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Environmental solutions from wetlands through the deep seas.

INTRODUCTION

Twenty years ago, Dr. David Aubrey launched Aubrey Consulting, now the Woods Hole Group, Inc., on a global pursuit to solve challenging real-world environmental problems by applying high-end scientific and engineering-based technologies. Since 1986, Woods Hole Group has earned the respect and recognition of the global environmental community while completing over 1700 projects on all the world's continents and oceans. As we celebrate our 20th Anniversary, we have committed to publish a quarterly newsletter to better communicate with our clients and partners, and share our experiences and thoughts on the environmental community worldwide. We hope that you will enjoy this issue of the Woods Hole Group's newsletter, and encourage you to read future issues.

MESSAGE FROM THE PRESIDENT

Woods Hole Group is proud to present the first issue of our corporate newsletter. While our traditional focus and core strengths here at the Company have been in the sea and along the coast, we are pleased that our capabilities have expanded into the terrestrial zone as we celebrate our 20th Anniversary. The interaction between earth and water is complex and Woods Hole Group has committed our expertise and resources to address issues in diverse environments worldwide.

As a company, we believe that environmental leadership is defined by creativity and vision. Only forward-thinking, interdisciplinary planning offers the prospect for real success at local, regional, national, or international levels. To protect our legacy and the environment, it must be understood more widely that good economic policy and good environmental policy go hand-in-hand.

Plotting such a course, in partnership with public and private concerns, requires teams of specialists who can work well and supportively with their counterparts – whether from other companies, agencies, or nations. That is what Woods Hole Group offers. That is why Woods Hole Group was founded.

This philosophy necessarily leads to growth, and we have recently expanded our practices and opened new offices in Dover, Delaware to service our NOAA client in the Chesapeake and Delaware Bays, and in Houston, Texas to be close to our clients in the oil exploration and drilling sectors. We are proud to announce that Dave Szabo, a highly respected veteran in the field, has joined our staff as senior oceanographer and the managing director of the Houston office. He will work closely with Dr. Bruce Magnell, our senior scientist in Oceanography and Measurement Systems in Falmouth, Massachusetts in developing business out of Houston. In this issue of the newsletter, Dave shares a report on his first six months with Woods Hole Group that I think you will find insightful. There is also a piece in this newsletter about the opening of our international office in Riyadh, Kingdom of Saudi Arabia, which, along with our representatives in 22 nations, improves our hands-on, international work.

Thank you for taking the time to read about our efforts worldwide, and I hope that you will find them interesting. This newsletter is ultimately for, and about, our clients, and we would like to thank you for allowing us to celebrate this, our 20th anniversary. Salut!

Dennis Aubrey, President

GLOBAL PERSPECTIVES

News from our Environmental Assessment & Remediation team spotlighting our global projects and programs.

Overseas projects in the Middle East have presented a catalyst for Woods Hole Group to open a new office in Riyadh, Kingdom of Saudi Arabia (KSA).

Middle East countries have experienced a number of large-scale environmental impacts. The disruption to the Gulf region's terrestrial, aquatic, and coastal environments brought on by three Gulf wars within the past 20 years are prime examples. Additionally, booming economies have introduced wide-scale development with related side-effects that impact terrestrial, aquatic and coastal zones.

The response to these environmental disruptions has been an increased awareness by environmental decision-makers and concerned citizens in the Middle East. Subsequently, environmental regulations have been strengthened to address these challenges, and this has fueled a growing environmental economy.

Dr. David Aubrey, Managing Director of Woods Hole Group Middle East, LLC (WHGME) and Chairman and founding CEO of Woods Hole Group, recognized the valuable cultural and environmental significance of the Gulf Region. Woods Hole Group management identified the business trend as an opportunity to grow the firm's global presence.

Pursuing a growth strategy in the Gulf region, Dr. Aubrey has been implementing projects and developing business opportunities in the Kingdom for the past ten years, and subsequently spearheaded the opening of a new regional office. Realizing the potential for a continued presence in the Middle East, WHGME was established with the mission to address environmental issues specifically in the Gulf region countries. The focus of WHGME has been on environmental remediation and restoration, environmental monitoring and real-time observation systems, civil and

coastal engineering services, information technology, and program management. WHGME currently has ongoing projects in Saudi Arabia, Bahrain, Qatar, and other states in the Gulf Region that are managed from the Riyadh Office.



From left: Woods Hole Group Middle East employees Dr. Abdulkader Al-Sari and Paul Dreyer, PE in Riyadh

Dr. Aubrey has attracted local scientists and engineers recognized in their respective technical fields to join the WHGME team. These professionals were drawn in part from the Saudi scientific and engineering community, bringing with them complementary skills and experience in solving environmental problems in the Middle East.

One of the first hires was Dr. Abdulkader Al-Sari, a senior scientist with more than

25 years experience gained inside and outside of Saudi Arabia, in Geology and Environment with emphasis in Remote Sensing and GIS (Geographic Information Systems). He was joined by environmental specialists with experience from inside and outside Saudi Arabia.

This approach of combining Saudi nationals, U.S. nationals, and other expatriates with extensive experience in the Middle East ensures that the staff is intimately familiar with the local environmental issues, priorities, and policies. WHGME is committed to acclimating with the culture and business

climate in the region. This tradition began in 2001 when Woods Hole Group began an ambitious project to assess the potential of remediating damage to wetlands from the 2001 Gulf War oil spill.

From January 1991 through June 1991, approximately 11 million barrels of oil were released into the Gulf Region. At the time, the 1991 oil release was the largest in the world (four times larger than any prior Gulf spill and more than three times larger than any prior spill worldwide). This oil formed a plume that reached a maximum coverage of approximately 200 km². Most of the released oil came ashore on the Saudi Arabian Gulf Coast line in late January and February 1991 when tides were exceptionally high and the coast was experiencing high on-shore winds. The combination of high tides and strong winds carried the oil beyond the intertidal zone into sabkhas, upper marsh, and back beach areas. Despite intensive efforts to contain and remove the oil, virtually all of the coast line between Kuwait and Abu Ali was impacted. Approximately 292 km of exposed sand beaches were adversely impacted, as were large expanses of salt marshes, tide flats, and rocky shores.

Fourteen years after the spill approximately 78% of salt marshes, 88% of tidal flats, and 90% of sand and rock beaches remain impacted by oil. The extent and duration of oil impacting these habitats indicates that the ecological impact is more persistent than previously expected. The most obvious remnants of the oil spill are along the coastal zone where hardened viscous tar actively prevents re-colonization of the rocky substrate.

Woods Hole Group began working in Saudi Arabia in 2001 with a baseline biological survey of five selected habitats including salt marsh, rocky shore, tide flat, lagoon, and sand beach habitats.



These were selected to conduct oil remediation trials to provide scientific evidence regarding the effectiveness of active remediation on each habitat. The prevailing view of an United Nations (UN) sponsored expert panel was that natural recovery was occurring and that any remediation effort would cause more damage to the ecosystem than no action.

The Kingdom of Saudi Arabia disagreed with this point of view and hired Woods Hole Group in 2003 to conduct trials to demonstrate the efficacy of various remediation technologies. After the trials were conducted, Woods Hole Group resurveyed the remediation sites. These data exhibited encouraging results.

Based on the success of the remediation trials, Woods Hole Group was asked by the Kingdom of Saudi Arabia in 2006 to reassess the viability of the remediation efforts in order to develop large-scale remediation plans. A team of wetland scientists from the Woods Hole Group resurveyed the remediation demonstration sites and found that several of the remediation techniques had provided a jump start for biological recovery. These results showed that certain remediation techniques benefit the recovery process while contributing no negative impacts to the ecosystem. This was a promising development for the Kingdom of Saudi Arabia as it provided scientific evidence supporting active remediation of Saudi Arabia's oil-impacted marine, coastal and terrestrial environments.

BREAKING WAVES

News from our Coastal Science, Engineering & Planning team
spotlighting the coastal zone.

Challenges presented by on-going dredging have led to innovative solutions. Dredging activities in coastal waterways are routinely required to maintain safe navigation for both commercial and recreational boating. Regional dredging needs assessments indicate that millions of cubic yards of dredge material are generated annually within the New England area alone. While much of this dredged sediment is suitable for reuse as beach replenishment because of its sandy nature, significant quantities of dredged sediment are too fine-grained for beach nourishment, and must be placed elsewhere.

Historically, the presence of fine-grained sediments has dramatically increased the cost of dredging projects. Today, the use of innovative management practices in one or more phases of dredging can help to reduce construction costs and provide a beneficial environmental resource using the fine-grained dredged material.

Three major phases of dredging include sediment removal, dewatering, and final placement. Each of these phases offers opportunities for innovative management of fine-grained sediments. The key to successful design and implementation of a project involving fine-grained sediments is to ensure that each phase of the dredging process is closely coordinated.

Two primary methods for removing fine-grained sediments include mechanical and hydraulic. Within the last decade, a number of advances in mechanical dredging have been made towards improved handling and management of fine-grained sediments (fines). Despite these advances, costs associated with mechanical dredging can be five times more than hydraulic dredging.

Ultimately, the selection of an appropriate dredging methodology depends on the type of sediment being dredged, the placement alternatives, and budgetary constraints.



Barnstable County's hydraulic dredge boat, the *Cod Fish*.

The Centerville River dredging project located in the Town of Barnstable on Cape Cod, Massachusetts exemplifies the use of innovative management practices for fine-grained dredge sediments. The Woods Hole Group worked with the Town of Barnstable to design, permit, and implement a dredging project that involved the removal of a mixed sand and fine-grained substrata from the Centerville River. The primary objective was to reduce costs by maximizing the separation of fines from the sand-sized

sediments. Sandy dredged sediments were planned for onsite beach nourishment, which saved cost by reducing the volume to be trucked offsite. The finer-grained sediments were trucked offsite for upland beneficial reuse. A secondary objective was to use the Barnstable County hydraulic dredge, which offers its services at substantial cost savings.

To accomplish these objectives, the project team utilized an innovative and low-cost approach to separate and dewater sediments in the dredged slurry. Two *in-situ* dewatering basins were constructed at the nearby public Craigville Beach, and used to hydraulically sort sands from the fine-grained sediments. The combination of dewatering basin design and coordinated dredging operations resulted in successful completion of the project.



Dewatering basin designed for physical separation of sand and fine-grained dredge sediments at Craigville Beach, Barnstable, MA.

In the dewatering phase, fine-grained dredged sediments can present a multitude of challenging problems caused by the high water content of the material, and the extensive time and space required to adequately dry the sediments. To meet these challenges, a number of innovative dewatering designs and methodologies have been employed, including physical separation, chemical and biological treatments, and stabilization. Selection of an appropriate dewatering design is controlled by dredging method, site conditions, and placement alternatives.

Finally, the third phase of a dredging project involves the selection of a site for final placement of the material. In the case of clean uncontaminated dredged sediments, the optimum alternative involves beneficial reuse of the material, both from an economic standpoint, as well as an environmental perspective. Common beneficial reuse options for fine-grained sediments include wetland habitat restoration, upland open space development, landfill cap material, as well as a variety of construction and/or engineering projects. Current beneficial reuse practices are changing earlier perceptions of dredged material as “spoil” that must be disposed, to a resource that can be managed for environmental and economic benefits.

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Removal of fine-grained dredge sediment from Craigville Beach to off site locations for beneficial reuse.

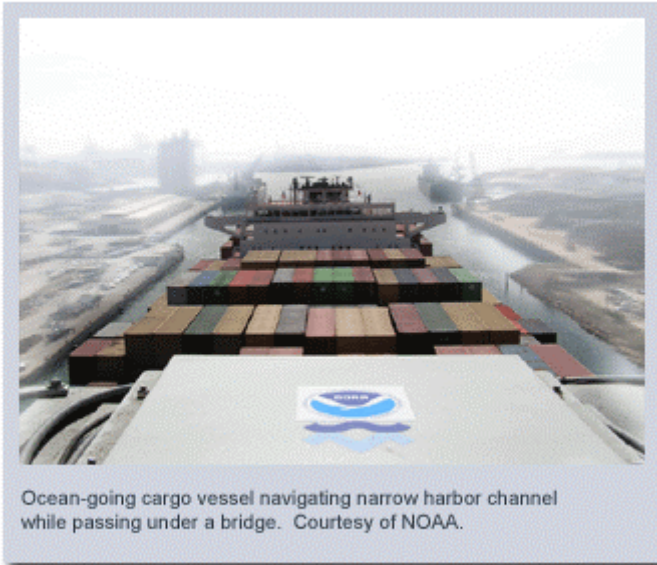
At the Craigville Beach project, environmental benefits were maximized through beach nourishment and upland beneficial reuse, while project costs were minimized through innovative and effective management of the fine-grained dredge material. By separating the fine material from the beach-compatible sand, approximately 6,000 extra cubic yards of sand were available for beach nourishment. The volume of sediment to be trucked offsite also was reduced proportionally, resulting in a cost savings of approximately \$50,000 or 10% of the construction costs for the project.

THE DEEP BLUE

News from our Oceanography & Measurement Systems team
spotlighting the open seas, ports and harbors.

Port and harbor navigation and safety is of paramount importance to the environment, maritime commerce, and national security, as has been voiced recently in the news by public sentiment regarding foreign management of some of our nation’s port facilities. One existing program that

greatly improves port and harbor navigation safety is the Physical Oceanographic Real-Time System (PORTS[®]), operated by the National Oceanic and Atmospheric Administration (NOAA).



Ocean-going cargo vessel navigating narrow harbor channel while passing under a bridge. Courtesy of NOAA.

PORTS[®] integrates an elaborate system of instruments specifically arranged to collect, telemeter, quality check and disseminate marine and meteorological information that the public can access via telephone, radio or on the Internet—every 6 minutes, 24 hours a day. Marine vessel operators and port and harbor decision makers rely on PORTS[®] to make navigation decisions each year. When a large, deep-draft vessel navigates the Port of New York/New Jersey, the pilot utilizes PORTS[®] tide data to help avoid groundings, as well as current and wind data to adjust course to ensure a safe path within the navigation channel. Data also are available from the bottom of bridges to measure the distance between the bridge and the water surface (i.e., air gap) to help

prevent collisions of ship superstructure with bridge infrastructure. In addition to improving navigation safety, PORTS[®] data also help to prevent and improve response time to oil spills, support search and rescue missions, and provide data necessary for coastal engineering design and wetland restoration projects.

PORTS[®] data also improve the efficiency of maritime commerce. A report by the Woods Hole Oceanographic Institution (WHOI) Marine Policy Center on the Tampa Bay PORTS[®] (1) system found that PORTS[®] produces an estimated savings between \$4.4 and \$7.0 million per year. These are “lower bound” estimates for a port, which is not considered a high commerce port. NOAA has also estimated through its experience that each foot of draft a vessel can navigate equals roughly \$3M in automobiles and \$100K in coal; therefore, real-time accurate data can also improve the efficiency and economics of maritime shipping.



Woods Hole Group technicians installing a buoy mounted current meter – Bay Bridge, Annapolis, MD

Despite the clear benefits of PORTS[®] only thirty-eight of the 150 national ports and harbors that should be serviced by PORTS[®] are currently instrumented. Lack of funding and legislative support have been the primary deterrents to expanding the program beyond the original PORTS[®] stations. The success of PORTS[®] today is based upon its partnering collaborative efforts between NOAA's National Ocean Service and local maritime communities to meet user requirements. At a time when port and homeland security are so greatly valued, and when larger-scale investment into marine data collection systems is being contemplated (i.e., the Integrated Ocean Observing System (IOOS)), it is critical that existing operational programs, such as PORTS[®], and the National Water Level Observation Network (NWLON) are supported. New funding is becoming available for PORTS[®] along the Gulf Coast and the Pacific Northwest, but much work remains to achieve the 100% solution that the nation requires. For additional detail about the PORTS[®] program, visit the [PORTS[®] website](#).

Woods Hole Group's **Oceanography & Measurement Systems** team has been awarded contracts to design, integrate, and install NOAA PORTS[®] components on the U.S. Atlantic, Gulf, and Pacific Coasts as well as the Great Lakes. Woods Hole Group also has contracts for the operation, maintenance, and 24/7 support of PORTS[®] in Narragansett Bay, New York/New Jersey, Delaware Bay and Chesapeake Bay. To maintain Woods Hole Group's capacity to serve PORTS[®] requirements, full-time staff and subcontractors are positioned strategically along the mid-Atlantic and northeast coast. Woods Hole Group also is positioned to extend its support to the Gulf Coast through its fully staffed office in Houston, TX.

⁽¹⁾ Kite-Powell, Dr. Hauke; *Estimating Economic Benefits from NOAA PORTS[®] Information: A Case Study of Tampa Bay*, July 2005.

HOUSTON SPOTLIGHT

Woods Hole Group, Inc. has long identified the Houston market as key to realizing our growth potential with the offshore oil and gas industry worldwide. A presence in the Gulf of Mexico (GOM) market is also necessary to support the governmental sector managing the GOM's coastal resources. To fulfill our plans, we have committed to an office and the right personnel to drive the growth. In less than six months, our Houston Manager, Dave Szabo has raised the level of business activity flowing in and out of our Houston Office. Reflecting on the first half of 2006, Dave has observed promising operational and contracting activity.

Dave Szabo reports:

The interconnectivity between the Houston office and our headquarters in Falmouth has been seamless and supportive. Together, we have executed master services agreements with four oil companies; installed a 38kHz (RDI) Ocean Observer on a deepwater drillship in the GOM; won a two-year project for installation, maintenance and data analysis at a fixed platform location offshore Trinidad; won a contract utilizing precise water depth estimates based upon precision pressure recordings for use in the design of a deepwater production facility in the GOM; hired a PhD candidate at TAMU for a project to evaluate the skill of a 3D circulation model in the Gulf of Mexico; and received funding from the Eddy Joint Industry Project (EJIP) to conduct a cooperative project designed to compare the performance of several current profilers in deep water (~2000m). The EJIP project includes both a vessel deployed taut subsurface mooring and ROV deployed ADCPs in bottom frames.

On the horizon, the Houston office will continue to offer the full suite of company capabilities. In particular, we plan to expand our outreach to the government and private sector regarding our coastal sciences, engineering, and planning capabilities. With the recent hurricane activity and the ongoing coastal erosion and sediment transport issues in the GOM region, there is plenty of room for Woods Hole Group to contribute our capabilities within the coastal zone as well as offshore.

I am also pleased to announce that Sam Berry, a seasoned Offshore Engineer, has joined me here in Houston. Sam is already making his presence felt and I am glad to have him on board.

Thanks again to all my colleagues who I have worked with over the years for the warm welcome and I look forward to getting to work with many more of you in the coming years.

Dave

NEWSROOM

CONFERENCES

WOODS HOLE GROUP SCIENTISTS & ENGINEERS ON THE CONFERENCE CIRCUIT

Dr. Bruce Magnell, Dr. Leonid Ivanov, and Robert Catalano of Woods Hole Group along with Len Fagan of Cape Wind Associates, LLC completed a paper titled *Characteristics of the Atmospheric Boundary Layer in Nantucket Sound* which will be presented during Oceans '06 MTS/IEEE-Boston Conference Proceedings at the Hynes Convention Center in Boston, MA from September 18-21, 2006. In addition, **Dr. Bruce Magnell** and **Bruce Andrews** of Woods Hole Group will present a tutorial of an adapted version of the USGS ADCPTools software package which adds new deep-water data processing tools to the original software and is designed to be a work-in-process, so that other users may join with Woods Hole Group to use, maintain, and improve the software. For more information about the conference, please visit the [Oceans '06 website](#).

Kirk Bosma, Stephen O'Malley and **Dr. Lee Weishar** will be presenting papers titled *Implementation of Advanced Modeling Techniques for Coastal Engineering Alternatives Assessment, Elements of Effective Operational Coastal Observing Systems, and The Development of Creek Bank Morphology within a Restored Marsh* as well as hosting a booth at The American Shore and Beach Preservation Association (ASBPA) Fall Conference in Long Branch, NJ from October 9-11, 2006. For more information about the conference, visit the [ASBPA conference website](#).

Dr. Lee Weishar will be attending The 3rd National Conference on Coastal and Estuarine Habitat Restoration hosted by Restore America's Estuaries (RAE). Please make plans to stop by our booth and listen in to Dr. Weishar's presentation, *The Engineering Approach and Challenges to the Delaware Bay Restorations*. The conference is being held at the Hilton Riverside Hotel in New Orleans, LA from December 9-13, 2006. Check out [RAE's National Conference website](#) for more details.

PRESS RELEASES

DAVID SZABO JOINS WOODS HOLE GROUP TO LEAD HOUSTON OPERATIONS



bringing over 25 years of experience in Metocean services, products, and numerical modeling. As a senior oceanographer, he will enhance the Woods Hole Group's presence in Houston, which is a major hub for energy and transportation related industries in the Gulf of Mexico and worldwide. As Woods Hole Group's Houston Manager, Mr. Szabo will be responsible for directing business operations.

"It is always a great boost when you can add an eminently qualified scientist to your team," said Dennis Aubrey, President of Woods Hole Group. "With David, we have a great scientist with global experience to help guide our vision in the Gulf region."

Mr. Szabo began his career as an oceanographer with Mobil Research and Development Corporation. Prior to joining Woods Hole Group, he held various positions including directing operations and initiating many innovative projects with Fugro GEOS, Inc. Mr. Szabo obtained his Masters of Science from Florida State University in 1978 in oceanography, and graduated from New York University in 1970 with a BS in meteorology and oceanography.

SOCIETY OF WETLAND SCIENTISTS AWARDS WOODS HOLE GROUP COASTAL ENGINEER AND SENIOR SCIENTIST, Dr. Lee L. Weishar his certification as a Professional Wetland Scientist (PWS). The certification signifies his achievements academically as well as professionally in the wetland sciences.



With more than 20 years experience in coastal engineering and nearshore processes, Dr. Weishar is now one of fewer than 1,300 certified professional wetland scientists in the United States. The certificate not only acknowledges Dr. Weishar's merit academically and professionally, but also distinguishes him among his peers for maintaining a high ethical standard in the pursuit of wetland science.

"It is an honor to receive such a distinction," said Dr. Weishar. "Obtaining professional recognition for doing work you love and believe in is doubly rewarding."

An integral component of certification is a high level of professional performance while still sustaining an academic impact. To that end, Dr. Weishar has distinguished himself with his work including three papers co-written with Dr. John Teal, which were recently published in Ecological Engineering. The focus of the articles was the restoration of marshes within the Delaware Bay.

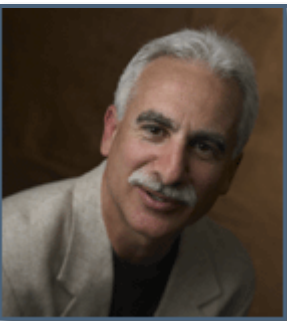
Woods Hole Group President Dennis Aubrey stated, "We are proud of Lee's work in the wetlands arena, and this certification distinguishes him among his colleagues."

Dr. Weishar has worked for Woods Hole Group since 1989. Prior to joining Woods Hole Group, he worked with the US Army Corps of Engineers. He received a Ph.D. in physical oceanography from Purdue University in 1982, a M.S. in geophysical oceanography from Virginia Institute of Marine Science and College of William and Mary, and a B.S. in mechanical engineering from Michigan State University in 1973.

WOODS HOLE GROUP, INC. AWARDED NOAA PURCHASE ORDER for a new multi-year, multi-task for National Environmental Field Services. The initial task order awards include the annual routine maintenance of the New York/New Jersey Harbor Physical Oceanographic Real-Time Systems (PORTS®), and planning activities to support the design and installation of new National Water Level Observation Network (NWLON) stations to address storm surge measurement requirements for the Chesapeake Bay. The NOAA national award allows Woods Hole Group to provide further support to NOAA for the installation, operation, and maintenance (O&M) of its existing operational data collection programs. Woods Hole Group is the O&M Contractor for Delaware River and Bay, Chesapeake Bay, and Narragansett Bay PORTS®. Woods Hole Group was awarded separate annual renewal contracts for each of these systems earlier in 2005. [PORTS®](#) provides quality-controlled real-time operational oceanographic data to support safe navigation in domestic ports and harbors.

PEOPLE ON THE MOVE

WOODS HOLE GROUP'S CORPORATE ORGANIZATION KEEPS ON GROWING and we would like to announce developments within our corporate organization:



Robert Catalano has recently been promoted to the position of Vice President of Science Operations. Robert's responsibility is to ensure the smooth operation of all field offices, departments and projects in the United States, as well as serving as the project and operational liaison with Woods Hole Group Middle East, LLC.

Robert has more than 25 years experience in the fields of marine instrumentation, coastal and physical oceanographic data collection, project management and general management.

In Marketing, Courtney Lynch has taken on the responsibilities of Marketing Coordinator. Courtney brings over five years of experience in graphic design and marketing support. Courtney holds a BS Degree in Graphic Design and Visual Communication from Northeastern University.

In our Oceanography and Measurement Systems team, we are pleased to announce four new additions:

Dan Rogers has joined the company taking on the responsibilities of Marine Technician in the Falmouth office. Dan brings over twenty years of marine field work experience through positions he has held with such notable companies as Marine Research, Inc., Marine Biocontrol Corporation and Bridger Scientific. Dan has a B.S. in Marine Biology from Umass Dartmouth, and is a certified diver.

Deborah Wiebe has joined the company in the role of Administrative Assistant. Deborah brings a strong background in administrative support working for scientific and engineering organizations. Deborah will be providing administrative support company-wide, with a focus on working with the Oceanography and Measurement Systems team and the WHGME project engineering team.

Sam Berry has joined our Houston field office in the role of Offshore Field Engineer. Sam brings seven years of experience as an Offshore Engineer with Fugro GEOS, where he gained broad knowledge and experience with a variety of measurement projects in the Gulf of Mexico, Trinidad and Brazil. Sam holds a BS in Marine Science from Texas A&M at Galveston, TX.

Kevin Harrison has joined our Delaware field office in the role of Field Engineer. Kevin most recently held the position of Oceanographer with Fugro GEOS, where he was responsible for development, deployment and offshore troubleshooting and maintenance of real-time deep water oceanographic measurement systems. Kevin holds an A.A.S. in Marine Technology from Cape Fear Community College, in Wilmington, N.C.

Sam and Kevin both make a strong addition to the organization, and bring unique knowledge and experience that is an ideal fit to complement our existing field staff and support the ongoing growth of our business in the Gulf and Mid-Atlantic regions.

In the Middle East, the Woods Hole Group Middle East, LLC (WHGME) office has expanded, fulfilling planned growth.



Dr. Abdulkader M. Al-Sari, a leading Saudi scientist and environmentalist, has joined the Woods Hole Group Middle East, LLC in the role of Vice President for Projects. Dr. Al-Sari brings 30 years of regional and global experience in geology, GIS, remote sensing and scientific research experience to the WHGME operations. Dr. Al-Sari is a regional scientific and technical expert with 28 publications to his credit and is an active Board Member for The Saudi Geological Society. Dr. Al-Sari's significant project roles include Saudi Team Leader for Japanese studies in the application of Remote Sensing in mineral exploration, and Principal Investigator for Spectral Reflectance of Rocks and Vegetation in Saudi Arabia, a 3-year research project aiming to establish a spectral base line of properties of the major rocks

and vegetation types in Saudi Arabia. Dr. Al-Sari has also participated in numerous other projects including Building a GIS for Natural Resources in Saudi Arabia (Rowdat Khyraum); and has conducted many environmental studies covering numerous regions in Saudi Arabia. He was Director for the Natural Resources and Environment Research Institute in King Abdulaziz City for Science and Technology for 6 years. Dr. Al-Sari holds a Ph.D. in the Application of Remote Sensing in Mineral Exploration from the University of Durham, UK (1989); a Masters in Science Degree in Applied Geology from Faculty of Earth Science, King Abdulaziz University, Jeddah, Saudi Arabia (1977); and a Bachelors of Science Degree in Geology and Chemistry from the University of Riyadh, Saudi Arabia (1971).



Ronald Williams has joined WHGME in the role of Senior Scientist. Ron is responsible for overseeing program activities and task tracking. Ron brings a unique mix of scientific knowledge as well as extensive expertise working on environmental engineering projects in Saudi Arabia. Ron has over 18 years of combined experience working as a Senior Scientist and Environmental Engineer for Saudi ARAMCO. In addition to his ARAMCO experience, Ron most recently held the role of

Environmental Specialist with the Florida Bureau of Beaches and Coastal Systems. Earlier in his career, Ron was an instructor of Oceanography at San Jose State University, and also was a Scientist with the U.S. Geological Survey in the Pacific/Arctic as well as in the Gulf of Mexico/Caribbean. Ron holds a Masters Degree in Environmental Geology, as well as a Bachelors Degrees in both Geology and Oceanography from California State University, and studied Biological Oceanography at Florida Institute of Technology.

Christopher Lees has joined WHGME in the role of Safety/IT/Logistics Manager. Chris is responsible for implementing and overseeing safety procedures, and coordinating the IT and logistical needs for WHGME. Chris' background makes him uniquely qualified for this position, as he worked on assignment in Saudi Arabia for Ecology and Environment, Inc. for three years in a similar role. Chris also brings extensive international managerial experience, including consulting, engineering, IT and logistics roles with Compassdata Inc., University for Peace of the United Nations, Development Alternatives, India, and Geoservices International, S.A. He attended the University of Edinburgh where he studied for Joint Honours in Geography and Economics, as well as Ardlingly College, West Sussex England where he achieved 4 A-levels in Business studies, Geography, French and German.

WHGME is proud to welcome **Dr. Alexander Dawson-Shepherd** on board as a long-term Consultant, to assist in matters related to marine ecology and general environmental matters. Dr. Dawson-Shepherd has nearly 25 years of experience in marine ecology, including much time in the Middle East region. Dr. Dawson-Shepherd will work as a project manager and a business development assistant.

Mr. Mohammed Angawi is joining WHGME in the role of Project Scientist/Engineer. Mr. Angawi has a B.S. in Mechanical Engineering from Boston University, Boston Massachusetts, USA, and an M.S. in International Urban and Environmental Management from RMIT University in Melbourne, Australia. Prior to joining WHGME, Mohammed most recently held engineering and consulting roles with Oxfam Great Britain and NGO Servbutilos, working on infrastructure projects based in Timor-Leste. WHGME will be able to utilize Mr. Angawi's significant abilities in a variety of its projects.

Boris Najafov has taken on the responsibilities of IT Specialist for WHGME. Boris will be responsible for providing IT support to the WHGME team, including planning and coordinating the installation, operation, troubleshooting, and maintenance of hardware and software systems for the WHGME operation.

Debbie Connors is joining WHGME in the role of Accounting/Administrative Assistant. Debbie brings over ten years of strong administrative and accounting support experience through a variety of positions she held while working in the U.K. prior to relocating to Riyadh with her family. Those positions included Divisional Finance Assistant with a housing association and Accounting Assistant/Office Manager with an engineering firm.

Abeer Khalil Omran will be joining WHGME as an Administration Assistant in the Ladies office. Abeer has worked for a number of companies in the Middle East including the Ministry of Health in Abu Dhabi. Abeer has varied secretarial and administrative experience.

CORPORATE HIGHLIGHTS

WOODS HOLE GROUP JOINS MARINE TECHNOLOGY REPORTER "MTR 100", which covers the 100 leading companies serving the undersea technology market. Check out the [Woods Hole Group profile](#) as published in the June 2006 edition of Marine Technology Reporter - www.seadiscovery.com.

TAKE FIVE

CONFORMING TRIVIA

The term "seven seas" was used by the Mohammedan explorers before the 15th century. The "seven seas" included the Mediterranean Sea, Red Sea, East African Sea, West African Sea, and China Sea, the Persian Gulf, and the Indian Ocean. In modern times, it has become common to divide the world's oceans into seven parts to retain this legendary number. The popular and accepted division today is the Arctic, North Atlantic, South Atlantic, North Pacific, South Pacific, Indian and Antarctic Oceans.

A MOMENTARY COLLAPSE OF REASON

We hope that you find the following humorous interpretations of scientific ideas to be a hit. Believe it or not these are original comments from students attending junior-high, high-school and college.

Water is composed of two gins, oxygin and hydrogin. Oxygin is pure gin. Hydrogin is gin and water.

The cause of dew is the earth revolving on its own axis and perspiring freely.

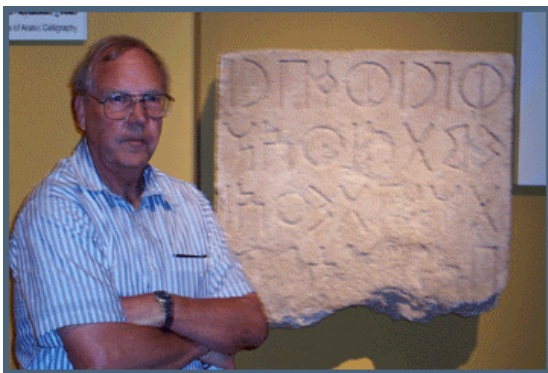
Mushrooms always grow in damp places and so they look like umbrellas.

DÉJÀ VU

What goes around, comes around is so true for Dr. James P. Mandaville, a Terrestrial Advisor to Woods Hole Group Middle East, LLC (WHGME), in the Kingdom of Saudi Arabia. The photographs below show Dr. Mandaville in the King Abdulaziz Museum in Riyadh next to two important discoveries that he made forty years ago in a classic déjà vu moment. Dr. Mandaville is the author of *Flora of Eastern Saudi Arabia*, a 482-page definitive book on the flora in the Middle East based on his studies over a forty-year period. Dr. Mandaville completed an assessment of the desert area of northeastern Saudi Arabia for a WHGME project in the spring of 2006.



Dr. James P. Mandaville, Terrestrial Advisor for WHGME, in the King Abdulaziz Museum in Riyadh, Kingdom of Saudi Arabia, with a meteorite he personally found in 1963.



Dr. James P. Mandaville in the King Abdulaziz Museum with a stone tablet he personally found in the Eastern Province of the Kingdom of Saudi Arabia (KSA) in 1965. The stone marker identifies the grave of two sisters from about 500 BC and was sent to the British Museum in London with the condition it be returned if requested by KSA.