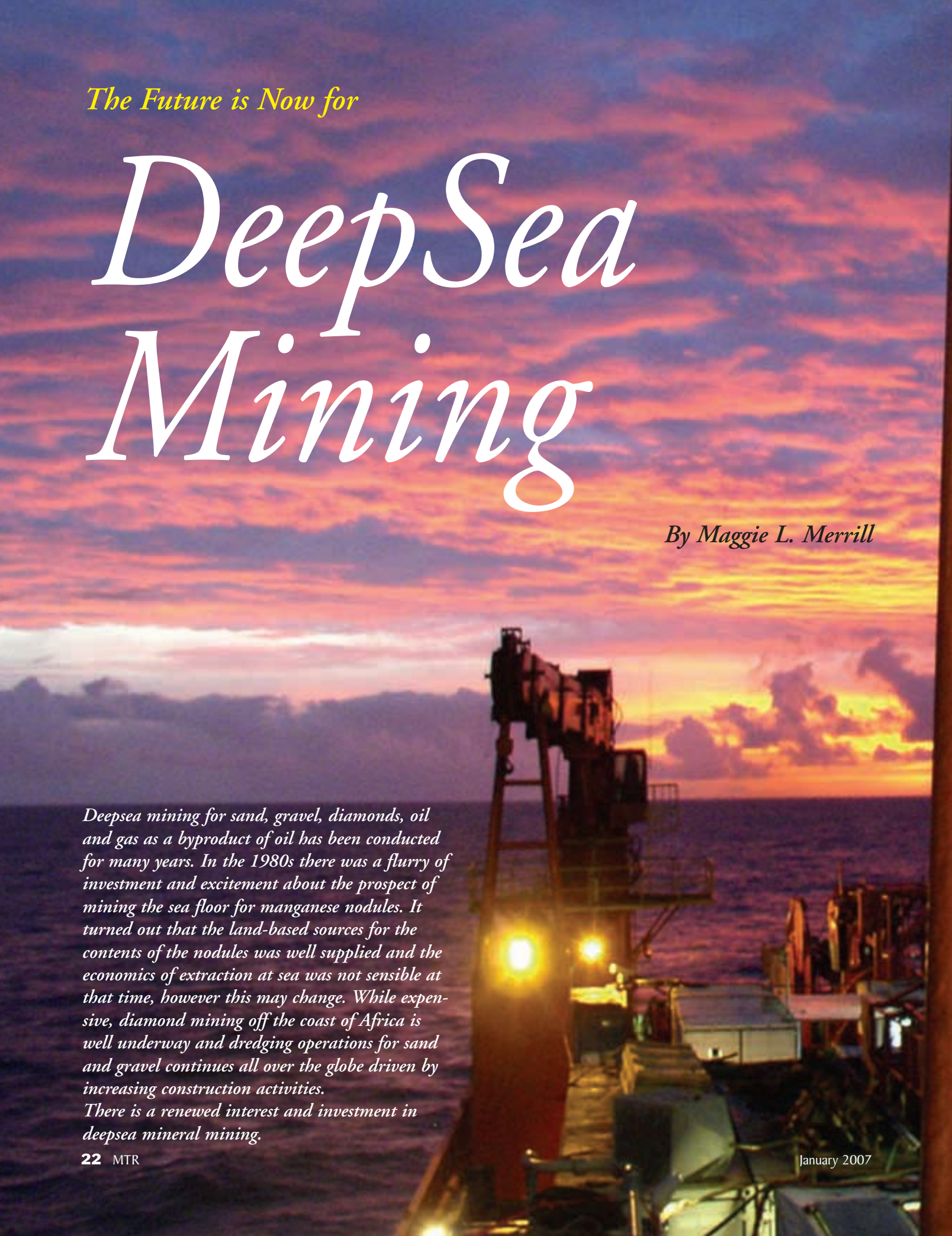
Hafmynd sold two GAVIA underwater vehicles to two undisclosed military buyers, for delivery in March and August respectively. "We have demonstrated GAVIA to potential clients around the world during the last 12 months, for use in commercial, military, security and research missions" said Torfi Thorhallsson, GM of Hafmynd. The U.S. Navy (The Space and Naval Warfare Systems Center [SPAWAR]), University of British Columbia and the National Research Council of Canada have earlier procured GAVIA underwater autonomous vehicles. Hafmynd's flagship multi-mission GAVIA AUV is the product of 10 years of development and testing. The vehicle is able to dive down to 2000 m with long endurance. The system is man-portable and can be field assembled in minutes. It is capable of being fitted with a variety of sophisticated sensors and the integration of new hardware and software modules is possible with minimum effort. The changeable modules are assembled using GAVIA's QuickLock system, allowing fast reconfiguration and battery replacement.

For more information email sales@gavia.is

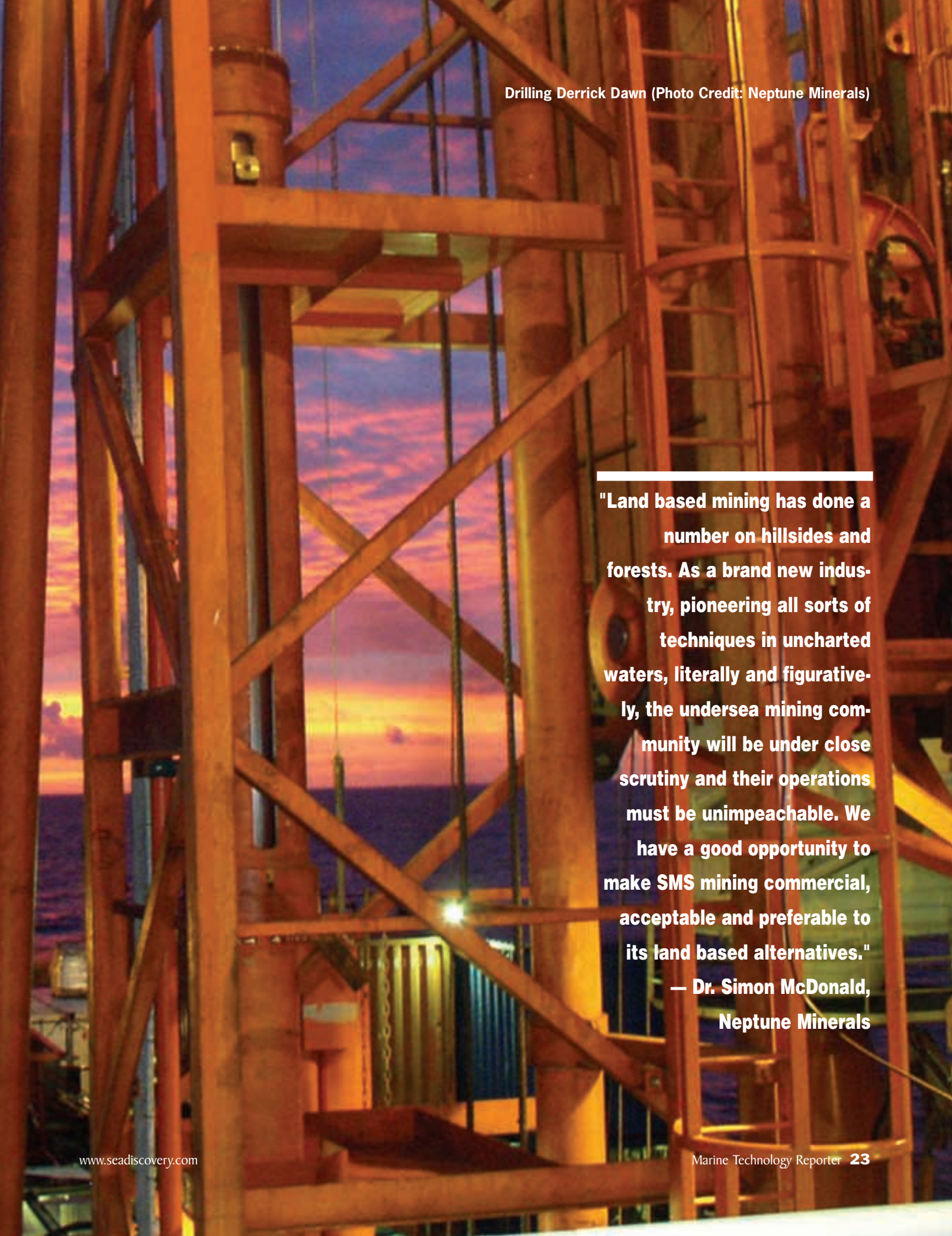
The Future is Now for

DeepSea Mining

By Maggie L. Merrill



Deepsea mining for sand, gravel, diamonds, oil and gas as a byproduct of oil has been conducted for many years. In the 1980s there was a flurry of investment and excitement about the prospect of mining the sea floor for manganese nodules. It turned out that the land-based sources for the contents of the nodules was well supplied and the economics of extraction at sea was not sensible at that time, however this may change. While expensive, diamond mining off the coast of Africa is well underway and dredging operations for sand and gravel continues all over the globe driven by increasing construction activities.
There is a renewed interest and investment in deepsea mineral mining.



Drilling Derrick Dawn (Photo Credit: Neptune Minerals)

"Land based mining has done a number on hillsides and forests. As a brand new industry, pioneering all sorts of techniques in uncharted waters, literally and figuratively, the undersea mining community will be under close scrutiny and their operations must be unimpeachable. We have a good opportunity to make SMS mining commercial, acceptable and preferable to its land based alternatives."
— Dr. Simon McDonald, Neptune Minerals

Since the 1970s scientists have been studying the "black smokers" that lay hundreds of meters below the ocean surface on the seafloor. These are areas where the seafloor is actively spreading via movement of the earth's crust. This process has been going on for millions of years and originally formed many of the deposits now mined on land, but it was not until fairly recently that geologists have been able to identify where the plates are active and to deploy equipment to investigate the spreading zones further.

Mineral rich deposits have been identified in scores of locations around the world, including in the Manus Basin off the coast of Papua New Guinea, the Kermadec Ridge in New Zealand waters, and along several other fissures within the Pacific Rim of Fire. In these areas fractures in the earth's crust release streams of hydrothermal fluids that are rich in dissolved metals. When these hot fluids hit the cold sea water, metals precipitate out of solution and rain down upon the ocean floor forming mounds and chimneys of sulfides rich in copper and gold, otherwise known as Seafloor Massive Sulphides (SMS). What is bubbling out of these undersea volcanoes is a unique cocktail of chemicals and minerals.

The DP Hunter conducting surveys for Nautilus Minerals in waters off Papua New Guinea.

(Photo Credit: Nautilus Minerals)

It is the unique mix of what is in those solid undersea deposits that is driving two publicly traded companies: Neptune Minerals of Sydney, Australia and Nautilus Minerals of Vancouver, Canada, to claim large tracts of seafloor over and around these smoker sites to mine in the not so distant future. If all goes well the first mining of these deposits will occur in 2009 with a brand new ship designed specifically for this purpose.

The Final Frontier?

Nautilus and Neptune are pioneers in the effort to explore the ocean floor for gold and copper seafloor massive sulphide deposits. Both are positioned to become world leaders in underwater mineral exploration. Nautilus's focus for 2006 was the Solwara Project, located in water depths of 1600 m in the territorial waters of Papua New Guinea in the western Pacific Ocean. Nautilus's exploration leases total 186,000 sq. km in Papua New Guinea and 90,000 sq. km. spread over Tonga and Fiji. Neptune Minerals' current main focus is the Kermadec project off the north coast of New Zealand. Neptune's exploration license areas total 60,000 sq. km.

SMS deposits contain valuable concentrations of copper, zinc, gold, and silver. The market for copper, zinc and gold is increasing as developing nations such as China, India and Vietnam put pressure on other land-based reserves. Additionally copper is in particular demand for wiring in hybrid cars worldwide. According to experts, hybrid cars will require 12 kg more copper wiring than non-hybrid cars. Deepsea mining of SMS is predicted to yield an enormous amount of these vital minerals that are being depleted on shore at alarming rates.

Today most copper comes from large open cut mines in places such as the Andes Mountains in South America. According to David Heydon, CEO of Nautilus Minerals, "the copper in these SMS deposits is 10 times richer than the copper in the Andes. For instance for 80 million tons of material in the Andes, you extract copper from 20 million tons of ore at about one percent copper along with 60 million ton of waste overburden. Whereas with deep sea SMS deposits it is estimated that one must only move two million tons of material at 10 percent copper to yield the same amount from 80 million tones of ore and waste from the Andes mine."

Also, there is less waste material in the undersea mining process, which is potentially better for the environment. Land based mining operations often disturb large areas to

get at the minerals. In the ocean the deposits are literally sitting on the seafloor, often visible to the naked eye via a remote operated video link. It is anticipated that the SMS deposits can be "surgically" mined in very discrete areas with no waste material to remove and no drilling or blasting will be needed as is commonly practiced in land based mining operations.

There may be serious environmental concerns over disturbing the smokers in search of the gold, copper and silver laden deposits. Some worry that processing ships may disturb important living laboratories. To this end, both companies are working closely with scientists to locate target deposits and to assist in extracting samples for scientific as well as commercial analysis. Both companies have invited marine biologists and geologists on their exploration cruises to sample and study the marine life and geology around the black smokers. The detailed exploration work conducted by Nautilus and Neptune is providing the scientists with an excellent opportunity obtain more data.

Marine scientists are interested in the many species of plants and animals that live in the presence of the high heat and toxic chemicals blowing out of the smokers. Geologists study "black smokers" to learn more about how land-based mineral deposits would have formed, i.e. interpreting them as a modern analogue of what are known as VMS Volcanogenic Massive Sulphide Deposits. What is spewing out of these smokers is providing scientists with new information about how life formed on the Earth and how some forms of life can survive enormous temperature fluctuations.

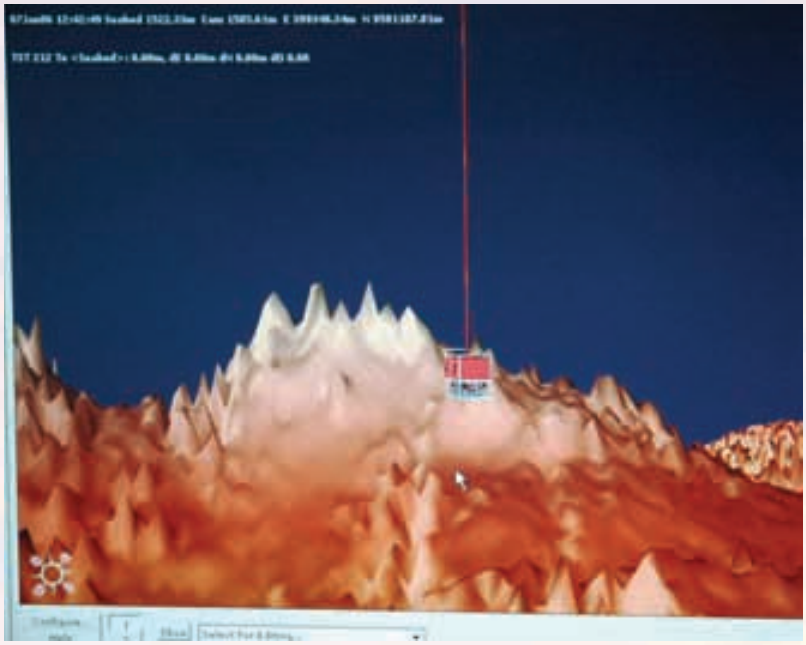
Nautilus said it is working with scien-

Deploying a Canyon Offshore ROV to photograph and sample SMS deposits off Papua New Guinea. (Photo Credit: Nautilus Minerals)

tists and is, in fact, providing scientists access to information that would not be available if it was not exploring these areas. Nautilus is conducting a detailed environmental impact assessment to get the facts and determine what if any effect discreet "surgical" mining would have in these areas.

Environmental studies are ongoing and the results of these will be used to determine the impacts of potential mining on both inactive and active deposits. Mining of individual areas will need to be assessed on a case-by-case basis, as each will have different physical, environmental and ecological characteristics.

This past summer Nautilus partnered with the Woods Hole Oceanographic Institution and Scripps Institution of Oceanography to locate more deposits within the company's exploration leases in the Bismarck Sea in the territorial waters of Papua New Guinea. Nautilus's mission was to go where there were known deposits and bring some to the surface for analysis to see how extensive these deposits were and to gain engineering data.



ROV realtime 3D surround navigation computed.
(Photo Credit: Nautilus Minerals)

A year ago, Placer Dome, a major gold mining company, conducted the first drilling program for gold copper seafloor massive sulfides on Nautilus Minerals tenements off the coast of Papua New Guinea. The results were encouraging and enabled Nautilus to become a publicly traded company with $113m in the bank (as of Dec.11, 2006) with more investment expected in the next few months.

Nautilus's current investment partners include a who's who in mining and minerals production. Among the luminaries on board are; the Russian mining giant, Metalloinvest; owners of large iron ore and steel producers; Anglo American PLC, with platinum group metals, gold and offshore diamond mines ; Barrick Gold Corp., a gold mining company with reserves of 139 million ounces, and Teck Cominco one of the world's largest zinc miners.

Earlier this year, Placer Dome, worked with Nautilus to complete a geophysical survey to locate older, inactive, sulphide fields. This was the world's first geophysical exploration program directed at locating inactive or 'dead' metal sulphide deposits on the seafloor. Nautilus's interpretation of the geophysics shows its "Solwara 1" deposit measured 1.3 km long by 80 m-200 m wide. The grade of Solwara 1 samples, from a weighted average from Placer's dredge sampling program as calculated by Nautilus, is 13.7 g/t gold, 10.8% copper, 3.65% zinc and 220 g/t silver.

Neptune's early exploration results are similar. The company raised approximately $18m in October 2005 to fund an aggressive exploration program in the Kermadec project area located within New Zealand waters. Coring and surface sampling were conducted in December 2005 and many samples were assessed. The samples resulted in very high levels of gold, silver and zinc. The average metal content of the samples taken were 11.2 g/t gold, 122g/t silver, 8.1% copper, 5% zinc and 0.5% lead.

Technology Leads the Way

Exploration technology for SMS is similar to that used for offshore oil and gas and for dredging and pipeline laying. Today's multi beam swath sonar systems are effective at providing a wide view of sea floor features. A trained eye can pick out targets of interest and go back for a higher resolution look or even place an ROV with a camera on the spot to identify the target. If it looks like a SMS deposit, then the drilling rigs come in to assess thickness and breadth. The technology exists today, and is being used to understand the yield potential for certain tracts.

ROV samples copper on sea floor. (Photo Credit: Nautilus Minerals)

Above: Sample of a Black Smoker on deck being prepared for mineral content analysis. (Photo Credit: Nautilus Minerals)

Below: SMS sample. (Photo Credit: Neptune)

Remote Operated Vehicle recovering to ship with chimney sample. (Photo Credit: Nautilus Minerals)

Exploration, engineering and design are all key to the success of a commercial operation to find, assess, extract, transport, smelt and distribute the resultant minerals expected to come from the SMS deposits. Just as they have assembled an impressive investment war chest, Nautilus has retained a similar line up of consultants to provide engineering support for all facets of the operation.

Engineering consulting services are being provided by Worley Parsons. Perry Slingsby Systems and Canyon Offshore have provided the survey, ROV systems, and construction know-how for exploration and drilling operations. Voest Alpine is providing cutting head technology for the underwater cutting equipment as well as testing of the seafloor massive sulphide samples brought to the surface in the past year and a half.

Seafloor Massive Sulphide inspected by Placer Dome geologists - on site Suzette field PNG v2. (Photo Credit: Nautilus Minerals)

The Nautilus engineering team is finalizing specifications for extraction from the seafloor. They will combine technology used for mining diamonds with dredging technology and with offshore oil and gas technology. Equipment will have to be as precise at 80 m as it is at 2500m. The design team is also working with the ROV partners to develop an ROV that can drill through the SMS deposits to determine thickness.

Early in 2007 the Nautilus team will begin the detailed design and construction of sub sea mining equipment, including two remote controlled mechanical miners, power umbilicals, pumps, a 1,800 m riser pipe and related handling equipment, as well as the construction of an on-shore concentrator plant and the acquisition of the necessary land on which to build the plant.

The sub sea equipment will be connected to and will be serviced by the 191m purpose-built deep sea mining vessel to be named the Jules Verne. It will be constructed by Belgium based dredging expert Jan De Nul, in 2009. The Jules Verne will be a dynamically positioned ship that will deploy mining equipment such as pumps and riser pipes as well as ROVs and their handling systems. Copper and gold material will be dredged up from the seafloor and pumped to the vessel where is will be transferred to barges to a land based processing plant.

Neptune Minerals

Neptune Minerals of Sydney, Australia was established by Dr. Simon McDonald in October 1999. Neptune listed on the Alternative Investment Market of the London Stock Exchange in October of 2005 and report holdings of nearly $13 million. Neptune has been exploring selected sites where hydrothermal vents occur and where large deposits of SMS lay. Neptune now has exploration and mining rights to more than 60,000 sq. km of seafloor, and a further 20,000 sq. km under application. Neptune's strategy is to build a quality exploration portfolio covering areas of known SMS mineralization and to add value through focused exploration. Dr. McDonald applauds the work that Nautilus has done in breaking ground in engineering, financing and technology development for the eventual mining and production

of the vast reserves of SMS deposits on the seafloor.

Neptune has rights to specific tracts of the seafloor off New Zealand, Vanuatu, Papua New Guinea, Italy and the Mariana Island regions. Nautilus has rights off Papua New Guinea, Tonga and Fiji and it is reaching beyond the Pacific to other areas with known concentrations of SMS as defined by international academic research efforts.

Active underwater volcanic areas have largely already been identified by the research community. The multi-beam and/or sidescan sonar suveys are used to map features that may indicate the presence of inactive or weakly active SMS systems in the vicinity of the known active volcanic areas. An ROV is then deployed to further investigate the most promising targets, with video and still cameras enabling the exploration geologists to "see" the targets and then using the ROV manipulators to take grab samples and deploy other sampling tools.

According to Dr. McDonald, the company is waiting to launch its 2007 surveying program until the price of the appropriate ships come down. Currently it is very difficult to obtain these assets because they are still busy in the Gulf of Mexico cleaning up after the hurricane damage. There are several boats of interest in Singapore, but the price to mobilize and de-mobilize them is too high at the moment. The type of vessels Neptune seeks are 50-60m anchor handling and rig supply boats that have large decks for ROVs, handling systems and drilling rigs.

Dr. McDonald is pleased that so many large mining companies are investing in these operations. He says it's good for all concerned. Neptune is a fairly lean company comprised of eight mining and financial professionals and it contracts out for specific services as needed. Neptune's strategy is to locate good deposits and enter into a joint venture with a mining company that has the specialized skills to mine and process the various metals.

Neptune Minerals Managing Director and CEO - Simon McDonald, PhD, BSc (Hons) Simon founded Neptune in 1999.

The biggest hurdles for Neptune lay in the corporate challenge to raise enough cash to conduct new exploratory cruises. Another challenge is to alter the view that land based mining companies have about the challenge and expense of working in the sea. Obviously the availability of both topside and undersea technologies such as multi-beam sonar and rugged ROV systems are helping to break that barrier. After all, this is where the offshore oil business was 40 years ago.

Dr. McDonald said that limited specimens of active smokers have been and should continue to be collected for both geological and biological study. The issue will be to locate the smokers accurately, map them and estimate a "safe" distance to start going after the SMS. The extraction method is fairly slow and laborious and will be monitored at every turn. Ensuring that environmental issues are understood and considered is another hurdle. McDonald said, "Land based mining has done a number on hillsides and forests. As a brand new industry, pioneering all sorts of techniques in uncharted waters, literally and figuratively, the undersea mining community will be under close scrutiny and their operations must be unimpeachable. We have a good opportunity to make SMS mining commercial, acceptable and preferable to its land based alternatives."

Drill floor team in action (Photo Credit: Nautilus Minerals)

Safely Managing

Subsea Explosive Hazards

By David Welch, Director, Ramora

The world's oceans are littered with unexploded munitions, which are remnants of war, military test ranges, trials and dumping grounds, which lie intact on the sea bed, posing significant human and commercial risks. Discarded munitions - including conventional, nuclear, chemical and biological ordnance - were likely seen at the time as posing minimal risk to human development.

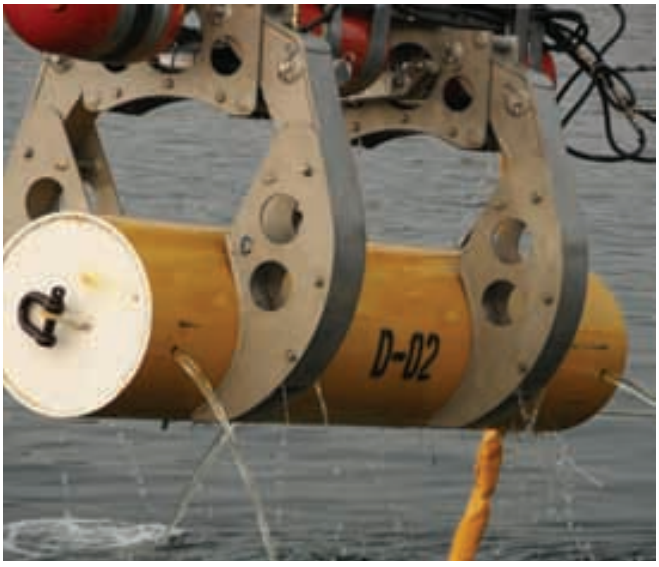
But as undersea technologies have advanced rapidly - making the exploration and utilization of the seabed in increasingly deeper depths for commercial, military and scientific purposes - there has been a marked increase in the amount of explosive ordnance being discovered.

One company who saw the need to address the matter before disaster strikes was international oil major Shell, which contracted Ramora UK to provide a comprehensive safety solution to maritime explosive ordnance disposal. The service provision provides a dedicated risk management capability to address Unexploded Ordnance (UXO) within the maritime environment, helping to enhance both the safety and commercial aspects of the client.

Offshore organizations have experienced a number of

incidents of unexploded ordnance being discovered in the vicinity of offshore platforms or pipe-laying operations. Historically, each of these incidents impacted upon the project and posed obvious human and commercial risks.

Initial consultancy resulted in the delivery of bespoke training to key Shell employees, including offshore installation managers, emergency response managers, logistics, safety and operational staff. This training is complemented by the provision of supporting protocols and documentation. As training was delivered, it immediately provided benefits by raising awareness and highlighting areas of incident control and response that could be enhanced in terms of both management and resources.



Having provided a dedicated risk management structure, Ramora were then contracted to deliver a dedicated practical response to the recurring problem of historical munitions. The scope of the project ranged from initial concept and design through to the manufacture and practical trial of the equipment. The stated operational capability of the equipment was that it would be capable of remotely lifting, relocating and disposing of ordnance weighing up to 1000 kg, located to a depth of 558 ft. (170 m).

Existing solutions at this time were based on military protocols, established upon war time operations and the associated levels of risk. This invariably resulted in diver intervention or at best a responsive ROV solution.

Ramora UK applied a hierarchy of control measures including elimination, substitution and the incorporation of engineering and design controls, to provide a safer and timelier solution. This risk reduction methodology has resulted in equipments and operational procedures that incorporate intrinsic safety measures. This includes having no single point failures in the system and redundancy and safety mechanisms within the equipment, significantly reducing the human and commercial risks.

Practical Solution

The remote relocation of the equipment is based upon the utilization of an electro hydraulic ROV to deploy a

hydraulic cradle which can be remotely attached and locked to the munitions. The cradle is attached to an acoustically initiated, enclosed mine lifting bag which can lift up to 1000 kg. Utilizing this system allows greater mobilization opportunities, with the entire system being deployable by road, rail, air or sea. It also reduces the through life costs encountered by a work-class ROV.

The hydraulic cradle was designed as a lightweight and versatile tool, with interchangeable features to address a broad range of munitions. All hydraulic and engineering components of the cradle were proven to BS EN ISO 9001:2000 standards.

The lifting bag and associated control systems were designed and produced by JW Automarine. Acoustically operated, the lifting bag is controlled by internal software that regulates the speed of ascent and descent, with the munition being held 10 m below the surface to provide water tamping and further minimize risk during the towing and relocation phases.

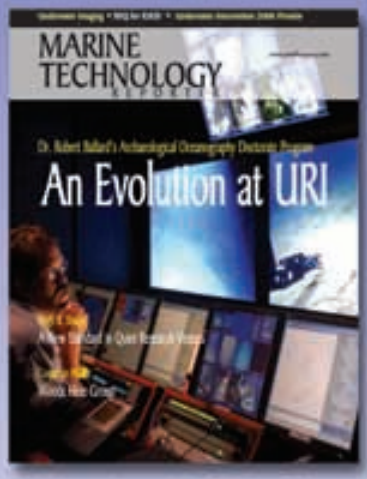
A quick release towing mechanism is attached to the target and used to relocate the unexploded ordnance to a safe disposal area. The system is then repositioned to the sea bed in a controlled manner, which is again regulated by the internal software. The enclosed mine lifting bag is then detached by the ROV and an acoustically initiated explosive charge is placed adjacent to the munition in order to dispose of it.

Prior to the operational trial phase, the software and pneumatic control systems were subjected to comprehensive laboratory tests. The enclosed lifting bag and control systems were then hydrostatically tested to a depth of 866 ft. (264 m), at the European Aeronautic Defense and Space (EADS) test facility in Wales.

Three days of practical enclosed water trials were then conducted at the Ministry of Defense diving and trials facility, located at Horsea Island, Portsmouth. This was immediately followed by two days of open water trials in the Solent areas during Spring tides. The trials program was designed this way to provide a controlled yet progressive approach, allowing the equipment, protocols and supporting infrastructure to be operationally proven.

The equipment proved to be reliable throughout both the hydrostatic and practical trials, on a variety of seabed conditions and gradients, in challenging conditions of both visibility and tide. Repeatedly securing, lifting and relocating a range of targets, the system offers a comprehensive solution to a range of historical ordnance within the maritime environment.

For additional information email enquiries@ramorauk.com



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First Mid-East Cabled Seabed Observatory

Lou Tapscott, founder of Lighthouse R & D Enterprises, has for four decades been mystified by the ocean. From diver to CEO, Tapscott has been involved with and intrigued by the mysteries of the sea. His thirst for knowledge has forged a quest to better understand current direction, eddies and earthquakes and the potential impact of such ocean phenomena.

Lighthouse's flagship project is L.O.R.I. (Lighthouse Oceans Research Initiative), which has its primary installation off the coast of Oman. Through his earlier work in the Gulf of Mexico with one of Deep Star's projects, Met Ocean, Tapscott became aware of the importance of loop currents in the Gulf of Mexico. With a vision of the potential impact globally of such patterns in deeper water, Tapscott continued research in the field, and the Gulf of Oman is one area that revealed a major loop current. With the interest and support of Oman's Ministry of Fisheries and Agriculture, in 2005 Lighthouse completed Phases I and II of the L.O.R.I. program in Oman

Figure 1. Gulf of Oman, Strait of Hormuz and Arabian Gulf commercial traffic pattern. The Strait and the Gulf exhibit one of the highest densities of oil and gas shipping in the world. South-bound traffic exiting the Arabian Gulf oil fields pass near the cabled seabed array.

As a result of its position at the northern margin of the Arabian Sea, the Gulf of Oman is a dynamic marine environment driven by the seasonal extremes of regional monsoon events. Aside from environmental perturbations, the Arabian Gulf is subject to real and potential pollution from the heavy traffic of large oil tankers entering and leaving the Arabian Gulf (Figure 1). Ballast water discharges, spills, and other effluents associated with such traffic are a continuing concern of Oman, whose pristine Batinah coast is under development as a national resource for underutilized fisheries and an emerging recreational industry exploiting sport fishing, diving, and other tourist attractions. The Sultanate of Oman has a vital interest in preserving and protecting the coast. A recent deployment of oceanographic sensors is providing essential data necessary for monitoring existing conditions as well as providing the basis for prediction of environmental impacts in the event of an accidental release of substances, which might threaten the coastal habitat.

The global oceanographic community is mobilizing and planning instrumented seabed arrays to monitor ocean parameters through cabled instrument strings reporting to a coastal station where data are fed to researchers. Several such links are in place in Canada, the Pacific (Hawaii), Japan, the east coast of the U.S. and elsewhere. The European community plans for extensive observatories under the ESONET program where more than 11 countries will share marine data.

In the past year, the Sultanate of Oman's Ministry of Agriculture and Fisheries has fielded an array of instruments to record current speed and direction, temperature, salinity, oxygen, and turbidity (Figure 2), leading the way to a Middle-Eastern data collection system in a vital region not yet studied in detail. The Sultanate of Oman's Marine Science and Fisheries Center has emerged as the leader in oceanographic studies of the northern Arabian Sea through its four offshore sites, which record on an hourly basis. Data are collected onshore and forwarded to the Oman Marine Science and Fisheries Center

(OMSFC). These data form the basis for environmental assessments to measure seasonal variations associated with monsoon perturbation. The array was positioned to intercept signals from any release from the Arabian Gulf shipping traffic, as well as to monitor parameters essential to water quality assessments meaningful to fisheries (salinity, temperature, oxygen, etc.). It provides detailed information on water motion and density; both are critical to the modeling and prediction of spill behavior.

Four seabed nodes are connected to base arrays containing the full suite of sensors mentioned above. A fiber optic cable connects the nodes, and it leaves the water at Abu Bakara, where the data collection, storage and early analyses on the health and performance of the system is constantly monitored. The cabled observatory thus extends about 60 km northeast across the Al Batinah coastal shelf, providing real-time ocean data, which monitors the health and potential threats from natural and possible anthropogenic causes. Closest to shore, designated 1-1, is a stand-alone seabed measurement system sited at a depth of about 65 m. Since the current speed and direction are acoustically measured in thin (2 m thick) "layers" (cells, or "bins") to a height of 50 m above each sensor, 1-1 is monitoring currents in nearly all the water column. The other seven sensor packages are shown in the profile of deployments in Figure 2, and the 50-m layer shown in the water column above each package is sampled for current speed and direction in the red box positioned above the meters (See Figure 3 for an example of current velocity data). Thus array 4-1 and its moored instruments at two levels above the seabed (and likewise the single moorings above 2-1 and 3-1) provide a real-time snapshot of water motion in the overlying shelf waters.

The base of each array is housed in a trawl-proof cage, which protects all sensors from fishing damage while acting as an instrumented tether for the deeper buoyed arrays. They weigh about 37,000 pounds (~17,000 kilos) and are designed to withstand any dragging or other displacement of observatory components.

To increase the accuracy of numeric modeling, three autonomous moorings were set 60 nm off of Oman's Cape Ras Al Hadd. These arrays are positioned to monitor the currents coming out of the Arabian Gulf, currents coming up the coast from the Red Sea, and within the convergence area off the Cape. Another stand-alone array is set off the South Eastern Margin of the Murray Ridge

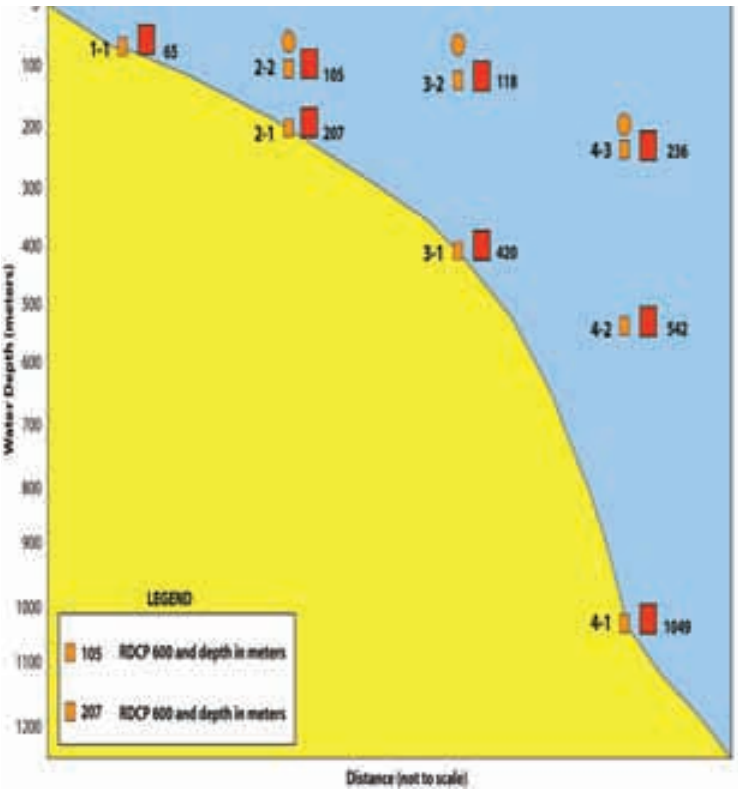

Figure 2. Schematic profile of deployment elements. Red boxes are insonified layers of the water column yielding current speed and direction data.

in the Northern Arabian Sea. Data from all four autonomous moorings are retrieved annually.

Cabled seabed observatories are generally considered prototype installations and as such they have not been without problems. The Al Batinah deployment has been no exception. Electronic systems in the sea are always subject to numerous hazards, and the Batinah systems have seen sensor failures, power interruptions and mechanical problems related to complex instruments operating continuously hundreds of feet below the surface. The cabled observatory is a prototype, which through troubleshooting, analyses and repair provide confidence in continued and improved data collection.

Continuing interest in the Sultanate of Oman for ocean measurements and monitoring for public safety is leading to its critical role in developing the ongoing Indian Ocean Tsunami Warning System (IOTWS). As a result of the December 2004 tsunami, 27 nations have joined the IOTWS under a multinational program being directed by the Intergovernmental Oceanographic Commission under the United Nations Education, Science and Cultural Organization.

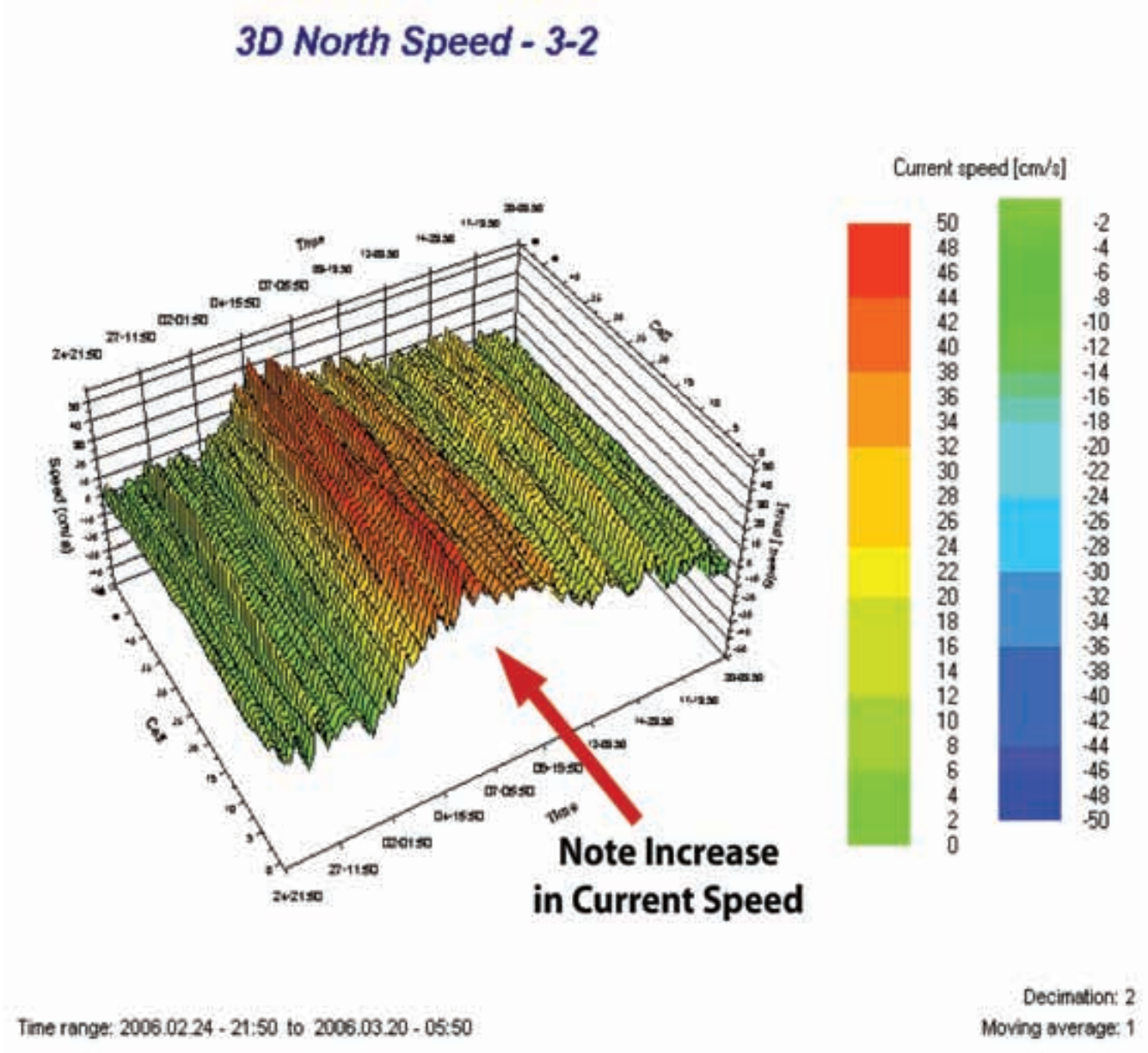

Figure 3. RDCP Studio example of current strength data from mooring 3-2 (see Figure 2 for location and depth of sensor 3-2).

The IOTWS effort has been launched through at least 16 international coordination meetings in which a team of experts representing the IOC/UNESCO-led meetings in many of the coastal states who participate in IOTWS. The Oman meeting was held in Muscat June 7-9, 2005, which was coordinated by Dr. Ahmed H.M. Al-Harthi, acting Director of Meteorology, Ministry of Transport and Telecommunications. The purpose of each national assessment is to help coastal states establish and operate a tsunami warning and mitigation system, assess available organizational resources, and identify capacity building needs. Dr. Al-Harthi (a.alharthi@met.gov.om) is the designated official Omani contact for receiving instant transmissions of both Pacific Tsunami Warning Center and Japan Meteorological Agency bulletins, which provide warnings of possible tsunami threat (See IOC/UNESCO Communications Plan Report by Hagenmeyer, 2006). Dr. Al-Harthi was encouraged by the Omani participation that included 52 representatives from 11 agencies of ministries during the three-day meeting.

The IOC/UNESCO Communications Plan regarding early warning and public awareness mentions the need for monitoring the Makran tectonic zone of eastern Iran/western Pakistan. This active zone produced a tsuna-

The Author, Ken Du Vall, runs through his presentation.

mi in 1945, which reached the Omani coast within 30-60 minutes. It suggests a tripartite cooperative venture in the installation of a real-time warning system around the Makran region.

About the Author

Ken Du Vall has served as President and COO of Lighthouse R & D Enterprises (www.lighthousehouston.com) since January 2005. He came from Cal Dive International to assist in the development of international operations. From 1991 - 2002 Du Vall was operations manager for Oceaneering International. His background at OI concentrated on international vessel and project management with an emphasis on international project development and business relations. From 1989 - 1991 he was a marine scientist/engineer at Texas A & M University in support of the Ocean Drilling Program, an international consortium of universities for ocean research. Prior to 1989, Du Vall worked for the National Marine Fisheries Service, NMFS, in Alaska and a participant in the Tropical Oceans Global Atmospheres (TOGA) project. Du Vall graduated from the University of Washington, with a degree in Oceanography.

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Deepwater Ops Study Launched for GOM

Ziff Energy Group (ZEG) launched the 6th edition of its Deepwater Reducing Field Operating Costs (RFOC) study, which will evaluate 2006 operating costs for more than two dozen Deepwater producing assets in the Gulf of Mexico. Participation will include nine Deepwater operators, who collectively account for more than 80 percent of the 1.36 million barrels of oil equivalent per day (MMBOE/d) produced in the Deepwater region of the Gulf of Mexico.

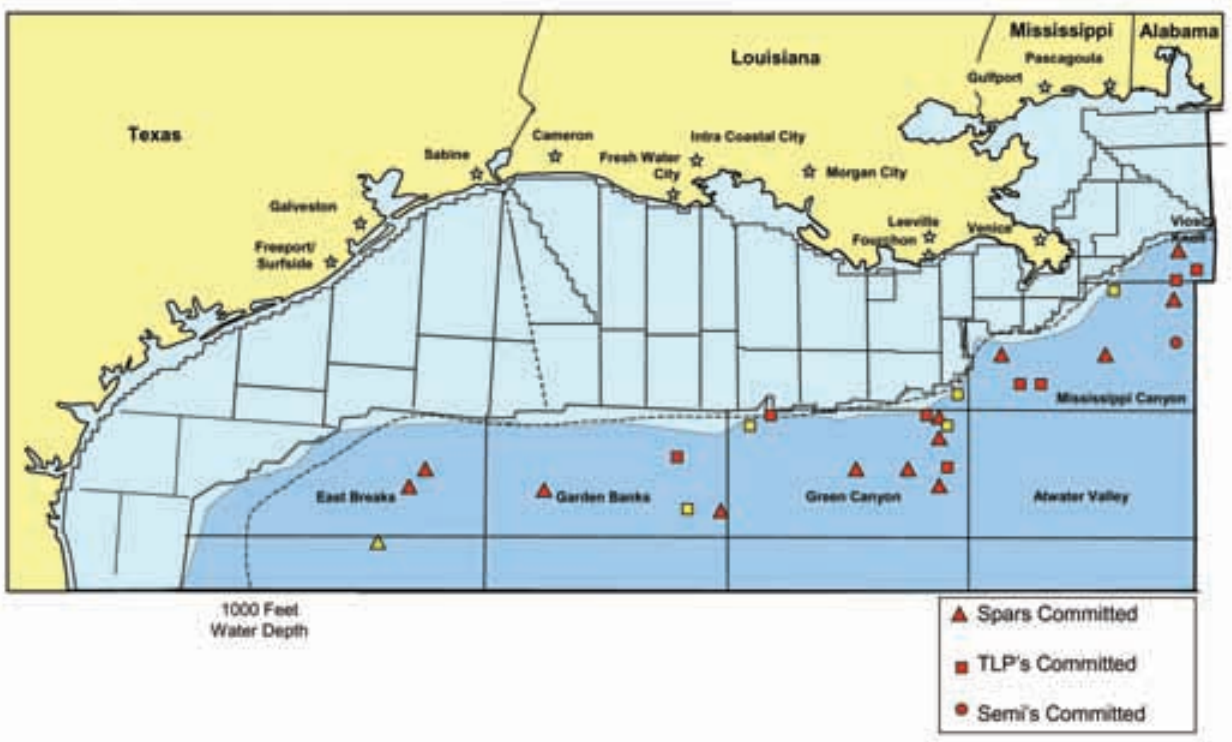
ZEG's last deepwater study was conducted three years ago, assessing 2003 data. Many changes have occurred since then, including production from many new Deepwater assets including eight new spars (Red Hawk, Gunnison, Constitution, Holstein, Mad Dog, Devil's Tower, Front Runner and Medusa), three new Tension Leg Platforms (Magnolia, Matterhorn and Marco Polo), a semi-submersible production host for six oil and gas fields (Na Kika), and dozens of new subsea wells.

Offshore Brazil is another major Deepwater area, operated primarily by Petrobras, and West Africa (Nigeria and Angola) is an important emerging Deepwater region. The U.S. Deepwater has both the broadest range of operating systems, and diversity of Deepwater operators, and therefore is the leading 'incubator' for the worldwide Deepwater industry.

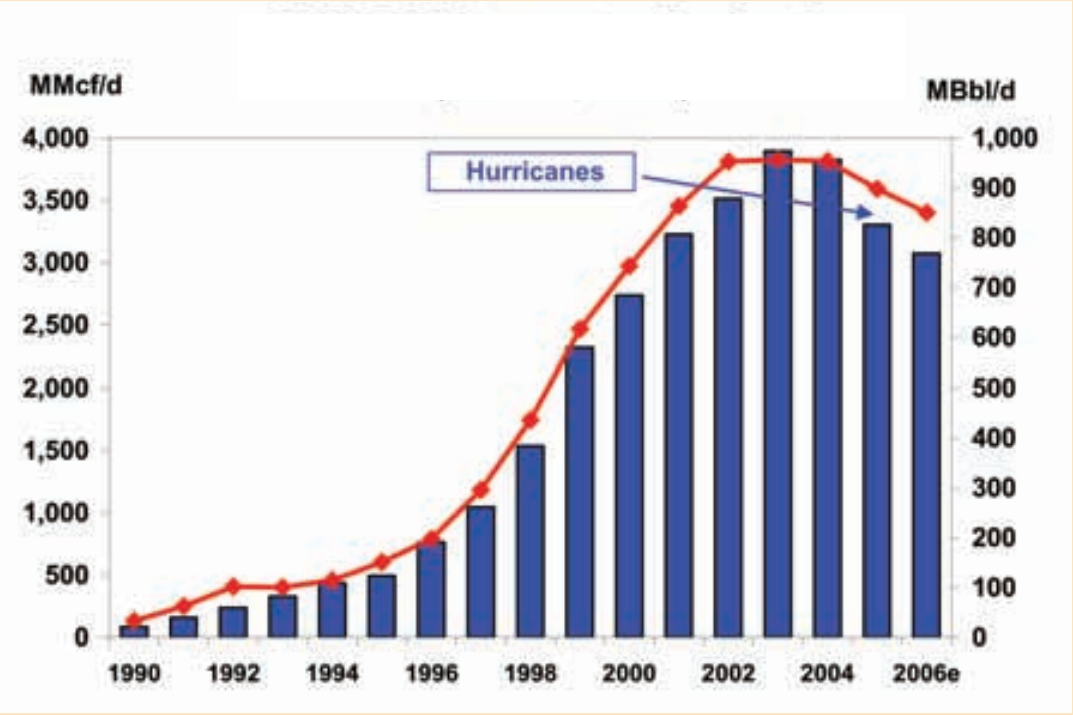
The Gulf of Mexico Deepwater has continued to have new world class discoveries and significant new field developments, though fewer new assets came online in 2005 and 2006 compared to 2004. The pace of new field developments will continue for the next several years, with both Independents and Super-Majors making significant contributions to the growth of Deepwater production and reserves.

Corresponding with the increase in the water depth of new developments, 2007 and 2008 will see first production from new semi-submersibles (BP's Thunder Horse and Atlantis projects, Anadarko's Independence Hub, and Chevron's Blind Faith).

Gulf of Mexico Floating Production Assets to be Assessed in 6th Edition



GOM OCS Deepwater Production (WD>1,000 ft.)



In the ongoing battle for U.S. Energy self-security, the Deepwater region is a stable source of domestic oil supply (along with Alaska and the Permian Basin for onshore oil). Compared to the 1990's, the ranks of leading players has expanded beyond the original Super Majors (Shell, BP) to include leading Independents such as Kerr-McGee (now part of Anadarko) and Murphy Oil (operator of two spars). The world-class potential has also attracted foreign headquartered companies such as Petrobras, the world's largest Deepwater producer with extensive heavy oil reserves in Brazil, and European companies Total of France (prior Elf) and Eni of Italy.

With the growth of production and facilities in the Deepwater has come increased emphasis on system reliability to optimize production and continued strong emphasis by industry on safety, health and the environmental stewardship, which is important for government and citizen shareholders. Industry is focused on managing operating costs through the application of best practices and new technologies.

Ziff Energy's study will focus on operations in offshore fields located in greater than 1,000 ft. of water depth and encompass the various development systems being used currently in the Deepwater Gulf of Mexico: floating production systems (spars and TLP's), fixed platforms and subsea wells. While the 6th Edition study will analyze operating cost data for calendar year 2006, the results will also feature extensive trend analysis both on a field and company level. The 5th Edition included, for the first time, metrics related to operating efficiency/reliability (e.g. causes of production downtime) and G&A costs directly related to supporting the asset (e.g. facilities and reservoir engineers).

Data collection will begin during February, so there is still time for additional Deepwater operators to participate in the initiative.

"Ziff Energy's database of historical costs in the Deepwater, which goes back to the early fields operating in l998, allows companies to examine cost trends over nearly a decade, covering the life cycle of a number of fields. The study will also analyze effectiveness of programs such as chemical use, boats vs. helicopter strategies, well servicing, and production optimization," said Richard M. Tucker, Ziff Energy's Vice President. "The study will identify key opportunities to lower unit operating cost in these areas as well as from improved reliability and production optimization."

Further information about the Deepwater initiative is available from the Ziff Energy Group offices in Houston at (713) 985-5183.

Email Richard Tucker, VP Marketing
richard.tucker@ziffenergy.com

Interview: Herve Jaubert, Exomos

A former French naval officer launched a venture in Dubai to build submarines for tourism and law enforcement. Proteus, ordered by a private client for $6m, is capable of turning into a submarine and going to depth of 20 m under water. Exomos aims to design and build futuristic looking submarines and submersible vessels that can be used for Coast Guard and law enforcement, leisure trips or simply as toys for the rich.

The company began operations in March of last year with an initial capital of $15-million from the Port Customs and Free Zone Corporation (PCFC), the Dubai government entity that oversees the city's ports including Jebel Ali. It has secured an order for 10 black Submersible Patrol Vessels, which is the law enforcement version of the Proteus, at $15-million each, from the government of Indonesia to combat sea pirates. Exomos is now building Nemo, a submarine in the shape of a Megalodon — a prehistoric shark — that looks as if it came from Verne's era. It will be used for underwater rides for tourists. *MTR* recently caught up with Herve Jaubert to discuss his company's vessels.

Describe your management philosophy?

HJ A good leader is someone who can keep together people in a same direction, whom authority is best based on example and competence.

What are three significant changes that have occurred within the industry in the last five years?

HJ Most significant is in the battery technology with the Lithium - ion cells breakthrough, then electric thrusters technology, new software's and hardware's for underwater navigation and controls, also gas turbines for the marine industry and my submarines as well.

How has Dubai's ever-growing economy and status affected Exomos?

HJ The Dubai government with its forward thinking and efforts to attract new technologies is detrimental in the decision to establish a business in Dubai, there is no bureaucracy and no taxes

What investments are Exomos making today that are intended for the long-term health of the company?

HJ We are investing in facility, tooling and expert staffing to exceed industrialization requirement, efforts in

R&D to be in the best position to offer the vessels of tomorrow

What do you consider the most important trends in the submersibles-industry to be?

HJ The huge development of real estate beach front properties in exotic countries, which includes the UAE indeed, represent thousands of opportunities to market small private submarines. Such Jet skis and other hi speed water craft are not allowed. Mini submarines in crystal water offers an enjoyable experience, with no impact on the environment and neighbors.

What do you consider the top priorities- project wise- for your company in the coming 12 to 24 months?

HJ World wide marketing of the newly developed submersible patrol boat for the law enforcement

What's the market for submersibles in Dubai?

HJ Dubai sees a growing number of tourists who need activities, one them consist in underwater exploration in shallow waters. Soon, Exomos will offer the rides and the submarines to the public.

How did the Nautilus submersible came about?

HJ I wanted to match entertainment and exploration. Since Jules Vernes, people have been fascinated by the underwater world. The Nautilus, with its 100-year-old metal dinosaur look alike design, not only offers a travel under the surface but a travel back in time as well. I wanted to do much more than taking people into a can to go under the water.

For more information email
mohd.amin@exomos.com

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SeaDiscovery is host to Marine Technology Reporter, and delivers the latest news, discoveries and technologies in the fields of oceanography, marine science, offshore drilling, underwater exploration and survey, diving, construction and undersea defense.

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Donjon Marine Teams to Move the Intrepid

Donjon Marine, Co., Inc. provided operational and technical support in the refloating of the Ex-USS Intrepid, the U.S. Navy Aircraft Carrier which over the last 24 years has been used as a museum and educational center by the Intrepid Association in New York City. After an initial attempt to move the Intrepid failed due to the build up of mud and debris under and around the vessel, a response team comprised of the SUPSALV, Donjon and the U.S. Army Corps of Engineers was brought in to evaluate

the problem and provide a plan to successfully refloat her before regulatory/environmental concerns brought the operation to a seasonal close. Working closely together, Donjon's Salvage and Dredging Divisions prepared a plan to move and dispose of approximately 40,000 cu. yds. of material, which had locked the Intrepid in place. Intrepid was successfully removed from its lay berth on December 5, 2006 and delivered to a local shipyard for repairs. "This operation brought together a distinguished team from the U.S. Navy and the U.S. Army Corps of Engineers in support of removing the Intrepid, an historical monument and museum for the last two decades, from her home in New York Harbor," said J. Arnold Witte, President and CEO, Donjon Marine Co., Inc. "Donjon was proud to be part of such a unique and important response effort," he continued.

For more information visit www.donjon.com

American Airworks

Product: American Airworks sells high pressure breathing air compressors, DOT compressed gas cylinders and new and refurbished ASME gas vessels for high pressure gas storage, new and rebuilt Haskel gas boost pumps and Sierra gas boost pumps, new and reconditioned Survivair self contained breathing apparatus for fire fighting in the marine environment.
National Sales Manager Ray Lambert
Phone: 304-683-4595 Fax: 304-683-3257
Email: ray@americanairworks.com
www.americanairworks.com

American Marine Corporation

Honolulu, HI USA
Tel: (808) 545-5190 (24 Hours)
www.amsghq.com

Bisso Marine Company, Inc.

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Product: Along with our full service marine repair facility, we also have towing and salvage equipment available. Barges are available for rent and lease, as well as other service vessels.
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Product: Coastal Geoscience Research is a marine, geological and environmental survey company that has served the engineering and scientific communities since 1989. We perform sounding surveys, subbottom profiling, sidescan sonar, magnetic surveys, video underwater mapping and video inspections, all types of water sampling and bottom substrate sampling, coring and "STING" penetrometer surveys. The majority of CGRC's surveys are conducted in coastal marine waters and lakes of British Columbia, however we are open to challenging projects in all parts of the world.
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Comex Deep Sea Salvage

Product: Deep Sea Salvage
Sheffield, UK
Salvage Master Steve Sargison
Phone: + 44 114 2459245 Fax:
Email:
stevesargison@subsearesources.com Url:

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Tel: (206) 332-8000 (24 Hours)
www.crowley.com

Donjon Marine Co., Inc.

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Fax: (503) 286-2871
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President John Gladsky
Phone: 516-527-4951 Fax:
Email: gladskymarine@msn.com
www.gladskymarine.com

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www.gdiving.com

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Netherlands
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Email: info@hmc.nl
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In Depth International, Inc
Product: In Depth International specializes in sidescan sonar survey and data interpretation, marine salvage and sales of commercial and technical diving equipment.
President Gregg Mikolasek
Phone: (702) 376-3955 Fax:
Email: scanman@indepthconsulting.com
http://www.indepthconsulting.com

International Industries Inc.
Product: Supplier of underwater equipment.
Annapolis, MD
President Chic Ransone
Phone: 410-349-4080 Fax: 410-349-9390
Email: chic.ransone@internationalindustries.net
www.internationalindustries.net

Inwood International Pty Ltd
Product: Side Scan Sonar operators /suppliers
Blakehurst Australia
Manager Eric Danielsen
Phone: +612 95471097 Fax: +612 9546 3726
Email: inwood@rikkan.com.au Url:

Jaya Holdings Limited
Product: Scope of business is shipowning & chartering and shipbuilding ranging from anchor handling/supply vessels, azimuth harbour tugs, dumb barges, twin screw tugs, platform supply vessels to accommodation/work barges.
Singapore
CEO M L Chan
Phone: +65 6265 1010 Fax: +65 6864 5555
Email: mlchan@jayaholdings.com
jaya@jayaholdings.com

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Vice President of Operations Leen Dykstra
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Email: ldykstra@marionhilldivers.com
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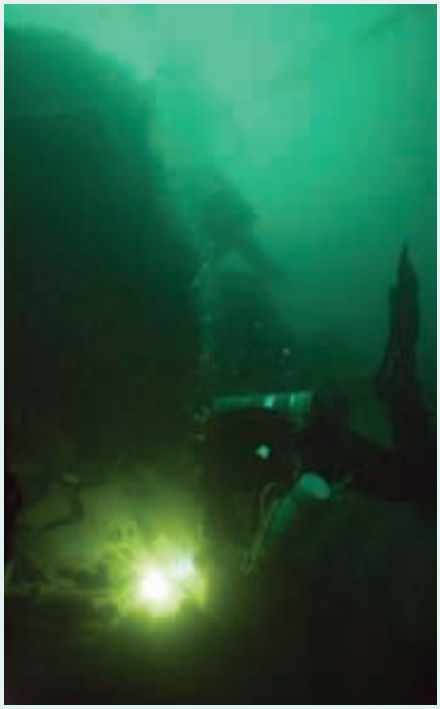
Nautronix plc
Product: Nautronix provides complete marine technology solutions and products for the global offshore industry. Utilising their unique ADS² (Acoustic Digital Spread Spectrum) technology, Nautronix overcome the limitations of traditional acoustic systems and pioneer the field of acoustic signalling techniques. Our 'underwater GPS', NASNet (Nautronix Acoustic Subsea Network) is

ROV Surveys Andrea Doria

A survey last summer of the wreck of the Andrea Doria found areas that they have dived on in the past that are now unrecognizable, and massive sections of the ship have fallen off and are lying in a debris field on the sea floor. For the first time a ROV was used in addition to divers to film the wreck. While divers are limited to 20-25 minutes on the bottom, the ROV can stay down indefinitely and send real time images to the surface. Ocean Eye ROV Service of Warwick, R,I., was contracted for the survey. Information gathered on the expedition will be used in a paper to be published by Society of Naval Architects and Marine Engineers.

John Moyer of Moyer Expeditions in Vineland, NJ, was granted an Admiralty Arrest in U.S. Federal Court, giving him exclusive salvage rights to the wreck to the wreck. He led a team of divers that recovered two 1,000-lb. ceramic sculptures and other pieces of art from the wreck. His exhibit, "Treasures of the Andrea Doria," has been displayed in museums, libraries, and dive shows.

John Moyer with artwork recovered from ANDREA DORIA. (Photo Credit: Bill Campbell, Moyer Expeditions, LLC)



Diver explores Doria wreckage July 25 2006.
(Photo Credit: Brad Sheard)

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www.groupocean.com

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Product: ORE Offshore designs and develops products and systems to locate, position, communicate and activate/control devices underwater: Acoustic Releases, Acoustic transponders, USBL Positioning Systems, Acoustic Telemetry products.
Vice President Greg MacEachern
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Phone: +43 662 880033
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Lost Passenger Ship, North American Located in Atlantic

The Great Lakes passenger ship S.S. North American sank in September of 1967 while on a voyage from Erie, Pa., to Newport News, Va. A research team, this past July aboard Quest Marine's R/V Quest located the ship close to the edge of the continental shelf approximately 140 miles off the New England coast in 250 ft. of water. iT was built in Ecorse, Mich., and launched January 16, 1913. Built for the Chicago Duluth and Georgian Bay Transit Company, it was the first ship built anywhere exclusively for cruising. In 1967 the ship was sold to the Seafarers International Union for use as a training ship. The 280 ft., 2,317 gt ship was being towed by the tug Michael McAllister to a shipyard for conversion to a training ship when it sank suddenly on the night of September 13, 1967. No one was injured in the sinking and the tug reached port safely. Quest Marine's research team led by Captain Eric Takakjian conducted three days of survey diving operations at the wreck site last summer. Three dive teams of two divers each accomplished photographic and physical measurement documentation of the wreck. The divers included Takakjian, Patrick Rooney, Steven Gatto, Tom Packer, Heather Knowles and David Caldwell. Due to the depth all dive teams breathed custom blended helium based gas mixtures. Decompression was accomplished with the use of multiple oxygen-enriched gases.

L-R: Diving crew aboard RV Quest: Dave Caldwell, Heather Knowles (both of Northern Atlantic Dive Expeditions Salem, MA.) Tom Packer, Captain Eric Takakjian, Patrick Rooney and Steven Gatto (Quest Marine Services. Fairhaven MA.)

Obituary: Susan Snow-Cotter
Director Mass. Office of Coastal Zone Management

Susan Snow-Cotter, aged 45 died December 13, 2006 at Brigham and Woman's Hospital in Boston after a three month battle with aggressive inflammatory breast cancer.

Susan was the second of four children who grew up in Medfield, Mass. She attended the University of Massachusetts at Amherst and received a degree in Political Science. Later, she received a Masters in Marine Affairs from the University of Washington.

Snow-Cotter and her fisherman and commercial captain husband, John met in Seattle, moved to Saipan and returned to Massachusetts when Susan was hired to work in the MA office of Coastal Zone Management. She worked at CZM for 12 years; spending the last few years as Associate Director and as Director this past year. As such Susan headed up the Environmental Affairs and Ocean Management Initiative, which was the first in the nation.

Balancing human use with environmental protection in the ocean was a passion for her. Susan served as Chair of the Gulf of Maine Council on the Environment; she served on the Northeast Regional Ocean Council; the US Committee on Ocean Policy Federal/State Task Team on Research Priorities; and she was the Chair of the State's Coastal Hazards Commission. Susan led many efforts to bring innovative management approaches to the entire Gulf of Maine region. In particular she spearheaded a region wide effort to map the seafloor off the entire New England coast. Susan's love of the ocean was deep seeded. During her brief treatment, she enjoyed many walks on the beach in Hull and she enjoyed rowing with the crew in Hingham. She was a particularly good stroke because she was strong, steady and quiet. Susan leaves many family members, both parents, her husband, John and their two children: Carley and Nicholas. A service to celebrate her very full life was celebrated at Old Ship Church in Hingham December 18, 2006 surrounded by over 400 friends, colleagues and relatives. Donations in her memory may be made to the Snow-Cotter Family fund c/o Hingham Institution for Savings, 55 Main Street, Hingham, MA 02043 (Attn. Mary Lampert) (Source: Exerpted from Hingham Journal, Dec. 21, 2006)

New MD for Sonardyne

Barry Clutton (pictured right) has been appointed as managing director of Sonardyne International Ltd, a specialist in subsea acoustic positioning, navigation and communications. He has moved into the managing director's post following nine years as the company's finance director.

"I am greatly looking forward to playing a key role in Sonardyne's future which promises to be an exciting time for the company as we expand into new markets," said Clutton. "I intend to ensure that the company maintains its emphasis on innovation and customer service and I am looking forward to introducing new products currently in development that I am confident will bring important benefits to the industry."

Barry Clutton has taken over from

Ian Polley, Nigel Kelland and Barry Clutton.

Ian Polley who has now retired after 16 years as the firm's managing director. In that time, Ian oversaw many of the key developments in Sonardyne's offshore acoustic technology including the launch of SIPS, the company's expansion into new global markets and most recently, the introduction of Fusion Wideband technology. This particular achievement was marked during his farewell party at the Sonardyne's headquarters in Yateley, U.K., when he was given the job of cutting into two cakes that had been made in the style of Sonardyne's Compatt 5 Wideband transponders. Polley shared his party with Nigel Kelland (pictured center) who has retired from his post as operations director after 27 years with Sonardyne.

NOAA Selects Proenza

Xavier William (Bill) Proenza was named to replace Max Mayfield as the director of its National Hurricane Center and two other divisions of the NOAA Tropical Prediction Center in Miami. Proenza was a long-time director of the NOAA National Weather Service Southern Region.

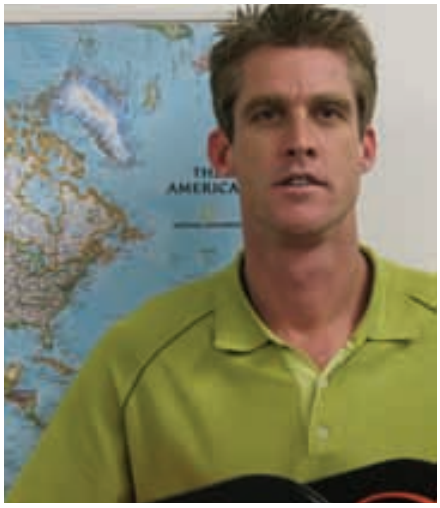
"Bill directs warning and forecast services for the most active severe weather region in the United States, the Southern Region, where nearly 90 percent of our nation's hurricanes make landfall. He has made hurricane preparation and the local forecasting of flooding, tornadoes and high winds by our network of weather forecast offices his top priority," said retired Navy Vice Admiral Conrad C. Lautenbacher, Ph.D., undersecretary of commerce for oceans and atmosphere and NOAA administrator. "He is an effective and knowledgeable leader and well respected by our partners in emergency management and the media."

Proenza started his career with the NOAA National Weather Service at its National Hurricane Center and with NOAA's hurricane hunters in the mid '60s and went on to serve in a number of field, headquarters and leadership capacities across the nation.

He has been director of the NOAA National Weather Service Southern Region since 1998. The Florida State University graduate is a long-standing member of the American Meteorological Society and the National Weather Association, and has held appointments in both professional agencies.

In 2001, the AMS recognized him with its prestigious Francis W. Reichelderfer Award for outstanding environmental services to the nation. In 2003, Proenza was elected as an AMS Fellow.

Newsome Joins SeaBotix



SeaBotix appointed Sean Newsome as Sales Manager for the Americas, responsible for direct sales and distributor relations throughout the Americas. In addition to sales, Sean is responsible for promoting the SeaBotix brand through marketing and trade shows. Sean is a native of San Diego and got his start as a Submarine Nuclear Electronics Technician/Reactor Operator aboard the USS Henry M. Jackson (SSBN 730 Blue). He completed six strategic deterrent patrols while stationed at the Trident Submarine base in Bangor, WA. After the Navy, Sean worked for nearly 6 years at DeepSea Power & Light starting as a technician and moving into sales during the development of the SeaSnake pipe inspection system. Sean's duties beyond inside/outside sales included trade shows, advertising and technical writing, as well as training and support of manufacturer's representatives. Sean also has an Associate's Degree in graphic design.

L-3 Klein Appoints Morton

L-3 Communications' Klein Associates, Inc. division (L-3 Klein) appointed Rick Morton as Sales Manager for its Side Scan Sonar Systems. Working with other members of the Klein team, Morton will be responsible for implementing Klein's strategy to multiply its sales of domestic and international Side Scan and Multi-Beam Sonar Systems.

With more than 10 years experience in hydrographic and oceanographic markets, Morton is suited to expand and enhance Klein's customer base. Morton was most recently with Reson, Inc. in Goleta, Caalif., as an Area Sales Manager responsible for Multi-beam and Single beam Sonar sales in the eastern half of North America.

Farsounder Appoints Zimmerman

FarSounder, Inc., manufacturer of 3D forward looking sonar systems for marine navigation, appointed current President and CEO, Cheryl M. Zimmerman, as Chairman of the Board. "Cheryl is the hub of the company,"said Jim Miller, former Chairman and Co-founder of FarSounder. " I look forward to continuing to work with and support her efforts towards the success of the company."

Farsounder Chairman Cheryl Zimmerman pointing the company in the right direction.
(Photo credit: Maggie L. Merrill)

Miller will step down as Chairman to take the new position of Chairman of the Research and Development Advisory Committee, and will remain on the board as a Director. "I am very enthusiastic about taking on the role of Chairman of the Board at FarSounder," said Zimmerman. "I look forward to continue to work with our directors as well as our man-

Mahr Joins Ocean Innovations

Ray Mahr, Jr. joined Ocean Innovations as a partner, and will

focus on U.S. Navy markets and multi-sensor in-situ data collection system sales. Mahr has more than 15 years experience in the oceanographic instrumentation industry; he was President of Metocean Data Systems, and previous to 1990 supported the Navy's submarine ship silencing and IUSS programs, both at Navy R&D labs and in private industry.

Ocean Innovations represents some of the leading manufactures of underwater equipment, oceanographic sensors, and hydographic survey gear.

Northstar Names Peterson to Board

Northstar Electronics Inc., a company that specializes in advanced sonar technology, contract manufacturing and systems integration for the Homeland Security, Aerospace, and Defense Industries appointed Scott G. Peters to its Board of Directors.

"We are very happy to have Scott join our team," said Northstar's President and CEO, Dr. Wilson Russell. "Scott's strong background in the defense acquisition process and the management of high technology programs will provide Northstar with a new dimension of experience and expertise."

Geoconsult Orders from Kongsberg

Geoconsult AS placed an order for multibeam echosounders, including one EM 122 1x2, one SBP 120 6 degree and two EM 710 0.5x1 systems. The first EM 710 was delivered in December 2006, while the rest of the package will be delivered in 2007.

The equipment will be installed in a gondola on Geoconsult's newly acquired vessel, GEOGRAF II. Geoconsult was established in 1979 by Hans M. Gravdal, and today has access to 17 vessels through the sister company Geoshipping AS.

Hydroid Welcomes Wilson, Loescher

Hydroid added two employees to its growing staff. Brian Wilson has joined Hydroid as its Customer Service Manager and Craig Loescher has joined the company as an Electronics Technician.

Brian Wilson (left) and Craig Loescher.

Wilson (left) has been involved in the manufacturing of oceanographic systems for the past 20 years. Wilson has been involved in customer service activities for most of his career. He was most recently employed at Falmouth Scientific/Acoustikos. He has previously held positions in customer service at Teledyne/Benthos and Datasonics. Wilson holds electrical engineering degrees from Southeastern Massachusetts University and the Berkshire Community College. Loescher (right) also recently joined Hydroid. Loescher has been involved in trouble shooting complex electrical equipment for over 20 years. Prior to joining Hydroid Loescher held positions in various companies, including Tekelec, General Dynamics and Sync Research. He holds a degree in Electro-Mechanical Engineering from Bristol Community College.

For more information visit www.hydroidinc.com

IXSEA Wins Belgian Navy Contract

IXSEA signed a contract with the Belgian Navy to provide an integrated survey solution for its mine warfare data center (MWDC). The purpose of the MWDC is to collect hydrographic data and to produce electronic and paper charts with additional military layers. IXSEA's integrated survey solution (ISS) will be used onboard mine hunters for route survey, homeland security and REA (rapid environment assessment). The ISS includes state of the art imagery sensors: COTS IXSEA's Synthetic Aperture Sonar (SHADOWS), IXSEA's new Gradiometer, Kongsberg's Multibeam Echosounder, and IXSEA's GAPS, a positioning and motion sensor. A comprehensive PC based exploitation software solution is included, allowing survey management and joint display and interpretation of all the data collected. This solution integrates the QPS and CARIS software to meet the customer specific requirements.

For more information email sales@ixsea.com

Phoenix Wins Submarine Rescue Contract

Phoenix International, Inc. (Phoenix) was awarded a five- year contract to provide engineering and technical services to operate and maintain the U.S. Navy's next generation submarine rescue system. The new Submarine Rescue Diving and Recompression System (SRDRS) will replace the Deep Submergence Rescue Vehicles as the Navy's premier submarine rescue capability in 2007. Phoenix personnel will work closely with the U.S. Navy and the manufacturer during a series of system tests and sea trials to obtain system acceptance and certification. Once the system is certified, Phoenix will provide a core staff on North Island in San Diego, Calif., to maintain the system in ready to deploy status at all times, as well as a surge staff to operate the system during training exercises or emergency submarine rescue operations.

The SRDRS consists of three primary elements: the Assessment Underwater Work System (AUWS), the Pressurized Rescue Module (PRM), and the Surface Decompression System (SDS). AUWS is comprised of a side scan sonar system to locate a missing submarine and a one-atmosphere diving system (ADS 2000) capable of inspecting the submarine and preparing it for rescue operations. The PRM is the surface tethered vehicle that descends to and mates with the disabled submarine. It is capable of returning 16 rescuees per sortie to the surface. The PRM is nearing completion at the Vancouver, BC facility of its developer OceanWorks International. The SDS consists of a transfer lock, two 33-man decompression chambers, and associated chamber control systems that allow the hyperbaric treatment and decompression of 66 sailors at a single time.

For more information email tjanaitis@phnx-international.com

Marin Mätteknik Vessel Gets Upgrade

The oceanographic and hydrographic research vessel M/V Franklin, owned by Marin Mätteknik AB of Sweden, was fitted with a gondola mounted EM 710 0.5 x1 multibeam echosounder delivered in January 2007. The order follows two contracts for EM 3002 dual head systems fitted to the survey vessels M/V Triad and Ping. Established in 1976, Marin Mätteknik AB is a Swedish company located in Gothenburg, specializing in high resolution bathymetry data.

BIRNS Aquamate LL Opens Sales Office

The BIRNS Group opened a new sales and service center in New England. Located at The Quest Center in New Bedford, Mass., the sales office is marketing industry standard underwater electrical connectors including the Aquamate Series, FAWL/FAWM, Rubber Molded (Marsh Marine) and others. The connectors are used in various deep sea applications including seismic research, offshore oilrig support, oceanographic research, Defense operations, and environmental monitoring.

The Quest Center is a Commonwealth of Massachusetts

Scuttlebutt

scuttlebutt \SKUHT-I-\, noun:
1. A drinking fountain on a ship; often stocked with strong rum.
2. A cask on a ship that contains the day's supply of drinking water.
3. Gossip; rumor. That ensues after a few sips of the drink

Deep Sea Systems International was acquired by Oceaneering International at the end of September 2006. They are now a wholly owned subsidiary and DSSI founder, Chris Nicholson remains as GM. TriTech International Ltd. was acquired by Halma in November 2006 as the first subsea technology company in their large portfolio. L-3 Ocean Systems Group (aka: Klein) opened an office in Singapore. Klein is seeking a tenant for the 30,000 sq.ft. space vacated by Oyo Corporation. Fred Squires, the first employee at Klein celebrated his 80th birthday in early January and he still works there!

Please send your Scuttlebutt items to:

Maggie Merrill at martrep@aol.com

marine technology incubator that offers companies a place to start-up operations in the heart of the marine technology corridor. BIRNS chose the south east coast of Massachusetts due to its central location and ability to serve the growing concentration of marine technology companies in New England. According to a recent study by the University of Massachusetts there are nearly 500 marine technology companies located in MA, RI, CT, NH and Maine with some 60 percent of these located within about an hour drive from New Bedford.

For more information visit www.birnsaquamate.com

Applied Signal Purchases REMUS 600

Hydroid received a contract for a REMUS 600 system from Applied Signal Technology, Inc (AST), a provider of end-to-end systems for high resolution, wide-area seafloor mapping. The contract marks Hydroid's first contract for the REMUS 600 since expanding its licensing agreement with the Woods Hole Oceanographic Institution (WHOI) to include the larger REMUS vehicles developed at WHOI's Oceanographic Systems Laboratory (OSL). Dan Sternlicht, AST's Acoustic Systems Department Manager, said "Current autonomous undersea vehicle (AUV) CONOPS store synthetic aperture sonar (SAS) data on vehicle hard drives, with beam forming and analysis occurring post mission. Integration of AST's low-power SAS processor directly onto the REMUS 600 motivates a fundamental rethinking of AUV operations. On-vehicle interpretation of SAS imagery will enable transmission of sortie reports while the AUV is still in the field, significantly speeding up data analysis and providing opportunities to affect missions in progress. AST is pleased to be working with Hydroid in the first demonstration of this transformational capability."

Hydroid Ships 100th REMUS 100 System

Hydroid LLC announced that with the recent shipment of a system to the New Zealand Navy they have shipped their 100th REMUS Autonomous Underwater Vehicle system since the founding of the company five years ago. The REMUS system delivered in October is configured with a sensor suite specifically suited to meet the Navy's requirements for mine countermeasure activities (MCM). Representatives from the New Zealand Navy spent a week at Hydroid in Pocasset, Mass., participating in factory acceptance testing prior to shipment.

For more information visit www.hydroidinc.com

Aker Kvaerner Awarded PPL Shipyard Contract

Aker Kvaerner won a contract with PPL Shipyard Pte. Ltd. in Singapore for delivery of drilling equipment for a Baker Marine Pacific Class 375 jack-up drilling rig. The total contract value for Aker Kvaerner is approximately $15m The rig is scheduled for delivery at the end of 2008.

Hundreds of Acoustic Modems Shipped by LinkQuest

LinkQuest Inc. has shipped hundreds of its underwater acoustic modems for applications worldwide in recent months, extending the market of its best-selling acoustic modem, which is based on Broadband Acoustic Spread Spectrum (BASS) technology. LinkQuest has shipped a large number of underwater acoustic modems for long-term fishery and environmental monitoring projects, forming some of the largest undersea acoustic communication networks in history. Long-range UWM3000 modems were installed for India's large Tsunami monitoring network, sending critical sensor data from the deep sea to surface buoys in real-time. Fugro, Seatronics, Ashtead and other commercial companies have purchased a large number of UWM2000, UWM3000 and UWM4000 modems for offshore oil filed applications. Numerous government organizations, large research institutions and universities, including USGS, NOAA, UK's Southampton Oceanography Center, Korea's KORDI, Germany's Baltic Sea Research Institute and National University of Singapore, have also placed orders for various models of underwater acoustic modems.

For more information e-mail sales@link-quest.com

Aker Yards, Aker BioMarine to Build Krill Harvesting Vessel

Aker BioMarine and Aker Yards have agreed on an option for building a vessel for harvesting of krill. The vessel is planned to be delivered in November 2009. The value of the vessel, including all processing and extraction equipment, is approximately $170 million. The final contract is planned to be signed before February 2007.

OceanFlite Acquires Rovex Marine

Following recent changes in its management structure, OceanFlite Limited acquired the entire share capital of Rovex Marine Limited. Similar to OceanFlite, Rovex Marine specializes in advanced subsea camera and sonar tow systems. Together they developed tow vehicles for video and sonar data acquisition. The uniquely shaped and extremely robust product range is honed to perfection for their environment unlike other underwater vehicles. These towed vehicles are designed for hydrodynamic efficiency, speed, maneuverability and ease in deployment. The Towed Undulating Vehicles (TUV) have the unique ability to fly underwater by utilizing negative lift similar to the way an aircraft wing creates positive lift.

Roy Dymond, Director of OceanFlite Limited comments, "We are delighted that both OceanFlite and Rovex Marine can now work under one roof. The combination of both companies has been proven successful already in the past without competing with each other. Now we are able to develop and

manufacture all our products even faster with an improved customer service." Stephen Maffay, Sales Director of Rovex Marine added, "Having worked together for such a long time on the most advanced tow systems world-wide, it was the obvious and logical route to combine forces not only technologically, but also commercially. Together we can offer the most sophisticated and technology advanced TUVs for every environment."

For more information email mark.tinger@oceanflite.com

Fugro Invests in Easytrak

Fugro Mexico placed an order with Subsea Technologies Inc. of Houston, for three Easytrak acoustic tracking systems, built by Applied Acoustic Engineering Ltd. in the U.K. Fugro intends to use the systems for diver tracking during their offshore support operations in the Gulf of Mexico. A long time user of AAE's range of transponders, this is Fugro's first order for Easytrak systems, and comes after recent trials and demonstrations in Houston. Easytrak is an Ultra Short Baseline (USBL) tracking system, and can be used from vessels small or large, or in quayside applications. It requires minimal on-site calibration so that even relatively inexperienced users can commence tracking operations within minutes of deployment.

A built in pitch, roll and heading sensor is included for automatic position compensation, and there is the facility to connect external sensors, such as a gyro or vertical reference unit, should a higher level of accuracy be required. A further serial port allows the reception of GPS data for on-screen co-ordinates. Easytrak tracking systems are distributed exclusively in the United States and Mexico by Subsea Technologies Inc., Houston.

International Industries Sells ODOM Echotrac

USACE Norfolk procured from International Industries, a CV3 (dual Frequency) Echotrack echosounder for use on their Survey Fleet in Atlantic City, N.J. The Echotrac CV is a new hydrographic echo sounder design incorporating the cutting-edge technology, features and reliability of the Echotrac MKIII, plus the ease and flexibility of operation of a networked Windows interface. The transceiver unit is supplied in a compact rack mount package that is ideally suited to many shipboard installations. The Echotrac CV offers "Charts" in two formats, a full size color LCD "electronic chart" or a high-resolution thermal paper recorder. Both are supplied in flexible modular enclosures complete with swivel mounting hardware. The third option,of operating the unit and collecting data on a networked PC, is also possible. The color LCD module offers internal data storage (in .XTF format) and playback of the analog return signal digitized to full 16-bit resolution. In addition, the CV 3

offers the possibility of adding a third acoustic channel (X3) to the standard dual frequency (X2) configuration. All channels feature a robust design and frequency agility enabling the operator to precisely match the transceiver to almost any existing transducer. Operator selectable TVG curves (10 Log, 20 Log, 30 Log, 40 Log, and Off) serve to optimize the MKIII for both shallow and deepwater bottom detection tasks and for Sonar imaging. The Echotrac CV features unsurpassed interfacing flexibility, offering 4 serial ports plus a high speed Ethernet LAN for maximum data collection efficiency. Serial interfaces for motion compensators and DGPS receivers are standard in the CV as are a number of output formats compatible with most common Echo Sounder strings.

For more information visit www.internationalindustries.net

Sonsub Extends Charters of Normand Cutter

After two years of successful operations, Sonsub extended the charter of the multi-purpose Construction Vessel Normand Cutter with Solstad for another six years firm (until 2013) plus options. The Normand Cutter, the flagship of the Sonsub fleet, has recently proven its worth by completing some of the most challenging subsea construction projects, such as Ormen Lange and Skinfaks/Rimfaks in the Norwegian North Sea and is presently mobilizing for the BP Nakika Umbilical to be laid in deep waters Gulf of Mexico.

The vessel has been successfully utilized in recent months in West Africa and has proven itself in every field, from ROV Survey to IRM and Subsea Construction. The DP Reel is presently contracted to Total E&P Angola for IRM work on the Dalia Field and carries onboard 2 deepwater work-class ROV systems.

DOV Participates in Oil Recovery, Dam Inspection Simulations

Deep Marine Technology's DeepWorker 2000 Direct Operated Vehicles (DOV) recently participated in, and successfully completed, oil spill recovery and dam inspection task simulations for Marine Pollution Control (MPC) and the Lower Colorado River Authority (LCRA), respectively.

Conducting the work at Lake Travis in Austin, TX, DMT's first task was to demonstrate the ability to effectively integrate DMT and MPC's technologies by interfacing MPC's Submersible Work Unit equipment with the DOV and perform a simulated oil spill recovery operation. This task was achieved through the use of clay balls placed on the bottom of the lake that were then retrieved with a suction hose attached to the DOV that carried the material to the surface and deposited it onto a vessel.

Tyco Telecommunications to Charter CS Teneo

Tyco Telecommunications chartered the CS Teneo to U.K.-based Offshore Hydrocarbon Mapping (OHM) for five months, with extension options. The CS Teneo will function as the support platform for a number of Controlled Source Electromagnetic (CSEM) surveys being conducted by OHM in North West Europe, West Africa and the Falkland Islands.

"The oil and gas industry relies on CSEM surveying, a remote sensing tool, to map subsurface geology for hydrocarbon detection, and the CS Teneo is perfectly equipped for our needs," said Jon Nicholls, operations manager of OHM. "Tyco Telecommunications' vessels are ideally suited for the deployment of our equipment and the crews are highly experienced in the type of recovery operations we require."

The Spanish registered CS Teneo, a versatile 80-m vessel, forms part of a fleet of specialized vessels and sub-sea equipment owned and operated by Tyco Telecommunications which also includes six 140-m Reliance Class vessels.

For more information visit www.tycotelecom.com

Boost for Seaeye ROV Support in Far East

Pan Wei, senior engineer at Oceanvision.

Singapore-based Oceanvision has made a major investment to support its ROV customers in the Far East.

The company also manufactures and supplies a range of imaging and intervention products for the sub-ocean and off-shore industries, is creating a spare parts and engineering support hub for their customers centered around the world-leading Seaeye range of electric ROVs. The spare parts operation now stocks a comprehensive range of Seaeye components, which enables Oceanvision to offer fast and complete support service from Singapore. Their engineers have qualified at the Seaeye training center in the U.K., and are fully trained in ROV repair and maintenance and brushless DC thrusters. During 2006 Oceanvision became one of the most successful distributors of the renowned Seaeye Falcon ROV, with the company soon to take delivery of their fourth system this year.

IVS 3D Wins Award

IVS 3D was presented with the Information & Computer Technology (ICT) Global Business of the Year Award. The award is given by the Software Association of New Hampshire (SwANH) and the New Hampshire International Trade Association (NHITA) to recognize companies whose trade relationships have created higher sales, more jobs, boosted their profitability, and increased the image of the New Hampshire software or information technology industry. IVS 3D has seen a 61% growth in overall revenue, with 84 percent of that growth coming from international operations. Fledermaus is now used in over 40 countries around the world, and in projects on every ocean. This growth has allowed IVS 3D to expand its operations overseas in Europe, establish a training center in Australia for the Asia Pacific region, expand distribution channels, and increase job growth both in the main offices and overseas. Bill McKernan, Director of Marketing and Sales for IVS 3D, was present at the award ceremony, he stated, "In order to execute such a global reach, we focused on enhancing our world wide distribution channel. We have also taken advantage of several government programs available through the New Hampshire International Trade Center that are designed to assist U.S. exporters. As a company, we are extremely proud to see this combined effort recognized and are looking forward to continued growth in the coming fiscal year."

For more information visit www.ivs3d.com

Transocean Wins Woodside Contract

Transocean said a subsidiary of Woodside of Australia awarded the semisubmersible rig Sedco 703 a one-year contract for drilling operations offshore Australia, where the rig is currently operating. The contract is expected to commence in August 2007, following the completion of current contract commitments. Revenues that could be generated over the one-year contract are approximately $159m. The Sedco 703 is one of 20 other mid-water rigs, in the Transocean Inc. fleet, and is capable of operating in water depths of up to 2,000 feet.

Technip Awarded Project

Technip won from Sonangol P&P a contract worth approximately $70m for the Gimboa field development. The Gimboa field is located 85 km offshore the Angolan cost. Norsk Hydro, ACR (Angola Consulting Resources) and SOMOIL (Sociedade Petrolefira Angolana) are also partners on the project. The Gimboa project consists of three production and four water injection subsea wells, clustered around a central manifold and tied-back to a floating production storage and offloading unit (FPSO). Technip will perform the engineering, procurement, fabrication, testing, installation and pre-commissioning of: one production and one water injection flexible flowlines(1); one gas lift flexible pipe; one service umbilical(2); associated flexible risers(3) system, and flexible well jumpers(4).

Sonardyne Offers Enhanced USBL Options

Sonardyne International Ltd. of Yateley, U.K. released a major upgrade to its Fusion USBL (Ultra-Short BaseLine) acoustic positioning software to include its new Ranger USBL technology, to be offered in January 2007. By receiving Ranger software as part of a Fusion USBL system, operators have the freedom to use the application that best suits their particular needs at the time; Ranger for simple survey and Dynamic Positioning (DP) reference and Fusion for complex, deep water positioning tasks. Ranger is the latest addition to the Sonardyne USBL product family and is ideal for operators with limited experience. The system is easy to learn, set-up and operate. It offers simultaneous tracking of targets with a one second update rate independent of water depth.

An important new feature available in both Fusion and Ranger is the ability to undertake inverted USBL (iUSBL) tracking of towfish over super-long laybacks. With this method, the transceiver is not installed on the vessel but on the towed body itself that is often several kilometers behind and below the ship. Mounting the transceiver in this way eliminates the need for repeated system calibration while the accuracy and repeatability of the acoustic signals are improved as the transceiver is located in a low noise, dynamically stable environment.

For more information email sales@sonardyne.com

Compact 900KHz Multibeam Sonar

BlueView Technologies offers a 900KHz version of its line of miniature multibeam sonar heads, designed to increase search rates and effectiveness during hull inspection and underwater IED detection operations. BlueView worked with commercial and U.S. Navy divers to develop a compact sonar that offers both mid-range detection as well as close-range identification capabilities. The P900E is available as a stand-alone sensor for custom integration, or as a prepackaged component on several ROV, diver hand-held, and boat mounted systems. The P900E is designed to produce real-time sonar imagery at up to 10 full images per second, providing imagery of both stationary and moving targets. It is designed with a maximum range of 180 ft. and resolution as fine as one in., and can help detect and track targets at long ranges, while identifying them at closer ranges. With its standard Ethernet interface, wide input voltage range, and compact size, the P900E integrates easily into most systems.

For more information email jason.seawall@blueviewtech.com

Splashproof PC for Side Scan Sonars

J.W. Fishers introduced a new splash-proof computer with ultra bright display. The ultra bright 10.4-in. display is designed to make side scan images easy to see, even on a sunny day. When the case is opened for operation, the control panel and display are sealed to protect them from moisture and all external cable connectors are O-ring sealed to prevent water intrusion. The computer has a 600MHz processor, a 60GB hard drive, and 512MB of RAM. A waterproof keyboard and mouse are included.

For more information email jwfishers@aol.com

Side Scan Sonar Installed on USV

An EdgeTech 4200-FSL Side Scan Sonar System was installed on a Sea Robotics USV-5000 autonomous surface vehicle purchased by David Evans and Associates, Inc. for use on contracts with NOAA's Office of

Coast Survey. EdgeTech's 4200-FSL Side Scan Towfish, operating dual simultaneous frequencies of 300/600 kHz, was mounted underneath the USV and is designed to provide very high-resolution sonar data that will be used to map hurricane debris and update nautical charts in Mobile Bay.

For more information email info@edgetech.com

ALDA Upgrades Cable Planning Software

ALDA Marine, a partnership between Alcatel Submarine Networks and Louis Dreyfus Armateurs, purchased four upgrades and an additional full license of Makai's suite of submarine cable planning and installation software. The MakaiLay software provides ALDA with the capability to automatically control the cable engine, enhancing their ability to control cable slack and accurate placement of the cable on the seafloor. Alcatel has also renewed technical support for twenty-two licenses of MakaiPlan, the desktop submarine cable route planning software that integrates with the at-sea installation software, MakaiLay.

For more information email Jose.Andres@makai.com

Underwater Detection

Deep Development Corp. said the Underwater Detection Unit (UDU) is now available. The UDU is designed to provide high definition sonar imagery in a rapidly deployable fully integrated package. With a range of 450 ft., the UDU provides sonar imagery similar to that of medical ultrasound equipment. An optional underwater hailing system is also available that allows for one-way communication with a diver or underwater threat. With a price tag of less than $70,000, the UDU is a fully integrated, turnkey sonar designed for use in underwater security operations, dive monitoring, search & recovery, inspection and subsurface biological research. Included are all the necessary components for mounting the sonar head, cabling, interface connections, and tablet PC to view and process the sonar data. Available in two configurations, the UDU can be permanently mounted to a surface vessel or packaged in a portable hard case so it can be easily transported by a single person.

For more information email tmacfarlane@deepdevelopmentcorp.com

Long-range Acoustic Current Profiler

Following the release of its FlowQuest 300 and 600 acoustic current profilers, LinkQuest Inc. debuted the long-range FlowQuest 150 current profiler, extending the same acoustic Doppler technology to lower operating frequency with higher power transmission. The FlowQuest 150 acoustic current profiler is designed to reach up to 500 m in range with an accuracy of 1% +/- 5 mm/s. The standard depth rating of the system is 800 m with options for 1,500, 3,000 and 6,000 m. With its capability for significantly longer range, significantly reduced cost to end users and the Data Fusion function for interfacing to multiple third-party sensors, the FlowQuest system is an ideal system for deepwater current and flow monitoring.

For more information email sales@link-quest.com

Tracking Made Easy

Easytrak is a USBL tracking system designed and manufactured by Applied Acoustic Engineering in the U.K. and sold in the U.S. by Subsea Technologies of Houston.

Designed as a portable and cost effective solution for tracking subsea targets such as ROV's, AUV's, divers and towfish, Easytrak can also be used for salvage operations, hull and dam inspection, archaeology and oceanographic research.

At every stage both the equipment and accompanying software interface has been cleverly designed to be user-friendly and uncomplicated, even for a relatively inexperienced user, so that the subsea tracking operation can proceed efficiently.

For more information email sjl@subseatechnologies.com

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Oceanographic and Subsea Technology Expo & Training

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Marine Technology Reporter has added a special new advertising section to the **MTR Marketplace** called the ***Product & Professional Services Directory***.

This new section will give small businesses and professionals what they need to make the most of their marketing budgets: a venue to advertise their products and capabilities to the largest print and online circulation in the marine technology industry – for one very low price.

Pricing in the ***Product & Professional Services Directory*** is set on an annual basis; giving companies a special discount – and the frequency they need – to get the most from their advertising.

Companies in this section will also benefit by having their ad included in the ***Online Product & Professional Services Directory*** at **www.seadiscovery.com** – the industries busiest site for information and news.

Space is limited in this new section so to get your company listed please contact **Rob Howard** today at **561-732-4368** or e-mail him at **howard@marinelink.com**.

For information on posting a job on these pages and on the "JOBS" site at www.seadiscovery.com, contact Rob Howard at tel: 561-732-4368; fax: 561-732-6984; or e-mail: howard@marinelink.com

The Department of Marine Engineering Technology at Texas A&M University at Galveston invites applications for the post of Lecturer/ Senior Lecturer. The successful candidate will teach undergraduate courses in the area of Statics, Dynamics, Engineering Drawing and Numerical Methods; ability to teach courses in other areas of marine engineering technology(electrical engineering, fluid mechanics, energy systems, materials, etc) is also preferred. Applicants with engineering experience in the marine/maritime sector and some teaching experience are highly desirable.

Salary: Negotiable

Preferred Start Date: Open until filled.

Minimum qualifications: M.S. in an appropriate field

The entire application MUST be completed in order to be considered by the department. Employment is contingent upon a background check. Mail your completed application found at www.tamug.edu/hrd., CV and at least three references to:

Texas A&M University at Galveston
Human Resources Department
P.O. Box 1675
Galveston, TX 77553-1675

Texas A&M University at Galveston is an Affirmative Action/Equal Opportunity Employer committed to excellence through Diversity.

Interdisciplinary Supervisory Oceanographer/ Geophysicist/Physicist/Physical Scientist, GS-14

Seeking candidate for Director of the Mine Warfare Department to be stationed in Stennis Space Center, MS at the Naval Oceanographic Office, the Navy's premier center for operational oceanography. Salary range $87,533 to $113,791.

This challenging assignment will involve processing geological, geophysical, acoustic, and bottom mapping data to support Mine Warfare (MIW) systems, operations and exercises throughout the world; providing on-scene environmental support to mine countermeasure operational units; and establishing geospatial standards for product dissemination for use in joint military operations by multi-weapon systems/sensor platforms. As a recognized expert you will apply a thorough understanding of undersea mapping and acoustics with mastery knowledge of MIW to support operational Navy needs and represent the parent command at high level forums and conferences.

In this position you will be responsible for the management of several first line supervisors and staff, and have responsibility for management of the department, which is comprised of approximately 50 scientists.

To apply log on to https://chart.donhr.navy.mil and search for job announcement SE6-XXXX-14-NB535535-DE prior to 2/9/07. U.S. citizenship required. For additional information or informal inquiries (not applications) you may contact Mr. James Rigney, Director, Warfighting Support Center at james.rigney@navy.mil or 228-688-5634.
The Department of the Navy is an Equal Opportunity Employer.

Subsea / Diving / ROV Pilot / Crane Optr / Driller
Job Location: Singapore,

Our International Client from Canada is seeking professionals in the SubSea Sector for the following positions.
1. Subsea engineers (5 years Exp)
2. Sub Sea Drillers/Riggers (3+ years Exp)
3. Underwater Welders (3 years Exp)
4. Divers & ROV Drivers
5. mobile Crane Operators
Salary will be hourly based anything between 900 - 1200$ / Hour for Subsea engineers & 20-35$ hourly for Crane Operators & 275-300$ Hourly for the others
Since the project will be in Canada / North Sea, we would like candidates who are ready for immediate process.
Send emails to: christina@ultrastar.com.sg

Ms. Christina
Ultra Star International Pte ltd
Singapore
SG, 409838
Phone: +65-68412537
Email: christina@ultrastar.com.sg
WEB: http://www.sgmarinejobs.com

Engineering Manager
Job Location: USA, WA Seattle
Fugro Seafloor Surveys, Inc., a member of the Fugro Group of survey companies, is hiring an Engineering Manager. From our waterfront office located on Pier 69 in downtown Seattle, we conduct international, multidiscipline marine surveys, providing expertise in marine sonar engineering, swath mapping, data processing, submarine cable route engineering and geophysical research.

The engineering manager directs the engineering department to ensure proper development, integration, maintenance, deployment and receipt of all electronic and mechanical survey systems and equipment. The work environment is fast paced and subject to unplanned, survey-related challenges to support.
This exceptional opportunity allows the right candidate to expand their skills and advance their career through innovation and multi-cultural teamwork via our worldwide network of companies. Competitive compensation is offered along with medical/dental/vision and life insurances, company-matched 401k, office holidays and vacation time. We work hard and play hard!

The candidate must have marine related experience and solid management skills. We require a minimum of 5 years of engineering management experience with a B.A./B.Sc. or higher with an emphasis in electronics or a marine science discipline.
For information about Fugro Seafloor Surveys, Inc. or to apply, see www.seafloor.com. Or forward your cover letter and resume to hr@seafloor.com.

Carrie Higley-Krowka
Fugro Seafloor Surveys, Inc.
2727 Alaskan Way - Pier 69
Seattle, WA 98121
Fax: 441-9308
Email: hr@seafloor.com
WEB: http://www.seafloor.com

PORT ENGINEER

Job Location: USA, MA Woods Hole
The Steamship Authority is seeking an experienced individual to direct the day-to-day engine department operations and coordination of maintenance activities of the Authority's 10 vessel fleet, including direct responsibility for all vessel maintenance and repairs, planning of vessel maintenance schedules, development and management of operating budgets, coordinating vessel engine department design requirements for USCG approval and management of vessel engine department operations. Must respond to all emergency calls to ensure continued uninterrupted service of all Steamship Authority vessels. The applicant must be computer literate with previous experience in the operation and maintenance of main propulsion and auxiliary systems in a marine environment and have commercial port engineering experience; Competitive salary and benefits package. EOE
Send resume to:
Phillip J. Parent, Director of Human Resources
Woods Hole, Martha's Vineyard and Nantucket Steamship Authority
P.O. Box 284
Woods Hole, MA 02543

Phillip J. Parent
Woods Hole, Martha's Vineyard Steamship Authority, P.O. Box 284
Woods Hole, MA 02543 USA

Interdisciplinary Supervisory Oceanographer/ Geophysicist/Physicist/Physical Scientist, GS-15

Seeking candidate for Director of the Acoustics Department to be stationed in Stennis Space Center, MS at the Naval Oceanographic Office, the Navy's premier center for operational oceanography. Salary range $102,964 to $133,850.

This challenging assignment will involve the implementation and management of an integrated, end-to-end process for requirements definitions, planning, programming, collection of geophysical and acoustic data, and its processing, analysis, production, and product delivery. As a recognized expert in geophysical and acoustics applications to antisubmarine warfare, you will participate on committees composed of top experts and recommend plans and procedures for co-operative programs. You will apply and maintain a current understanding of tactical applications and relationships between military systems and environmental effects on sensor and weapon performance predictions and tactical decision aids.

In this position you will be responsible for the management, coordination and policy guidance to several first line supervisors and staff, and have responsibility for management of the department, which is comprised of approximately 45 scientists.

To apply log on to https://chart.donhr.navy.mil and search for job announcement SE6-XXXX-15-NB540924-DE prior to 2/9/07. U.S. citizenship required. For additional information or informal inquiries (not applications) you may contact Mr. James Rigney, Director, Warfighting Support Center at james.rigney@navy.mil or 228-688-5634.

The Department of the Navy is an Equal Opportunity Employer.

Lecturer/ Senior Lecturer
Job Location: USA, TX Galveston
The Department of Marine Engineering Technology at Texas A&M University at Galveston invites applications for the post of Lecturer/ Senior Lecturer. The successful candidate will teach undergraduate courses in the area of Statics, Dynamics, Engineering Drawing and Numerical Methods; ability to teach courses in other areas of marine engineering technology(electrical engineering,fluid mechanics, energy systems, materials, etc) is also preferred. Applicants with engineering experience in the marine/maritime sector and some teaching experience are highly desirable.

Salary: Negotiable
Preferred Start Date: Open until filled.
Minimum qualifications: M.S. in an appropriate field
The entire application MUST be completed in order to be considered by the department. Employment is contingent upon a background check. Mail your completed application found at www.tamug.edu/hrd., CV and at least three references to:

Texas A&M University at Galveston
Human Resources Department
P.O. Box 1675
Galveston, TX 77553-1675

Human Resources Department
Texas A&M University at Galveston
P.O. Box 1675
Galveston, TX 77553-1675

Geoscientists
Job Location: United Kingdom, London

Purpose
To lead the development and delivery of company's site investigation activities across its key markets, including oil and gas, water, renewable energy and marine cables — by converting opportunities into contracts, delivering a portfolio of projects, and supporting development of resources.

Accountabilities
Technical – a high level of personal competency in geological processes and geophysical and hydrographic survey techniques. Will lead delivery of geoscientific services across the whole company. Able to oversee activities of the Client Representatives.
Customer Satisfaction – will be the main point of contact with some clients. Strong written and verbal communication skills and adept at managing client expectations.
Project Management – manage, or assist in managing, a portfolio of projects meeting client expectations, budget, quality and timescale requirements
Business Winning – interested in client's business and how we can help client meet his objectives. Good ambassador for company, engages client in broadening both the extent and range of services delivered. Able to lead production of compelling quotations.
Resource – understand competency requirements, development of staff. Establish planning and delegation framework on projects / quotes to allow others to perform to their capability.
HSEQ – adheres to the client systems and sets an example for others
2 years experience is required.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Senior Navigators/ Surveyors
Job Location: United Kingdom, London

Winning candidate will be responsible for acquisition of positioning data, carrying out positioning data quality control and ensuring the navigation and positioning equipment is operational and maintained. Will also be required to ensure that all data is in the correct format for processing and will liaise closely with the survey crew and client representative to provide final field reports and to ensure EM survey parameters and specifications are met based upon the geographical requirements of the prospect.
Applicants must have previous experience in a similar function and environment.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Seismic Project Managers
Job Location: United Kingdom, London

Services are delivered primarily in the office:-
Reviewing Key operational performance criteria and critical success factors.
Communicating action points to action parties according to overall objectives.
Ensuring that commitments are made and met by all action parties.
Preparing tender documents, managing the tender process.
Evaluating bids against overall objectives.
Verifying the personnel, equipment and procedures match overall requirements.
Using the project plan to monitor and control subsequent operations.
Recommending changes according to operational requirements.
2 yrs minimum experience with the above skills.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne st London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Petroleum Engineers
Job Location: United Kingdom, London

The successful candidates will be responsible for assessing and analysing field reserves for volumetrics, risk, costs, economic outcomes and reservoir quality. You will be technically focussed and commercially astute.Candidates will also possess an insight in the analysis of upstream oil and gas projects and will assist with structuring deals, preparing production and economic forecasts and post-closing monitoring of operations.
The selected candidate would need at least 2 to 5 years experience in the oil and gas environment, with technical and business acumen.
A tertiary qualification in Petroleum Engineering or Petroleum Geology.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Geophysicists
Job Location: United Kingdom, London

The successful candidate will focus primarily on reservoir geophysics. The role offers an opportunity to develop research ideas into workable solutions applicable in the North Sea and elsewhere. In doing so it will allow you to develop as a recognised professional working on integrated projects with Geologists and Reservoirs Engineers whilst collaborating with academia and professional institutions.
Beyond this role your career options would typically include research or operations roles worldwide.
Our Ideal candidate profile will include:
Bsc in Geophysics and ideally some relevant research/industry experience.
Strong programming and computer modelling skills
Effective communication and presentation skills
Ability to work collaboratively and multi-disciplinary teams
Enthusiasm and a keen interest in applied research

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London, Shelfeild 0044
United Kingdom
Phone: +44779863423
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Sea Eye Supervisors
Job Location: United Kingdom, London
We urgently require a SEA EYE supervisor.
Status: Contract
Required Skills/Experience: MUST have Seaeye Supervisor Experience
Minimum Experience: 2 years
Location: London

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeid 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Subsea Controls Engineers
Job Location: United Kingdom, London

As a Subsea Control Engineer you will be reasonable activities relating to Subsea production control and monitoring operations. Acting as AS customer site engineering representative you will be expected to develop ideas from concept through to delivery. Other responsibilities included Monitoring operations, resources and expenses for specific

tasks and reporting to Team Leader/Customer; this includes Monitoring and approval of technical work carried out by external contractors or vendors. You will be required to participate in Safety Reviews / HAZID, assist and assure the technical integrity of production control and related equipment. As well as the above other tasks this includes ensuring that operations are carried out in accordance with Customer requirements cost effectively and assisting with the training and development of others.
Skills and knowledge will include: Subsea Controls, Umbilicals, Valves, or xtrees

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
Phone: +44779863423
Email: mining-engineer@consultant.com

Project Engineering Managers
Job Location: United Kingdom, London

In this position you will be working in a dedicated project team holding overall technical responsibility, as well as being the technical contact for the client. This will include national and international travel. Working as deputy to the Project Manager you will be managing an assigned team of Multi Discipline Engineers and maintaining budget for both labour and materials. A good understanding of Subsea control would be required, along with an Engineering back ground being computer literate and commercially aware with the ability to multi task.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Software Engineers
Job Location: United Kingdom, London

To assume responsibility for the design and execution of test scripts as required.
To log observations as they arise during testing
To interface with developers to reach solutions to any observations that arise
Demonstrate commitment to QMS and the processes of continuous improvement.
Ensure all work activities are in accordance with QMS procedures.
Ensure allocated workscopes are produced within budget and timescale.
Monitor allocated workscopes and report current status, estimate to complete and resource requirements to Test Team Leader.
Any other reasonable duties deemed necessary by immediate supervisor, including those of Engineer grade.
Should be qualified to degree level in a computing, mathematical or engineering discipline.
Should have preferably some experience working as a test engineer.
Proven ability to specify, design, implement and test software.
Knowledge of the software development lifecycle within both large and small companies, observing defined quality standards to deliver quality software.
Experience of working in a sub sea control company would be desirable.

John Hall
Neighborhood Mining Consulting Limited
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United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Electrical Engineers
Job Location: United Kingdom, London
Providing electrical engineering and maintenance support to company's offshore platforms on a wide range of operational and modification issues, you'll ensure technical integrity. You'll work to Design Construction Regulations and Prevention of Fire and Explosion and Emergency Response guidelines, and provide technical support to incident and accident investigations, as well as implementing improvements to avoid safety incidents. Carrying out safety audits onshore and offshore to ensure competence of company staff and encourage a safe working culture, you'll also support platforms by resolving day-to-day electrical issues and assisting with the short, medium and long-term planning processes.

Experience in electrical engineering, particularly platform power distribution systems, is essential. You'll have a degree or equivalent in Electrical Engineering or relevant discipline, a good understanding of electrical maintenance management, and strong technical integrity and HSE leadership skills.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Pipeline Engineers
Job Location: United Kingdom, London

Responsible for managing the integrity of company's pipeline systems including all oil, gas and water injection pipelines, you'll deliver the key performance indicators for each. Ensuring compliance with Integrity Management Standards, and that HSE performance targets are met or exceeded, you'll drive continual improvements. You'll also act as company's financial authority for pipeline budgets, and manage relationships with the HSE Pipeline Inspectorate, DTI and other regulatory bodies, as well as with key suppliers, service providers and third parties.
You'll be developing professional level experience in a mechanical engineering role and have a degree or equivalent in Mechanical Engineering or relevant discipline.

John Hall
Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

Mechanical Engineers
Job Location: United Kingdom, London

Accountable for assessing company's technical compliance and deviations, you'll also be responsible for importing and sharing, learning and improvement and implementing guidelines and changes to health and safety standards. Above all, you'll ensure the integrity and drive of company's platform equipment and systems performance, including rotating and static mechanical equipment. You'll also lead regular communications with the platform team to provide guidance on prioritising day-to-day and long-term technical issues. Supporting ongoing development, optimisation and management of mechanical maintenance and condition-monitoring strategies will also form part of our role, as will overseeing contractors' work.
At least 2 years experience in an Engineering Maintenance discipline and a degree or equivalent in Mechanical Engineering or relevant discipline are essential.

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Neighborhood Mining Consulting Limited
#37 Melborne St London Sw 43 Ca U.K
London, Shelfeild 0044
United Kingdom
Phone: +44779863423
Email: mining-engineer@consultant.com

HSE Manager
Job Location: USA, CA Oxnard
Position: Health, Safety and Environmental (HSE) Manager

Divecon's primary goal is to be the industry leader in Safety. A positive message needs to be continuously communicated, and a course of action needs to be taken, to maintain a positive "Safety Culture" throughout the company that will cultivate the value of safety to each individual and be practiced at every level. The most valuable asset we have is people, and a relentless effort will be taken to take care of each valued person of the team.

Compliance and Enforcement of all Health, Safety, and Environmental Issues
- FED/OSHA, Cal-OSHA, CA Labor Code/Title 8 of CA Code of Regulations, USCG, ADCI compliance, record-keeping, preparation
- Project and Field Report Audits
- Contractors Audits and Compliance with Divecon and Industry Standards
- Equipment emissions permits and reports, and breathing air quality records
- DOT Pipeline - Operator Qualification Plan – (OQ)

Documentation, Tracking, Statistics and Reporting
- FED/OSHA, CA/OSHA, USCG, ADCI compliance, record-keeping, preparation
- Risk Management
- JSA/SWP
- Near Miss/Hazard/Observation Reports
- A system is in place for reporting, investigating, analyzing and documenting all HSE incidents, regulatory compliance incidents, and significant near misses.
- Establish a process to verify that corrective actions, as a result of incident investigations are documented and implemented.
- Accident/Incident Reports and Corrective

actions
- The main purpose of all incident and near miss investigations is to prevent a similar recurrence.
- Post accident/incident Root-Cause Analysis
- Report findings are analyzed for root causes and to ascertain where improvements to practices, standards, procedures, or systems are warranted; and used as a basis for further improvements.
- Corporate Safety Meetings for all hands, and other communications to keep crews updated and informed of changes related to HSE
- Emissions forms/reports to clients
- Pre-Mobe/SSE forms and Mentoring Program
- Vessel Orientation, pre-departure checklist, safety drills, etc..

Maintaining Safety and Operations Manuals
- Illness and Injury Prevention Plan (IIPP)
- Safety meeting presentation
- Diving Operations
- Decompression
- Vessel Operations

Advancement -Training/Testing (as it pertains to HSE)
- Customer Specific Documents – HSE
- Spill Prevention Plan
- MSDS
- DOT Pipeline-Operator Qualification Plan–(OQ)
- Medical Emergency Plan

Training, Certifications and Record Keeping
- New hire safety training orientations (Hazcom, PPE, CPR ,etc.)
- Ensure all personnel have the necessary training for the project
- Maintaining and tracking safety files, medical files, training files, certifications, and licenses
- Customer and Regulatory Audits
- Organize and Maintain documents in hard copy/electronic format.
- DOT Pipeline-Operator Qualification Plan–(OQ)
- SafeGulf – Training and maintaining records
- Maintain ISNETWorld and PEC Databases and Client specific records
- Setup and Maintain an Incident/Accident Database
- Education and ongoing skills training shall be provided in order to ensure that employees are competent at their work.

Company, Client and Third Party Identification & Training Cards
- Issue Divecon Company Identification cards
- Issue Client Identification cards as required
- Apply for ADC Commercial Diver Cards for field staff
- Issue various training and certification cards

Retention of Medical Staff Support & Accident Management
- Source, retain Medical Review Officer (MRO)
- Source & retain medical facility for diver and USCG physicals
- Outline employee physical requirements for all field positions
- Set and update initial and periodic physical requirements
- Review and maintain employee medical records
- Review all accident/incident reports and feedback corrective actions and trends to avoid
- Workman's compensation insurance claim processing
- Work with medical staff on all accident cases

Environmental Issues
- Equipment regulatory permitting, tracking and reporting
- Storm Water Prevention record-keeping
- Implement policies, and enforce compliance
- Air Quality Permitting and monitoring of company owned and rental equipment.
- Apply for permits
- Ensure compliance with APCD rules and regulations on a State and local level
- Secure operating permits on a State and local level
- Work with APCD, clients and rental equipment companies on permitting issues
- Ensure permitted equipment is maintained in accordance with APCD rules and regulations
- Report hour usage of equipment to State and local APCD as required
- Stay abreast of changes in APCD rules and regulations

Minimum Education, Experience and Skills Requirements
- Associate of Science Degree in applicable field
- Formal training in Safety and Risk Management
- A minimum of 8 years experience in a related field
- Computer skills required - Knowledge of Microsoft Office - MSWord, MSExcel, MSPowerPoint and MSOutlook. Master Builder knowledge and experience is highly desired.

- Willing to travel
- Experience with diving, ROV & vessel operations

Other requirements
- Oilfield client relationships
- Oilfield contracts knowledge
- Organizational skills
- Documentation skills
- Technical Writing skills

Chuck Ebner
Divecon Services Inc.
741 E. Arcturus Ave.
Oxnard, CA 93033
Phone: 805-488-6428
Fax: 805-986-5309
Email: cebner@divecon.com

E&I Engineer
Job Location: Singapore, Singapore
Our Client in the Marine Drill ship industry are sourcing for suitable candidate to fill up their open positions.

Responsibilities:
To study the project and develop a concept by listing basic requirements.
To further develop the concept and develop a drilling equipment package.
To propose basic layouts to suit the project needs while evaluating the commercial impact.
To prepare bid packages for procurement.
To review proposals from vendors and assist in equipment selection.
To follow up on interface issues with various parties.
To review documents related to drilling equipment design and layout from the designers.
To give support to the operations department for trouble shooting and providing vendor support.
Requirements:
A degree in engineering as the basic educational level.
Experience in design of electrical and instrumentation/automation on offshore, preferably in Oil & Gas.

Interested candidate please e-mail your resume to
hueymeei.chan@energyskills.com.sg with the following
1 Availability
2 Expected Salary
3 Current Salary
4 Contactable number

Huey Meei
Energyskills
111 Somerset Road #13-03 Singapore Power Building Singapore 238164
Singapore, Singapore
Email: hueymeei.chan@energyskills.com.sg

Commercial Tender Co-ordinator
Job Location: USA, TX Houston

Fugro GEOS is the world's foremost provider of commercial oceanographic measurement, assessment and consulting services, with offices in the US, UK, Norway, Malaysia, UAE and Singapore. The Company is part of the multi-national Fugro Group that provides a complete range of integrated geotechnical, environmental, survey and positioning services world-wide. To meet the demands of our rapid market expansion throughout the Americas, we are seeking to employ the following high caliber staff member to be based in Houston:

Commercial Tender Co-ordinator
We are seeking to employ a Commercial Tender Co-ordinator to work as part of an existing tendering team in our Houston office. The role will involve compilation of tenders for oceanographic services, mainly to our clients within the offshore oil and gas industry. There may be requirements to attend client meetings and negotiations, potentially anywhere in the world. Previous commercial experience is desirable although not essential, however, candidates will be required to demonstrate their potential business acumen.
To be effective, the appointed candidate is likely to have a minimum of 4 years experience gained from the marine and offshore environment. The successful candidate will be very much part of a team, liaising with oceanographers, contractors and clients to ensure the highest technical standards are maintained. A high degree of initiative and attention to detail are essential, along with good negotiation and decision making skills. A strong command of both written and spoken English is vital. By it's very nature, this fast-moving role requires an inquisitive mind, flexibility and working to very tight deadlines. Familiarity with Windows software, especially Excel or equivalent, is required.
In return Fugro GEOS offers a dynamic team based, working environment in an exciting and developing market, as well as the long-term potential for you to develop your skills and career. Compensation will be commensurate with qualifications and experience and includes a full benefits package. EOE. If you are up to the challenge please fax resume to (713) 346-3605, e-mail to geosus@geos.com or mail to Fugro GEOS, Inc., P.O. Box 740010, Houston, TX 77274.

Jan van Smirren
Fugro GEOS Inc.
6100 Hillcroft
Houston, TX 77081
Phone: 713 346 3600
Fax: 713 346-3605
Email: usa@geos.com
WEB: http://www.geos.com

Marine Environmental and Safety Coordinator
Job Location: USA, NY Palisades

The Office of Marine Operations (OMO: http://www.ldeo.columbia.edu/res/fac/oma/) of The Lamont-Doherty Earth Observatory of Columbia University in Palisades, New York, USA is seeking an outstanding individual for the position of Marine Environmental and Safety Coordinator - #048263.
The Office of Marine Operations is seeking a Marine Environmental and Safety Coordinator in support the operation of 235ft oceanographic research vessel MARCUS G. LANGSETH. The ship is a general purpose oceanographic research vessel operating around the world with a specialized capabilities for geology and geophysics which include 2D and 3D multi channel seismic research. Duties include:
-Coordinating permit applications to Federal agencies to operate the LDEO research vessel(s) in accordance with the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) requirements.
-Identify and insure compliance with other environmental requirements established by state and foreign governments relating to research programs on board LDEO research vessel(s).
-Preparation of documentation for submission of Incidental Harassment Authorization to NOAA Fisheries for IHA and ESA permits.
-Coordinate training of marine mammal observers in accordance with the mitigation requirements for IHA and ESA permits. BR>
-Participate as marine mammal observer as required on LDEO research vessel(s).
-Recruit biologically trained marine mammal observers to fulfill mitigation requirements for LDEO research vessel(s) seismic cruises.
-Review and update the LDEO Marine Department Safety Management System (SMS) aboard the LDEO research vessel(s) and at the Marine Department facility on the LDEO campus.
-Maintain the SMS through revision of existing procedures or issuance of new procedures. Maintain and update the SMS in accordance with departmental Health Safety and Environmental Protection (HSE) Code.
Safety Management Systems duties will take approximately 25% of the year while Marine Mammal/Endangered Species permitting duties will be responsible for 75% of the project. Both functions are vital to the success of LDEO seagoing research efforts.
The selected individual is expected to foster a culture promoting health, safety and environmental issues. Minimum requirements for the position include:
BS in Marine Sciences and a minimum of 2 years experience in Marine Operations or field experience with Marine Science or a combination thereof is required. Must have full knowledge of MMPA and ESA codes and permit applications. Knowledge of ISM Code and HSE policies and procedures preferred. Experience with mitigation compliance as marine mammal observer at sea and as a trainer of onboard personnel in mitigation requirements for IHA permits is preferred. Completion of training program as Internal Auditor of ISM Code, is desired. Must be physically capable of working in isolated seagoing environment. Must have valid Passport. Good command of written and spoken English, required.
Columbia University benefits accompany appointment. Salary is commensurate with experience. This position is located on the Lamont Campus in Rockland County, NY. Prospective candidates must apply via Columbia University's website: www.columbia.edu/cu/jobs following on-line application steps (Requisition # 048263) or use quick link:
jobs.columbia..edu/applicants/Central?quickFind=102236.

Paul Ljunggren
Lamont Doherty Earth Observatory of Columbia Univ.
Email: pwl@ldeo.columbia.edu

Marine Engineering Technology Lecturer
Job Location: USA, CA Vallejo

FACULTY POSITION AVAILABLE
EFFECTIVE JANUARY 2, 2007

LECTURER
MARINE ENGINEERING TECHNOLOGY

DEPARTMENT OF ENGINEERING TECHNOLOGY
CALIFORNIA MARITIME ACADEMY
A CAMPUS OF THE CALIFORNIA STATE UNIVERSITY

FOR FULL CONSIDERATION, APPLICATION AND DOCUMENTS SHOULD BE RECEIVED BY DECEMBER 15, 2006. HOWEVER, POSITIONS WILL REMAIN OPEN UNTIL FILLED.

DESCRIPTION: The Department of Engineering Technology of the California Maritime Academy invites applications for a semester or year-round full-time lecturer position. The Department of Engineering Technology offers Bachelor of Science degrees in Marine Engineering Technology and Facilities Engineering Technology.

The California Maritime Academy, a specialized campus of the California State University (CSU) system serving a full-time student population of approximately 750, offers undergraduate degrees in Mechanical Engineering (ABET/EAC accredited), Marine Engineering Technology (ABET/TAC accredited), Facilities Engineering Technology (ABET/TAC accredited), Marine Transportation, Business Administration (IACBE accredited), and Global Studies & Maritime Affairs. The campus is located in Vallejo on the north shore of the Carquinez Strait, 30 miles northeast of San Francisco. Please visit our website for more information: http://www.csum.edu.

RESPONSIBILITIES: The responsibilities of this position include but are not limited to:
1. Teach courses in Marine Engineering Technology, particularly Steam Plan Simulator and Diesel Plant Simulator, as well as other courses in the Engineering Technology curriculum.
2. Participate as a faculty member in the annual 60 day training cruise each summer, as needed and agreeable to applicant.
3. Assist in department functions and on CMA-wide committees.

MINIMUM QUALIFICATIONS: The ideal candidate will have the following minimum qualifications:
1. Bachelor's degree in Marine Engineering or equivalent.
2. Significant experience (five years) in ship board operations and marine management.
3. U.S. Coast Guard License and STCW endorsement or the ability to receive a US Coast Guard License and STCW endorsement. A Chief Engineer or 1st Assistant Engineering license is preferred, but any engineering officer license is acceptable.
4. Excellent communication and leadership skills.
5. Must be a U.S. Citizen.

SALARY COMPENSATION: Salary is commensurate with the education and experience of the individual.

ELIGIBILITY TO WORK: Background investigation required prior to employment. Applicants must provide proof of U.S. citizenship within three days from the date of hire.

PHYSICAL AND ENVIRONMENTAL CONDITIONS: Typical classroom environment; office in two-story building with elevator access. Incumbent is required to interact with students individually and in a group setting.

BENEFITS: The California Maritime Academy offers an excellent benefits package for qualifying positions including medical, dental, vision, and retirement (Social Security and Public Employees' Retirement System – PERS), life and disability insurances, vacation and sick leave.

APPLICATION INFORMATION: Applicants for the position must submit the following documents:
1. Employment Application
2. Applicant Flow Information (optional)
3. Letter of interest
4. Resume
5. Names, addresses, and telephone numbers of three professional references

APPLICATION PROCESS: Applicants selected for interview will be notified by mail or telephone of the interview schedule. Those persons not selected for interview will be notified only after the position closes and the successful candidate has been selected. Additional information may be obtained by calling the Academy's job line (707) 654-1140 or visiting www.csum.edu.

Send application documents with appropriate address, phone number, and fax number to:

HUMAN RESOURCES (JOB #26-06/07)
ATTN: T. BENCH, FACULTY HUMAN RESOURCES ANALYST
CALIFORNIA MARITIME ACADEMY
200 MARITIME ACADEMY DRIVE
VALLEJO, CA 94590

DISCLAIMER: The provisions of this bulletin do not constitute an expressed or implied contract and any provisions contained in this bulletin may be modified or changed.

The California Maritime Academy is committed to a diverse work force and equal opportunity employment

Human Resources/T.Bench, Faculty HR Analyst
California Maritime Academy

200 Maritime Academy Drive
Vallejo, CA 94590
Phone: (707) 654-1136
Email: tbench@csum.edu
WEB: http://www.csum.edu

Project Engineer Instrumentation

Job Location: USA, TX Houston

This position will be based out of the Houston office and will work as project leader in the development of new instrumentation systems for use on our marine crews.

Responsibilities:
Develop specifications for new seismic data acquisition instrumentation.
Select suitable vendors for system development.
Manage internal resources where required.
Manage vendor relationships during development projects.
Maintain collaborative relationship with vessel crews.
Develop and execute instrumentation test plans; analyze and present results.
Track project costs and progress; and submit regular reports
Identify areas for improvement in current instrumentation.
Monitor competitor systems and industry trends.
Participate in strategic planning and annual budgeting. Liaise with operations staff during testing and system rollout.
Assist Vessel Support Group as needed following launch of projects.
Assist Geophysical, Marketing and Operations groups as needed. Participate as team member in related projects.
Protect our Intellectual Property Rights during execution of projects.

Qualifications and Abilities:
5 years field experience in seismic data acquisition.
Relevant experience in maintenance, design or engineering of seismic instrumentation.
Familiarity with current generation streamer, recording, source and depth control systems and tape/media systems.
Engineering, Science, Math or Geology / Geophysics degree preferred: experience can substitute.
The ability and willingness to travel globally and offshore for extended periods of time.

Mary Smith
Personnel Professionals
P. O. Box 841103
Houston, TX 77284-1103
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When capability, performance and reliability are mission critical

Seaeye ROVs are used worldwide in oil & gas, military, civil engineering and marine science operations.

From the lightweight and portable Falcon & Falcon DR to the greater payload of Tiger & Lynx, Seaeye ROVs perform a wide variety of observation, inspection and diver-support roles.

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Seaeye

Seaeye Marine Ltd
Seaeye House, Lower Quay Road, Fareham,
Hampshire, PO16 0RQ, United Kingdom
Tel: +44 (0) 1329 289000 Fax: +44 (0) 1329 289001
e-mail: rovs@seaeye.com www.seaeye.com