

UNDERWATER

The Official Publication of the Association of Diving Contractors International



January • February 2017



ROV / AUV Industry Update

ADCI AUDIT INITIATIVE FOR GENERAL MEMBERS AND ASSOCIATE MEMBER SCHOOLS

UNDERWATER INTERVENTION 2017



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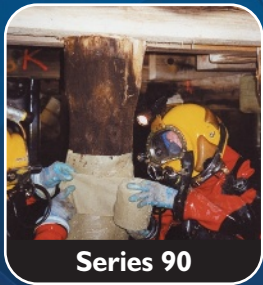


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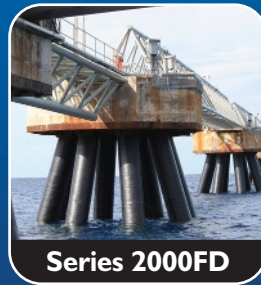
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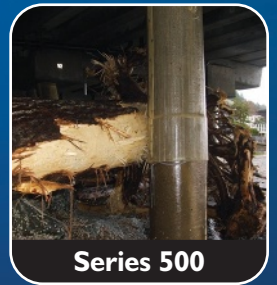
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A MESSAGE FROM THE ADCI PRESIDENT | CRAIG FORTENBERY



As we begin the new year, I hope that everyone was able to spend time with family over the holidays and decompress from the previous year!

The 25th annual Underwater Intervention (UI2017) conference is almost here and registration is now open. The ADCI and the ROV Committee of the Marine Technology Society host the annual UI conference and exhibition, which will again take place at the Morial Convention Center in New Orleans February 21-23. The show attracts thousands of commercial divers, contractors, engineers, and safety professionals who converge on New Orleans for a few productive days of exchanging ideas and demonstrating new technology and equipment.

This year's conference is the first to be planned by our new conference manager, Naylor Association Solutions. We are excited to announce that the UI17 planning committee has developed a new format with compelling education as well as plenty of opportunity to visit vendors on the show floor without missing any technical sessions. The Exhibit Hall will feature new attractions including the Supplier Solutions Track, The Think Tank, and the UI Café. For more information about UI17 or to register, please visit www.underwaterintervention.com. Also, do not forget to follow UI on Twitter to stay up-to-date on the latest information regarding the show.

I would also like to remind everyone to start planning toward scheduling a company safety audit. As stated in my previous letters, following the overwhelmingly positive response from the membership during the open comment period, the ADCI Board of Directors has ratified the Audit Initiative making it mandatory that all General Members who haven't previously done so undergo a formal safety audit. The goal of the safety audit process is to educate and assist General Members to insure compliance with the Consensus Standards. All members on the Board of Directors agreed that board members should be the first to undergo the audit prior to requiring this of other members, and Mainstream just finished the process which has been a very positive experience. For tips on how to prepare for your formal safety audit, visit the ADCI-TV section on the ADCI website.

Lastly, as my final term as President comes to an end, I would like to express my sincerest appreciation to all ADCI General Members, the Board of Directors, and Phil Newsum for supporting me through the past several years. Hopefully I will continue to serve on the Executive Committee as Past President and on the Board of Directors as the representative for Mainstream Commercial Divers, Inc.

I hope to see you at UI! 🌊

Dive Safely,
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A MESSAGE FROM THE EXECUTIVE DIRECTOR | PHIL NEWSUM



I hope you enjoy this edition of *Underwater* magazine. As always, in commemoration of Underwater Intervention, this edition focuses on ROV/AUV Industry Updates, as well as U.I. 2017 itself.

An important feature in this edition is the ADCI Audit Initiative for General Members and Associate Member Schools. As noted in previous messages, the purpose of the audit is for companies and schools to formally demonstrate their adherence to the *International Consensus Standards for Commercial Diving and Underwater Operations*. Originally set to begin on 1 January 2017, the initiative is now set to begin on 1 March 2017. The audit initiative will last for 36 months, during which time all General Members and Associate Members Schools that have not been previously audited as part of the membership review or application process, will be required to submit to a formal ADCI audit.

The audits will be performed by ADCI designated auditors, who have undergone training at an ADCI Designated Auditor Workshop. The article features additional details about the Process, ADCI Designated Auditors, Cost, and the Storage of Information. To complement the article and forthcoming announcement video, the ADCI will again provide its presentation on *Common Discrepancies Uncovered on ADCI Diving Contractor Audits & Ways to Set Your Company up for Success on ADCI Diving Contractor Audits and Reduce Costs*, at Underwater Intervention.

There are a number of meetings and activities that attendees at Underwater Intervention can look forward to. Besides a very robust technical session, Naylor Events Solutions has brought its expertise with conference management to help bring a logical flow to the show and maximize the overall show experience for both exhibitors and attendees. I am excited at the prospect of the new “Think Tank” which will feature on Day 1, the U.S. Navy’s Presentation and Q&A session on the newly released USN Dive Manual (Rev. 7). The “Think Tank” will be held in a theater style setting on the show floor. Day 2 of the “Think Tank” will feature an MTS/ROV related topic. The “Think Tank” has been strategically scheduled, so that it does not interfere with the technical program or major industry meetings taking place at U.I. This year Underwater Intervention will have a different feel and uniqueness to it, from an overall scheduling and offerings standpoint.

Lastly, I want to formally take this opportunity to thank Mr. Craig Fortenbery for his outstanding stewardship of the Association, while serving as President these past three years. To say that Craig has served the Association in a very noteworthy manner would be an understatement. His commitment, sacrifice, and attention to detail have benefitted the ADCI on a variety of different levels, often at the expense of his own commercial operations. Craig will continue to serve on the Executive Committee as Past President, and his company Mainstream Commercial Divers, Inc. has a seat on the Board of Directors.

Be Safe and I look forward to seeing all of you at Underwater Intervention 2017. ☰

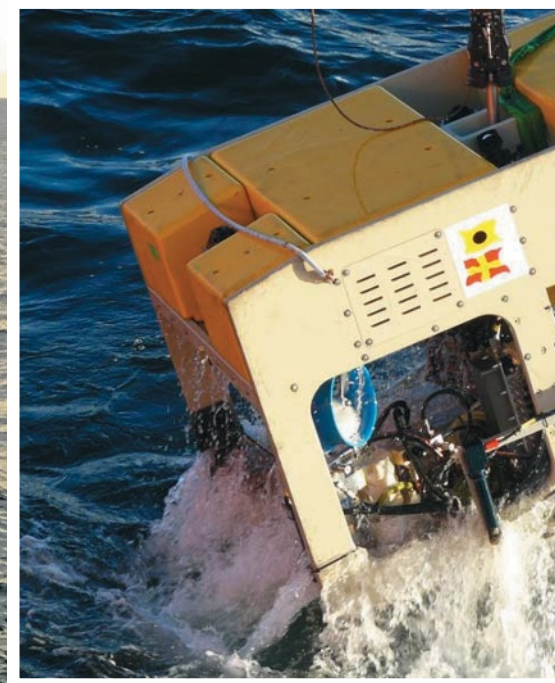
The Trend

Smaller, smarter, cheaper ROVs



The price of oil may be stabilizing and the incoming administration may be sympathetic, but industry remains wary, so it looks like the story of ROVs will stay the same in 2017 — build them smaller, make them smarter, so they can do more work and save companies more money. This story casts a bright future for observation-class vehicles, but the forecast for work-class vehicles looks flat, with no sign of a turnaround anytime soon.

The success of VideoRay shows this shift: As observation-class vehicles become more capable and remain more economical, they will continue to take work away from work-class ROVs, when the work doesn't require



Continues

such muscle. VideoRay has more than 3,700 ROVs in service around the world, making the company the largest volume manufacturer of underwater robots. Last year, the VideoRay Mission Specialist, a vehicle that can be configured around the mission, made sales in five industries and deliveries are accelerating into next year, says Scott Bentley, CEO and founder of VideoRay.

“I think there’s a mismatch often between what the ROV industry touts and what diving contractors want to know. The industry often touts things like, ‘Lighter. Faster. More thrust,’ that’s all great, but what a diving contractor wants to know, or someone who hires diving contractors, is what can this ROV do that it couldn’t do before and how can it do it better?” Bentley says.

Introducing VideoRay’s new cavitation cleaner: Recently, a Mission Specialist



configured with a cavitation cleaning lance was used to do a Floating Production, Storage and Offloading (FPSO) hull inspection off the coast of Africa and clean off marine bio growth that might otherwise mask problems. Using the lightweight ROV, the job was done faster, Bentley says, it did not interrupt ongoing FPSO operations, and total costs were less than 10 percent of previous inspections, using divers, which caused coating damage.

The price of oil may be creeping up and oil companies may be feeling more confident, but Bentley says, “Nonetheless, the work we’ve done, particularly this one project off Africa, indicates that the industry is looking at leveraging new technology to save money. Inspection, Repair and Maintenance (IRM) work will continue regardless of the price of oil in order to keep their infrastructure working,” so he sees more opportunities there.

He’s also eager to concentrate on another area — fly outs. Bentley recently returned from Israel, where his team successfully controlled a VideoRay Pro 4 on an unmanned surface vessel over satellite. “That was exciting, a fly out from a



surface vessel,” says Bentley, envisioning future operators oceans away from where the work is being done. “We’re also looking at our Mission Specialist, probably by the end of next year, as a battery vehicle with a fiber connection that will make it controllable from kilometers away. The Mission Specialist is also an excellent fly out for work-class vehicles.

“A lot of the problem when you’re doing work at 2 kilometers or deeper than that, is not getting the job done, it’s getting the vehicle there. If you’ve already got a work class vehicle there, having the VideoRay be the fly out would work well - we are already working on that concept. Exactly when it gets released depends on a number of things, including demand, but I think

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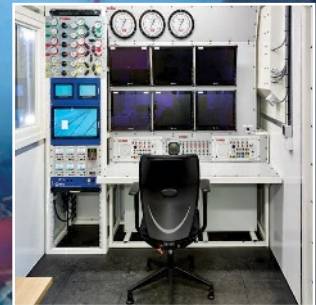
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Last year in *UnderWater Magazine's* ROV outlook, Bentley mentioned he was watching the recreational ROV world with interest. "There were low cost vehicles that were in the pipeline, they should have left the pipeline by now, but they haven't," he says. "Whether that happens or not is an open issue. You can't say it's not going to happen, but you can say it didn't happen on time."

Work-class ROVs are in trouble, too. Chuck Richards, chair of the Marine Technology Society ROV Committee and president/CEO of C.A. Richards & Associates, a company that has sold equipment to the offshore oil and gas industry for more than 45 years, says things are slow, "There's nothing really new, bright and shiny on the horizon that offers any glimmer of hope for a turnaround."

Richards has seen smaller, more nimble observation-class ROVs take work away from leviathan, work-class beasts, for at the moment, ROVs aren't offshore assembling pipelines, they're doing maintenance and inspection work.

"Observation-class ROVs are being considered now, whereas in the past oil companies wouldn't even allow a proposal to be submitted for using an observation-class vehicle offshore, but they are now," Richards says. "I mean everyone is looking to cut costs, that's the driver right now, reduce the costs of all aspects of a project, and that's the only way these projects are going forward is because they are able to reduce some of the costs."

Although the price of oil appears to have stabilized a bit, Richards says unfortunately for offshore, the easiest place to start producing oil is onshore, so while the shale play has picked up in South and West Texas, Pennsylvania and the Dakotas, oil companies keep cutting their offshore budgets. "Chevron just announced they're cutting their 2017 offshore budget 15 percent from 2016, which was already reduced. Others are following suit," Richards says.

Shale play may be easy, reopen a valve and start producing oil again onshore, where the rates for the rigs are low, but offshore, that's where Richards sees promise, that's where he sees every oilman's dream. "I still think offshore presents, you know the mega-fields, the large, high-pressure," Richards regroups his thought, "most of the easy oil

onshore has been found, so now they're having to go to technology such as hydraulic fracturing and other enhanced recovery techniques, but offshore, offshore there's still potential for these mega-finds that you know, you just stick, in fact you've got to choke the wells down because the pressure is so high."

Richards keeps the dream going, "And they can produce for years."

But the big structures associated with oil production are not viable today, so oil

companies are connecting new discoveries to existing structures via subsea tiebacks. "They're tying back from some well as many as 20 miles to an existing production platform, and that platform can be a fixed platform or a floating structure, but the project would not be viable if a new, producing platform was needed to be built, not at \$50 or \$60 a barrel," Richards says.

Nothing on the surface, all equipment on the seafloor, tiebacks are ROV intensive, but it's not like there's some tieback boom going

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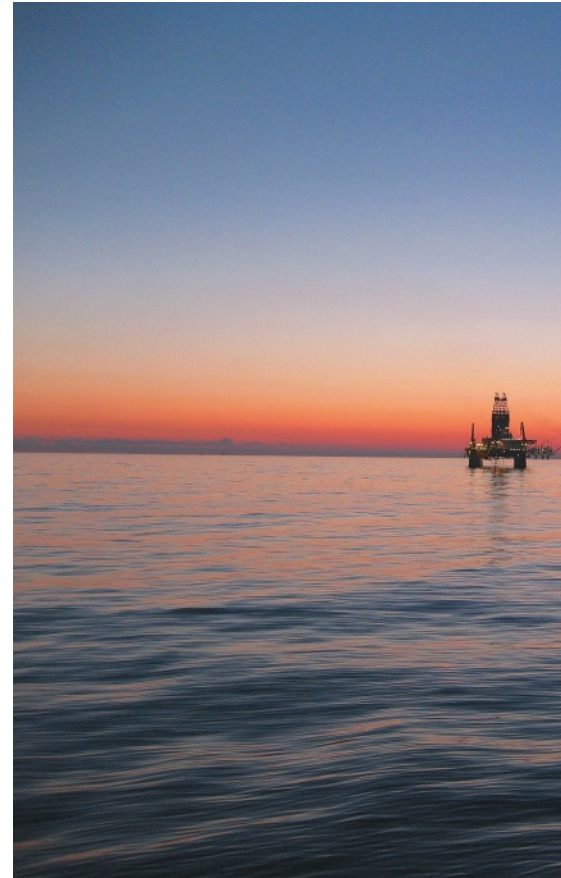
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on that could boost ROV sales. “They’ve been going on for years ... it used to be an inexpensive way of producing a new well but now it’s a mandatory way, mandatory’s too strong a word, but it’s the only viable way to produce from a new well in deep water,” Richards says. “And that will change. I mean it’s all commodity price driven, so if oil goes back to \$100 a barrel, there will still be tiebacks, but there will be a lot more offshore structures, too.”

Richards has seen an increase in seismic activity, the precursor to all development,

and says there’s soon to be some deep water play in Mexico, as the country has recently welcomed international companies to explore for oil and gas in its waters, those are the bright spots he sees in a grey story. His company has had to pivot inland, think of ways to sell its technology to different industries, like providing equipment for search and recovery agencies. “We’re hanging in there,” Richards says. “We’re doing OK.”

He thinks the ROV business will stay pretty flat in 2017. “There will be some opportunities, but we’re not in recovery



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yet, and hopefully, this is just my hope and desire, that towards the end of the year, we’ll be in a recovery, but that’s going to be solely driven by the price of oil.”

Innovation continues, in the midst of such hopes, to remove large ships and large crews. “Things continue to move forward into that seafloor resident vehicle of the future,” says Chris Roper, North American sales manager of commercial underwater systems for Saab Seaeeye. Maybe not next year, but by late 2018, into 2019, certainly by 2020, he believes resident vehicles will be commonplace. “Along the way, there are a lot of new technologies that are being developed to enable the capability of our Seaeeye Sabertooth,” an AUV/ROV hovering hybrid, “so we’ve got a very active year ahead, testing new sensors and working on algorithms to perfect a lot of the vehicle behaviors and reactive capabilities.”

Small, tether-free and maneuverable, the Sabertooth can navigate complex structures and autonomously complete inspection, maintenance and repair work of subsea installations, as well as inspect tunnels and do offshore survey work. Giving insights into the technologies



Seaeye is working on, Roper says, “Not just the capability to reside on the seafloor for long periods of time but to do more meaningful tasks, so development of sensor technologies to perform those types of tasks in an autonomous mode are the milestones that we’re working on, such as being able to perform cathodic protection readings on pipelines and structures from autonomous underwater vehicles, being able to get information on structural integrity from autonomous vehicles, whether that’s transmitted through embedded sensors on the structure to the vehicle, much like data harvesting, or whether that’s a real touch and feel process, to make contact, with sensor technology.”

The vision is that the vehicle will perform the vast majority of IMR tasks prior to residing on the seafloor in autonomous mode, with “man in the loop” playing a major role, as the operator moves away from the offshore scene to an onshore control room, eventually migrating further and further out of the picture.

“Man will retain control of the operation of the vehicle but from a remote location, a shore-based location with the vehicle in

a deep-water location, so to prove out the capabilities, everything will be done with man in the loop in a supervisory role, until the confidence level is high enough that the man can exit and the vehicle can continue,” Roper says.

Roper sees 2017 as a more active year for intelligent AUV/ ROV systems, as financial constraints have forced industry to take a step back and look at how old subsea tasks can be done in new ways, inviting smaller, smarter vehicles to intervene and replace larger, hydraulic vehicles, with electric

being the direction where deep-water ROVs and AUVs are headed. “It’s all electric,” he says.

The real shift he sees, down the road, it’s all resident vehicles, as he says, “Removing personnel from the actual work location and having them perform those tasks from a remote location, it’s one of the baby steps that goes into moving ROV technology into AUV technology into resident technology, being able to control everything from a remote location and then eventually, the cable connection can be severed.”

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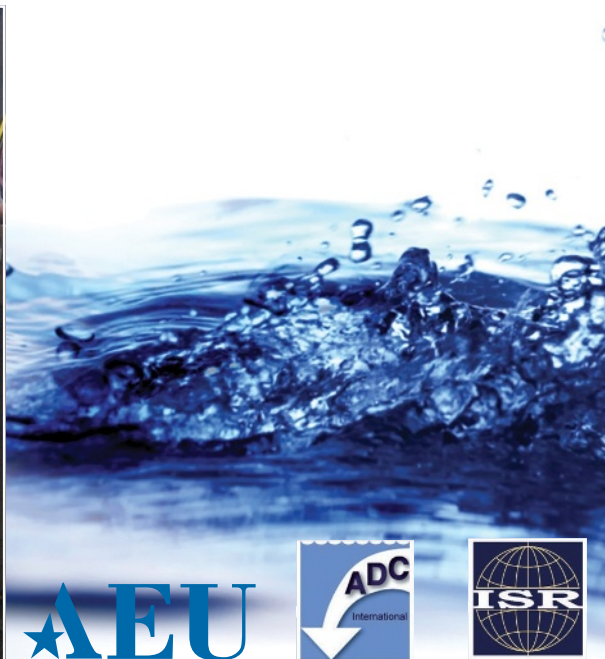
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The ADCI Audit Initiative

for General Members and Associate Members Schools

By Phil Newsum, Executive Director, ADCI

Since 2006, only General Member and Associate Member School applicants, or members under membership review have had to submit to a formal audit.

Based upon favorable industry feedback and support, received from the 60 day comment period, the ADCI Board of Directors formally ratified the diving contractor and diver training program audit initiative on 10 June 2016.

PROCESS

The ADCI will embark on a thirty six (36) month audit initiative for General Members and Associate member Schools that have not previously submitted to formal audit, effective 1 March 2017. The purpose of the audit is for companies and schools to formally demonstrate adherence to the *International Consensus Standards for Commercial Diving and Underwater Operations*.

A certificate will be issued by the ADCI office upon successful completion of the audit and demonstrated satisfactory compliance to the ADCI *International Consensus*

Standards for Commercial Diving and Underwater Operations.

Membership review audits will count towards meeting the audit initiative requirement. However, no certificate will be issued for membership review audits. Membership review audits are generated due to substantiated operational and/or equipment deficiencies, and are performed when a member is not in "good standing".

ADCI DESIGNATED AUDITORS

The audit will be performed by an ADCI designated auditor, who has undergone training at an ADCI Diving Contractor and Diver Training Program Audit Workshop. Since the purpose of the audit initiative is to promote safety in the underwater industry, the primary motivation for auditor participation must be service oriented and not economically based. The role of the ADCI designated auditor is to enhance and protect organizational value by providing risk-based and objective assurance and insight.

Before an auditor can attend the ADCI Auditor Workshop, they must meet the minimum requirements of at least ten (10) years of recent industry experience in the

The ADCI will embark on a 36 month audit initiative for General Members and Associate member Schools that have not previously submitted to formal audit, effective 1 March 2017.

mode of diving that they will be tasked to review (audit). All ADCI designated auditors must have verifiable documentation of the required years of experience. All designated auditors must have a working knowledge of the *International Consensus Standards for Commercial Diving and Underwater Operations*, and cannot be under the direct employment of a General member or Associate Member School during the performance of the assigned audit.

SCHEDULING

General Members and Associate Member Schools may request an audit at any time by contacting the ADCI office. It is not intended that the conduct of the formal audit will interfere with the normal business operations of the member, nor is it intended that the audit process require disclosure of confidential or proprietary information relating to the business activities of the member. In all cases, the audit process will be scheduled for a date mutually convenient and agreeable to the company/school and the ADCI designated auditor.

COST

Costs related to the audit will be minimized to cover only actual direct expenses and will be discussed and agreed upon in advance between the ADCI office, designated auditor, and the company/school.

STORAGE OF INFORMATION

All audit reports and findings are the property of ADCI and will be maintained in a confidential manner at the ADCI office. The contents of audit reports shall not be disclosed to any party, unless required in



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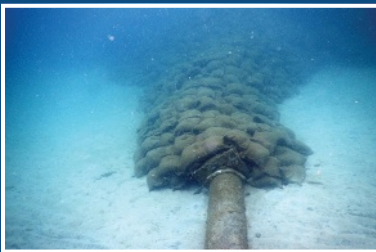


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ST. THOMAS, U.S. VIRGIN ISLANDS (May 19, 2016) – A luxury resort on the south shore of St. Thomas in the U.S. Virgin Islands recently stabilized a 300-foot long seawater intake pipeline using **SLINGBAG®** from QUIKRETE® placed by Logan Diving & Salvage. Designed to feed the HVAC chillers on the resort, the existing underwater intake pipeline was less stable than expected when originally installed, and became a potential hazard to the natural habitat. To stabilize the intake pipeline Logan Diving & Salvage used the **SLINGBAG** system to place over 9,520 - 60 lb burlap bags containing a 3-1 (Sand-Cement) mix. Considering each **SLINGBAG** holds 56 burlap bags, a total of 170 **SLINGBAGS** were used by Logan's team to complete the entire project with maximum efficiency.



*"During the past 70 years, we've installed, maintained and repaired more than 800 underwater oil, gas, liquefied natural gas and water pipelines across the U.S. and Caribbean using the industry standard cement bag method repair. In my experience, the **SlingBag** system is by far the best, fastest, safest and cleanest method for addressing underwater pipeline requirements. It consistently delivers consolidated, uniform and easy to handle materials for all of our pipeline underwater stabilization, immobilization and protection needs."*

-Scott C. Anderson, President, Logan Diving & Salvage

Following Tropical Storm Isaac in 2012, which moved the intake line enough to cause damage to surrounding coral, stabilization efforts were undertaken to include placing weights anchored by Kevlar lines and metal cables on top of the intake pipe. These techniques not only failed to prevent the intake pipeline from shifting during inclement weather, heavy seas and fast currents, but placed the surrounding coral at greater risk. In a multi-step process that was completed in less than four weeks, Logan Diving & Salvage permanently stabilized the intake pipeline with the patented **SLINGBAG** system to ensure that seawater reached the resort's HVAC chiller without being a detriment to the underwater environment.

Logan Diving secured all permitting by providing an engineered plan that was inclusive of all environmental concerns. The coral within the stabilization footprint was relocated underwater for safe keeping until project completion. The pipe was then secured with **SLINGBAG** burlap bags filled with a blend of hydraulic cement and sand designed to achieve 4,000 PSI underwater. The burlap is a heavy duty, environmentally friendly biodegradable 10 oz fabric that is harmless to wildlife and there is no chemical print on the bags. During installation epoxy-coated #4 rebar was driven through the strategically positioned burlap bags to strengthen the bond between each bag; and secure them to the sea floor.

When the pipe was completely secured and stabilized, the coral was safely transplanted and markers were placed along the intake pipeline. The project was an environmental success in that at no time during the installation were permitted turbidity requirements exceeded. The underwater intake pipeline is now stabilized, supported and protected from movement caused by coastal ocean currents and wave action during elevated sea events.

The **SLINGBAG** solution is widely used across North America for underwater stabilization, installing running-bond retaining walls and erosion control around culverts, ditches, lakes and canals. The patented system includes a heavy duty, woven polypropylene tote with four high-strength polyester lifting loops that hold the 56 individual bags of specially graded Revetment or Pure Sand, as well as an engineered 3-1 Sand-Cement blend. The **SLINGBAG** process is designed to efficiently and safely store, transport and strategically place the 60 lb bags five times faster and more profitably compared to conventional methods—EVERY TIME!

For more information on the **SLINGBAG** system please visit www.slingbag.net or contact Dickie Daigle at 985-665-2530 (ddaigle@quikrete.com) or Tim Grazier at 985-227-5373 (tgrazier@quikrete.com).

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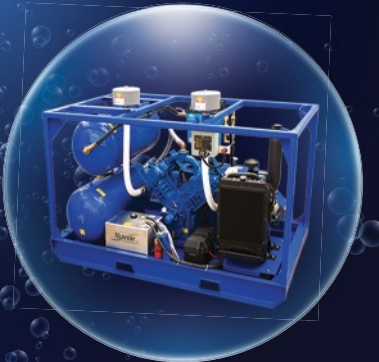
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connection with a formal and confidential membership review process.

SUMMARY

The ADCI office will issue a formal letter, along with the ADCI Policy Memorandum 3000.8A, to notify the membership of the audit initiative. It is important to note that the audit process is strictly intended to develop a general appreciation for the ability of a member at the time of the audit to meet the requirements of the ADCI *International Consensus Standards for Commercial Diving and underwater operations*.

Members can review all of the ADCI TV videos and UW magazine articles that discuss the benefits of submitting to the audit process, ways to prepare for the audit, and common discrepancies uncovered on contractor and school audits, to better prepare for their upcoming audit. Familiarization with the requirements of the Consensus Standards and the performance of an internal audit using the audit reports in Section Ten of the Consensus Standards is the best approach to set your company or school up for success. 🌊

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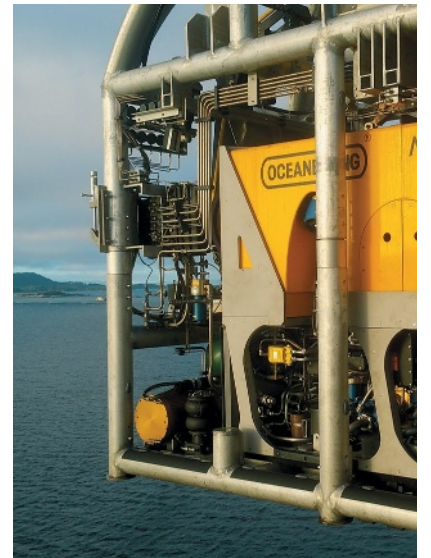
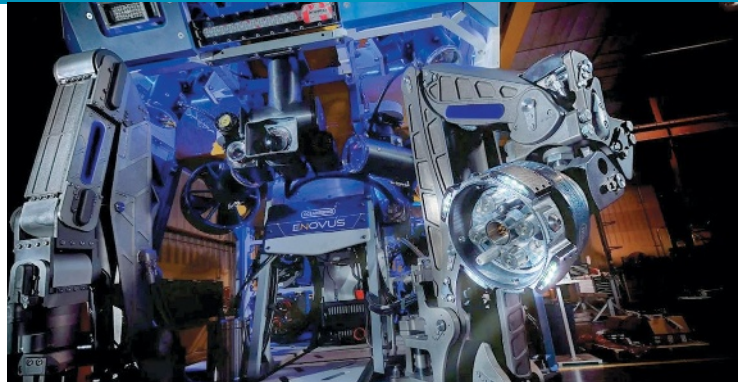
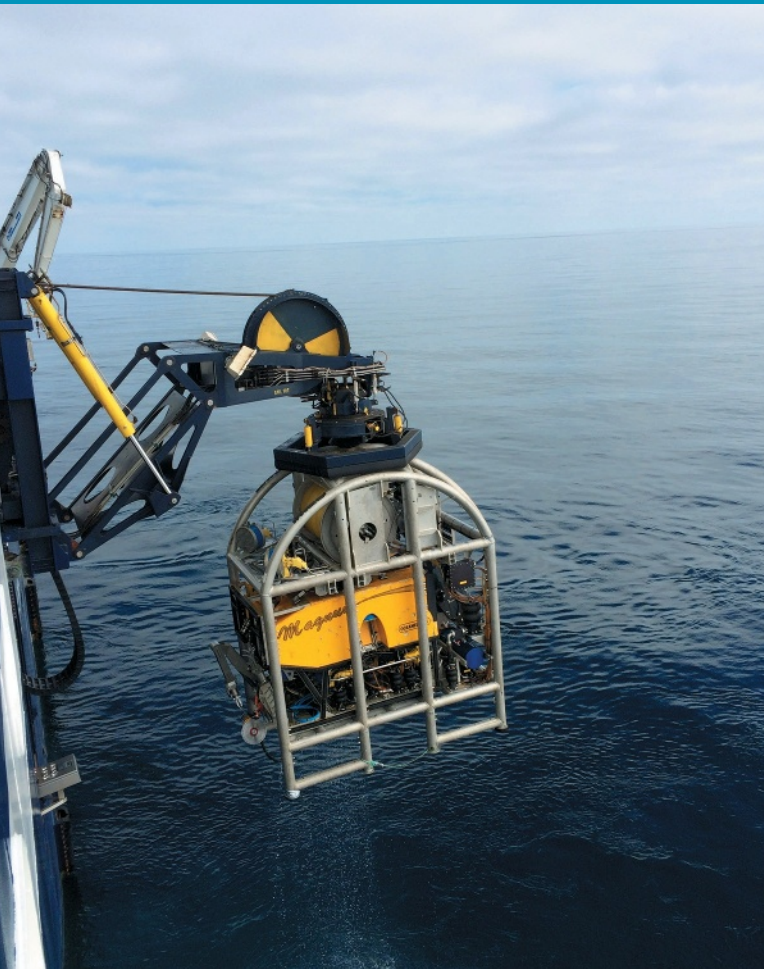
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HD ROVs at work in Trinidad, courtesy of Tidewater Subsea.



ROVs at work on board the Grand Canyon II, courtesy of Helix Energy Solutions.

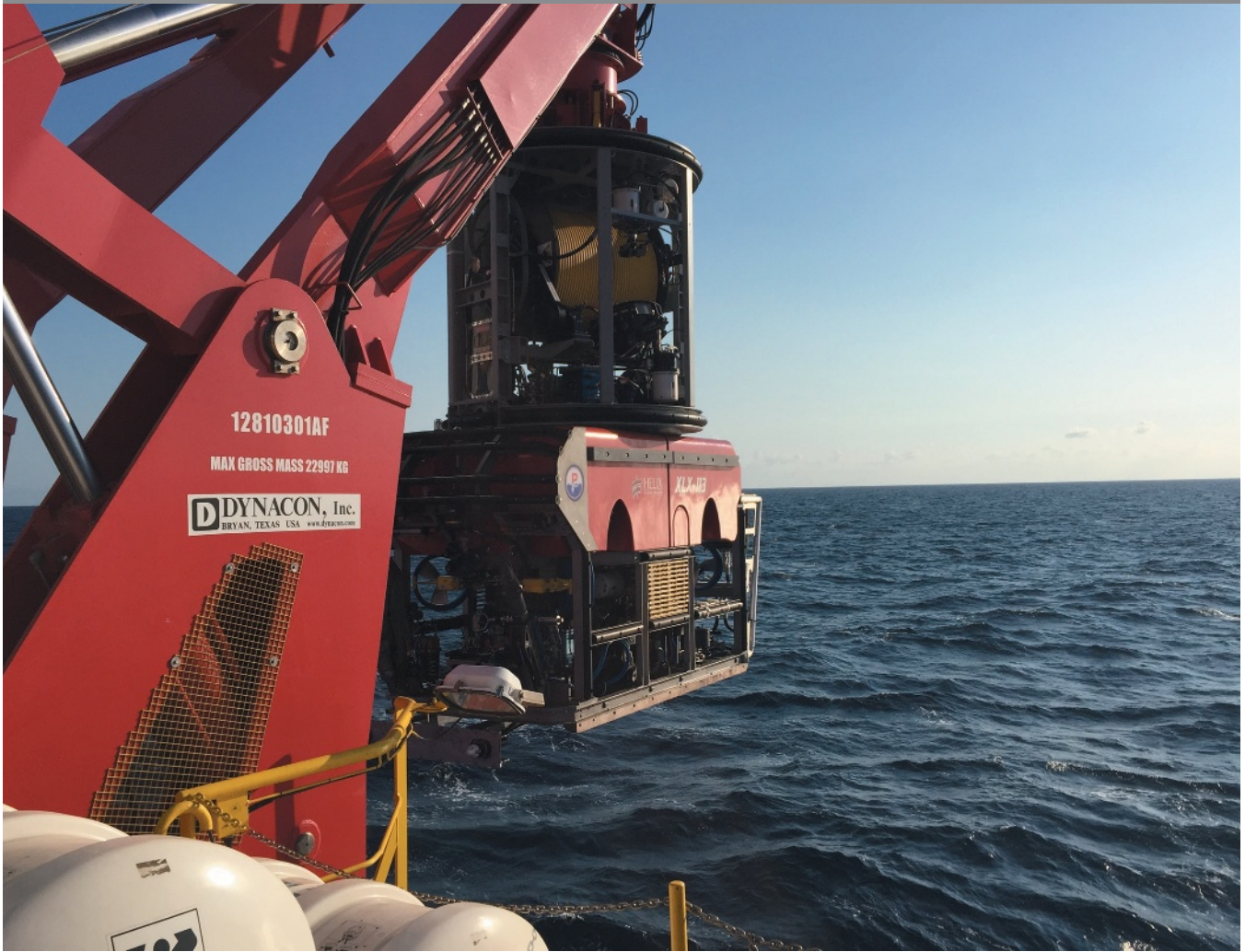


HD ROVs working on wind farm project, courtesy of ROVOP.



The Schilling Robotics UHD-III ROV working in the Gulf of Mexico, courtesy of FMC Technologies.

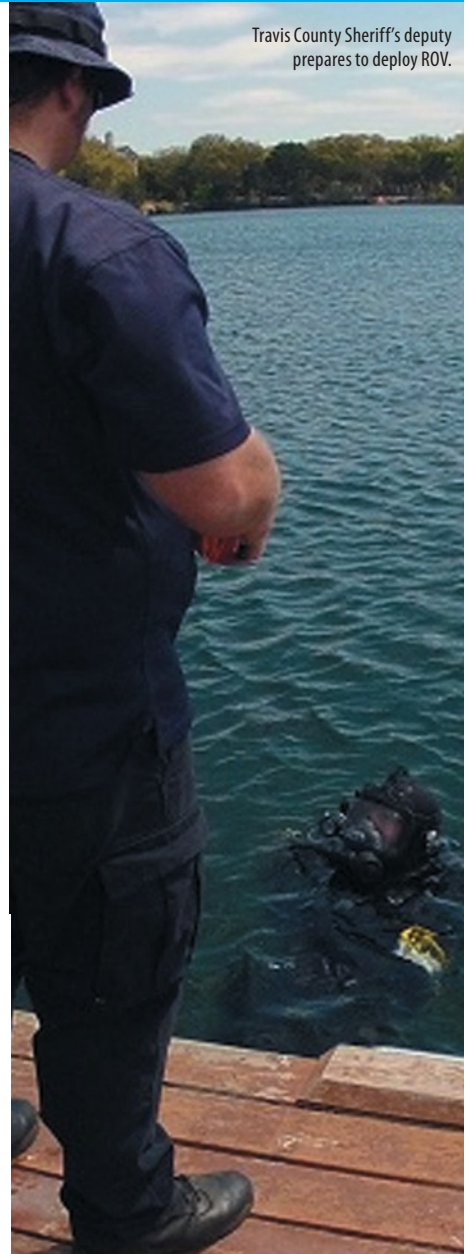
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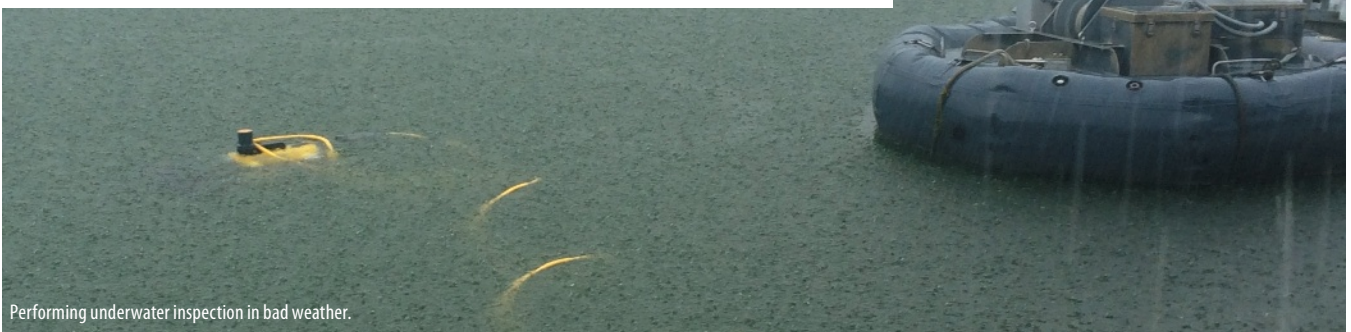
Hoisting ROV to top of water tank for inspection.



Travis County Sheriff's deputy prepares to deploy ROV.

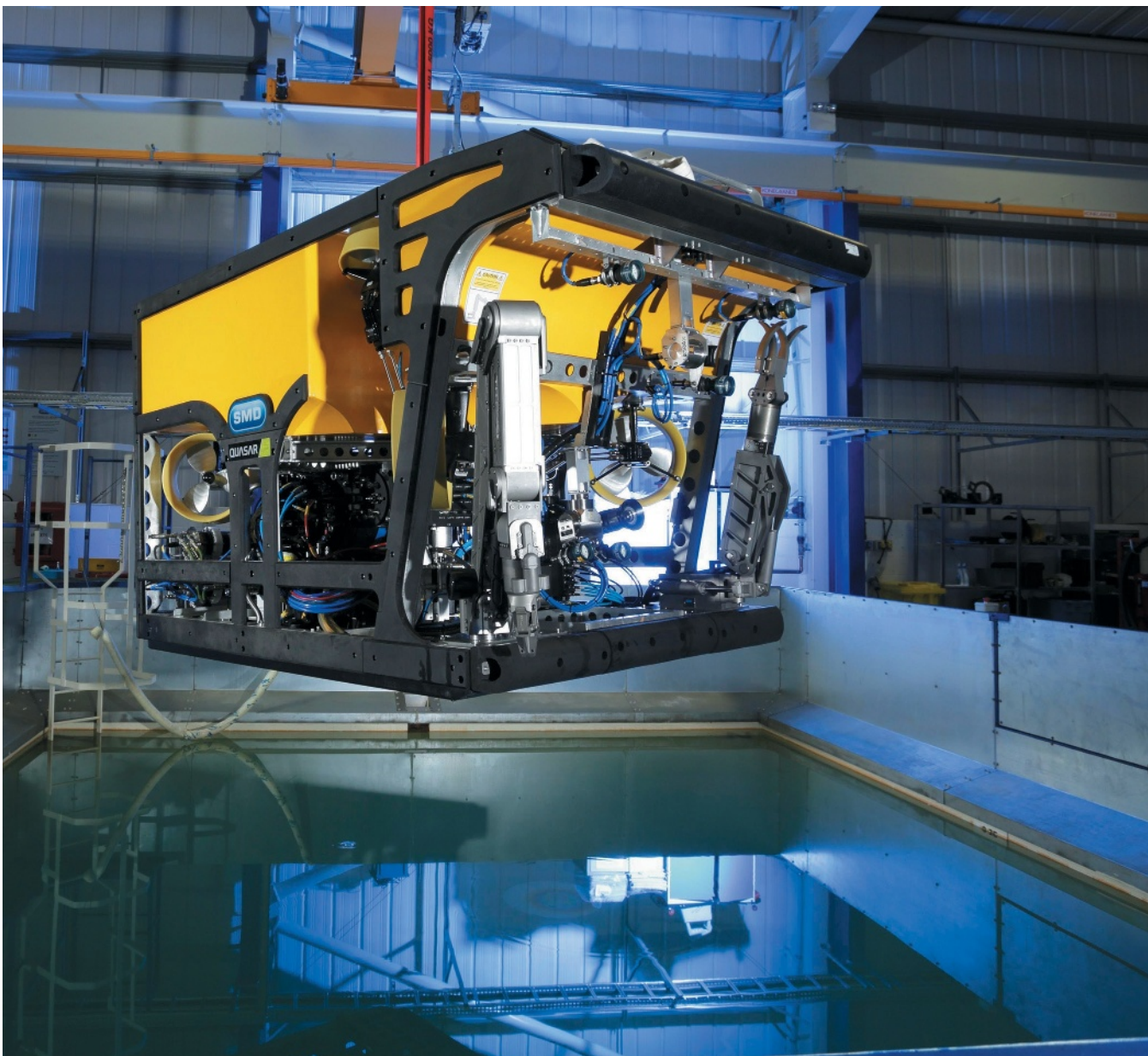


Snohomish Sheriff in WA searching with ROV.

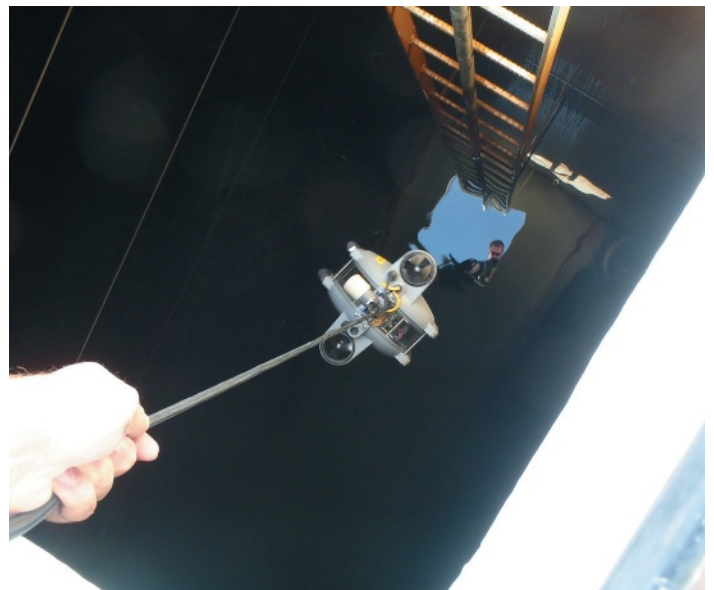
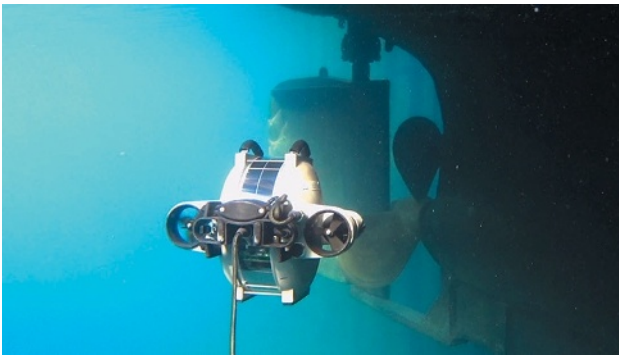
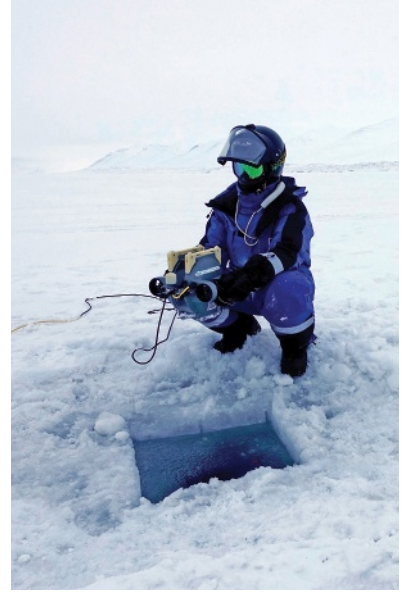


Performing underwater inspection in bad weather.

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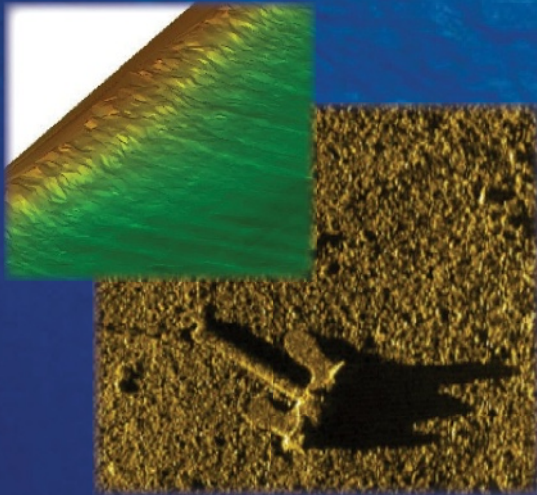


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FEBRUARY 21-23 NEW ORLEANS

Underwater Intervention is a not-for-profit industry conference and exhibition, jointly owned by the Association of Diving Contractors International and the ROV Committee of the Marine Technology Society.

Until the early 1990's, these two non-profit, professional organizations hosted separate conferences – ROV Intervention and the Diving Symposium. The increased common ground between the commercial diving and ROV (remotely operated vehicles) industries created an atmosphere ripe for a merger of the two conferences.

In 1993, the first Underwater Intervention was hosted in San Diego, California. Now, 22 years later, Underwater Intervention has grown to encompass more industries in addition to Commercial Diving and Remotely Operated Vehicles. We now include Manned Submersibles, Instruments and Sensors, Sonar and Acoustics, Ocean Engineering, Marine Salvage and Shipwrecks, AUV and UUV Technology. If you work in any of these industries, or offer goods and services to these industries, this is your conference. ☰

We look forward to seeing you at UI 2017!



Holland College

Marine Training Centre

By Aaron M. Lay

IN UNDERWATER'S past coverage of commercial diving schools and programs, we've discussed the notion of *location* extensively. Specifically, the fact that any diver can tell you that *where* you are diving dictates *how* you dive. And for folks out there thinking of breaking into our industry, the location of your school should play a large role in making your choice.

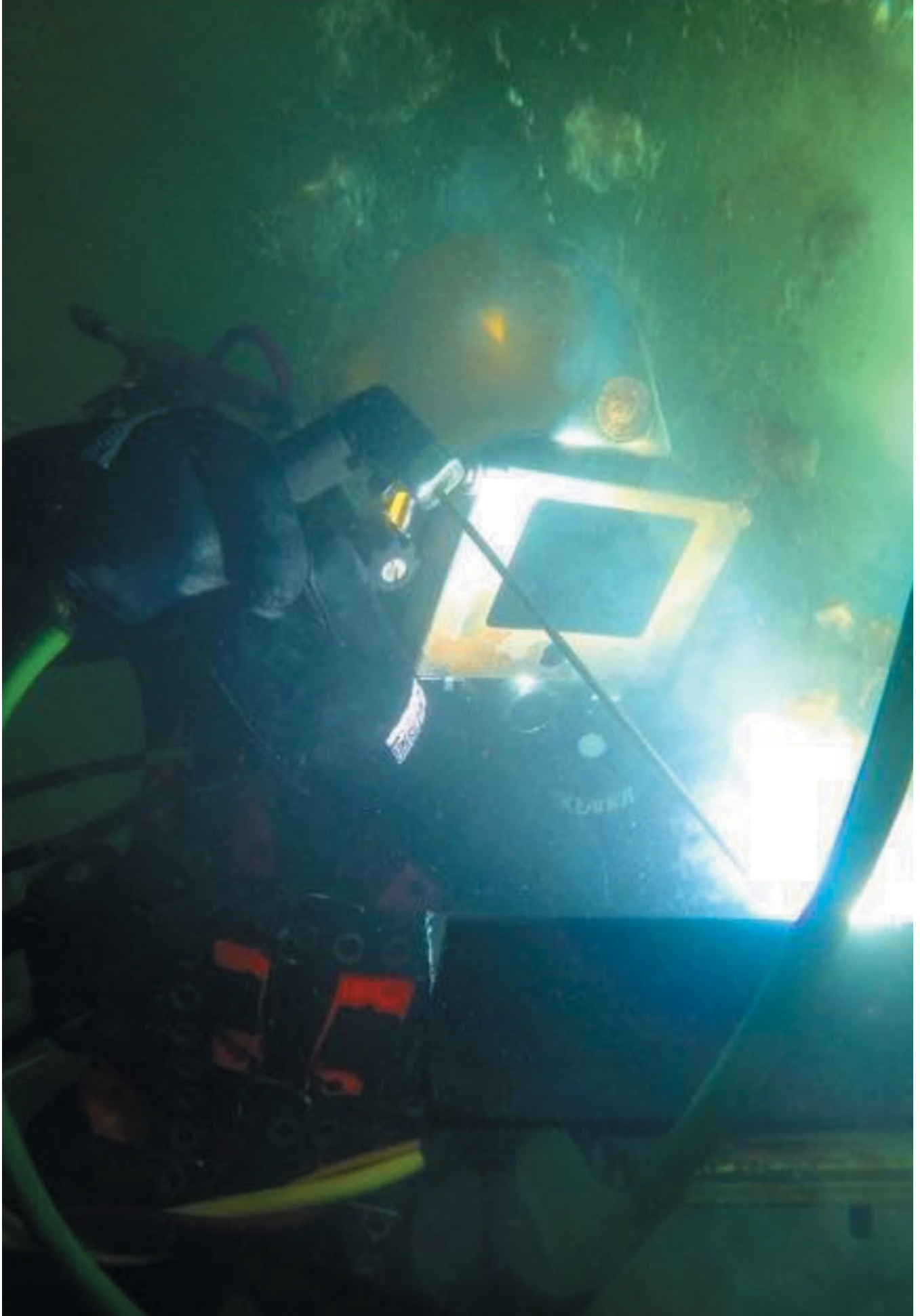
Located on the west side of Prince Edward Island, the Holland College Marine Training Centre has the distinction of being one of the northern most dive schools in North America. A fact that instructor Kimball Johnston is quick to note.

"Let me start by saying I don't know that there's a school further north in Canada than we are. And that reflects on the divers that we put in."

And Johnston's right. The school's location has an enormous influence on the pedigree of the divers who pass through its doors. "We're located on the North Atlantic obviously, so we're working with a tidal environment. We train under harsh conditions, and visibility is very poor. We have very cold weather, and things freeze up, so you have to learn to deal with all those things. Diving must go on."

Speaking to the subject of location in a broader sense, Johnston offers some fairly insightful advice. "Our guys can go *anywhere* south and do diving operations. The guys that are trained in the South can't necessarily come into this environment and expect to function the same way our students will. So, my advice [to prospective commercial divers] is to train north and go south. That makes the best diver," explains Johnston.

The Marine Training Centre is a program offered through Holland College, which was founded in 1969. The Centre itself has been offering Transport Canada Approved Training for over four decades. Transport Canada is a Canadian Government department responsible for developing regulations, policies and services for the country. In addition to being ADCI accredited and





Our guys can go *anywhere* south and do diving operations. The guys that are trained in the South can't necessarily come into this environment and expect to function the same way our students will.

promoting and adhering to our Consensus Standards, the Centre certifies divers to DCBC (Diver Certification Board of Canada) standards as well. The college has 11 different centres across Prince Edward Island, with the Marine Training Centre located in Summerside.

"There's a reason Holland College put this school where it is," notes Johnston. He adds, "Part of our curriculum is inspection and measurement. And right here in Summerside, we have four wharfs that we work on within a kilometer. One is a timber wharf, one is a sheet pile wharf and another one is a concrete crib wharf. So we have all the different types of wharfs right here at our facility for these guys to be around and inspect and to generally learn about. It's fantastic experience."

Another benefit of the Centre is the quality of its instructors. In addition to being industry vets, they must obtain a Certificate of Adult Education (CAE), as the Centre is part of curriculum offered through a college. Johnston speaks to the benefits of this certification. "You can have somebody who is good at something but not necessarily able to pass that information on. So, the CAE

ensures they know *how* to teach well. We pick the best people who are great at passing on information."

Each dive school's entry requirements can vary from program to program. The Centre's particular entry requirements for new students demands they already be certified in Scuba with a minimum of 10 hours of bottom time. And in addition to a grade-12 education, new students must be in good physical condition. Many newcomers to our industry may not immediately think of excellent physical condition as being one of the most important requirements for commercial divers, but it most certainly is.

"Every six weeks, we test them using the Cooper test. There are a number of components to [the Cooper test]. Push ups, sit-ups, bench press, pulls ups and then the timed 2k run, and then we do a timed 5k run. Every morning they either are running or are in the gym, and [students' results of] these tests are expected to get better and better as the year rolls on," Johnston notes. He adds, "We push our guys hard to be physically fit and we try to teach them a healthy lifestyle. We want them to know that they are getting into an industry that is very demanding, and

we want them to be prepared for it. And the employers love what our students can do when they leave here."

As with any ADCI-recognized school, safety is the principal that informs literally every aspect of instruction and execution. Whatever it is, it must be taught to be done *safely* to be considered done *correctly*. "Our program is very oriented around safety in general, so we take our students very slow through the paces in the initial stages because we don't want to put them in harm's way. We want them to only know the safe and right way to do things. We're also trying to build their confidence. This is a brand new industry to them, and if you give them

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a bad experience, it will stay with them. So our philosophy is to take our time to do it right the first time, and we will have a very confident, safe diver in the end.”

The Centre prepares students for the industry through a robust offering of courses and specializations ensuring graduates thrive in either the offshore or inland sector. In Johnston’s opinion, starting inland is typically what most of the Centre’s graduates find themselves doing.

“Some guys find a great career working inland and never make it offshore, but if you don’t have any experience you’re not getting offshore. You have to earn your stripes before you get there. Because you are working in such close quarters, it takes a special kind of person to be able to get along with the crew and have all the skill sets required in that field. And because there’s an increase in pay there, a lot more people are competing for those jobs. I will stress that the guys who want to make it happen, or want to work, will. And those are the guys, the persistent guys, who get the jobs. We can only teach them to dive, we can’t teach them work ethic, but it’s really up to the individual once they leave this program.”

When asked about the Centre’s placement rates in the industry for graduates Johnston quickly asserts, “Every student that wants to work after they come through this program will work. Not one of these oceans are going to dry up. Not one. So, I’d say the job market is pretty darn good.”

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The Dangers of PTSD and Diving

We continue our medical series with a presentation from Dr. Brian Bourgeois on the topic of Post Traumatic Stress Disorder. Dr. Bourgeois discusses the potential risks associated with PTSD to divers and how to avoid them.

Many people who come out of the military enter the diving field, because they're attracted to a high-demand and physically active job. The problem is, people coming out of war zones don't often leave unscathed. Often, these invisible scars can be hard to detect. As such, it's important to screen potential divers for PTSD as its symptoms make diving unsafe.

PTSD is caused by a traumatic experience, often one that involves death, violence or loss. Those suffering with PTSD can't move past the trauma but take action to avoid the memories. A seemingly unrelated experience can often trigger negative alterations in mood and cognition as well as an arousal and reactivity. It can also cause distress and functional impairment.


"How many of those things will affect a commercial diver in the water and his ability to perform his task safely or efficiently?" asks Dr. Brian Bourgeois, a Diving and Occupational Medicine Physician. "Pretty significant. All of them. That's high functioning individuals, it's high learning and high cognition. And it tends to affect those things. And it's not controllable, that's the other thing. It's the intrusion and avoidance maneuvers. They're not always able to control these things."

However, PTSD is not always simple to diagnose. Because of the stigma surrounding mental illness, many people will not admit they have PTSD or any of its symptoms, even to their doctor. Dr. Bourgeois says he often has to be intrusive with his patients to determine whether or not it is safe for them to dive.

"I will tell you, it's not always easy getting medical records from the VA system," Dr. Bourgeois says. "I tend to put the onus on the diver, because I think that's a little bit of a test about how serious they are. If they want to dive and they think everything is hunky dory, they're going to go get their records. They're going to bring them to me and they're going to be forthcoming with them."

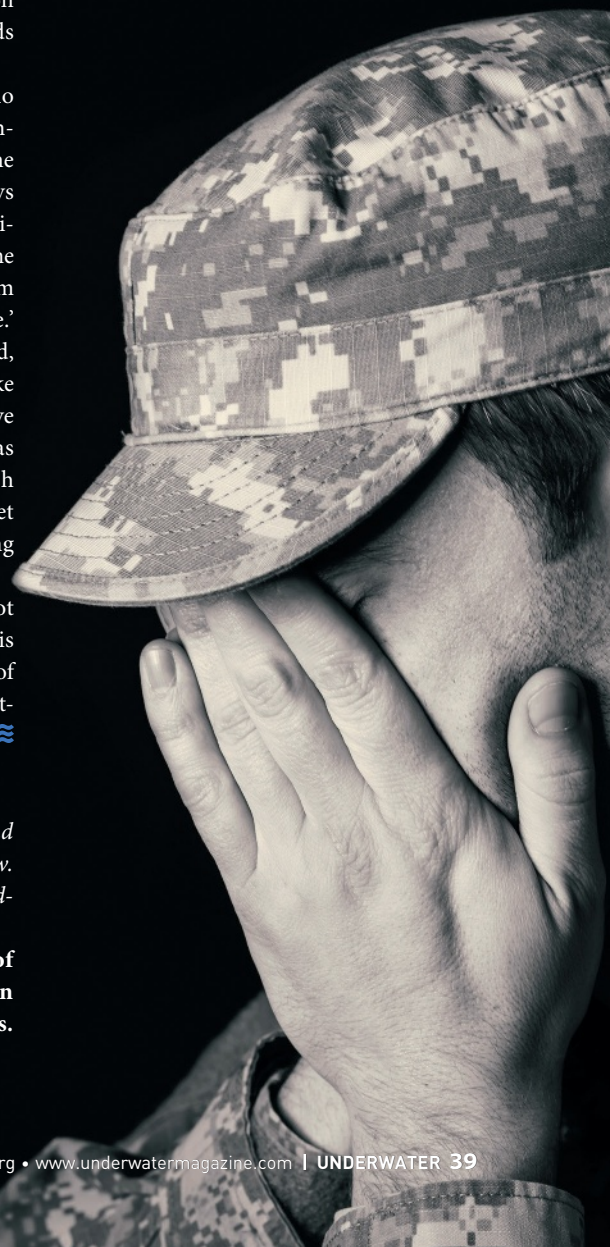
Due to the high-stress nature of the job, diving professionals can also get PTSD both in and out of the water. This doesn't need to be the end of their career, but it's also not something that can be ignored. However, Dr. Bourgeois does not clear anyone who is on medication to dive, so the treatment needs to be non-medicinal.

"You have to get them with people who can treat them without the standard compendium of medications that U.S. medicine loves, which is one of my pet peeves," says Dr. Bourgeois. "There are a couple of individuals that I use and they know, 'This is one of Dr. Bourgeois's divers, we cannot put him on medicine, we need to do something else.' So what do they do? For lack of a better word, they teach them how to count to ten and take a deep breath. And it works. And they have all gone back to diving. Everyone who has participated has gone back to diving with no incidents. It works. But you have to get them in the mindset where they're willing to accept that help."

People suffering from PTSD may not be fit to dive. Avoiding the dangers of this involves understanding the seriousness of the illness, screening new divers and getting current divers the help they need. 

For more information on diver health and safety, check out the ADCI website at www.adc-int.org and watch the latest medical videos on ADCI TV

>> See the video on The Dangers of PTSD and Diving and other issues on medicine and diving on ADCI TV (videos. adc-int.org/home).



Cyber Theft Big Challenge for Small Businesses

BY MARY LOU JAY

Don't worry so much about the noise that's out there in the cyber security world about threats and bad actors. Think about your own business. What are the most critical digital assets that you have? Start by protecting those

The cybercrimes that grab media headlines typically involve big retailers such as Target or Home Depot. But diving contractors shouldn't get complacent thinking that they aren't at risk. Big or small, your company is facing most of the same cyber threats as the biggest businesses. If you're not taking cyber security precautions today, you could be exposing your business, your customers, your suppliers and your employees to data theft.

"One of the issues that we face today is that businesses think, 'I'm only small potatoes, so why would someone come after me?' Or they may think they don't have anything of value that people would want," says Michael Kaiser, executive director of the National Cyber Security Alliance, a nonprofit public-private partnership that promotes cyber security and privacy awareness. "That's something we really need to encourage them to think differently about. Companies are never too small to interest cyber thieves and they most likely do have very valuable information that crooks would want."

Hackers use automated programs to probe and test any computers that are connected to the Internet, looking for unpatched systems and other vulnerabilities. "Sometimes businesses are complacent because they think 'They're not coming after me, how would they even know that I exist?' But sometimes they find you exist because they're just probing systems across the whole ecosystem and it turns out that yours is one that they can get into," explains Kaiser.

Divers' connections to large customers or large suppliers also make them a target. "Their small business can be used as a gateway into a larger business," cautions Kaiser. For example,

hackers could break into your company's email account and then send a seemingly legitimate email to your customer, attaching some kind of malware. If someone in your customer's larger company clicks on the attachment, their computer systems become infected.

"Cyber criminals may not be trying to steal money from a small business or steal their customer information; they're actually just using them as a way to get into a separate target," Kaiser says. The Target data breach, for example, occurred because hackers got into an HVAC vendor's system and from there found their way into Target's system.

Foreign hackers (and sometimes nation states) are responsible for many large-scale cyber attacks, but cyber theft of credit card data usually occurs closer to home. After breaking into a business' customer database, the cyber thieves will sell customer credit card information to others who make fraudulent credit cards.

Improving Your Business Cyber security

While it's impossible to keep your business' computer system 100 percent secure, there are many ways you can improve your company's cyber defenses.

“Take a risk management approach to your own business,” advises Kaiser. “Don’t worry so much about the noise that’s out there in the cyber security world about threats and bad actors. Think about your own business. What are the most critical digital assets that you have? Start by protecting those.”

Take a look at the computer(s) where you store your customer and business data. Ask yourself:

- Is the computer connected to the Internet? Does it need to be?
- Does that data ever leave that computer? For example, would any employees take the information to make a spreadsheet on their own computers? That could increase the risk someone hacking into it.
- Do you really need all the data that you collect from a customer? Are you saving and storing it beyond the time you need it? The less information you have and the less time you have it for, the less you are risking.
- How many of your employees have access to that data? Do they need it to do their jobs? Controlling access to important information can limit your cyber vulnerability.

Ransomware is also a growing problem. In this case, rather than stealing your files, hackers block your access to your own files using malware hidden in a pop-up ad or an email attachment. You don’t get access back unless you pay the hackers a fee. Ransomware is extremely difficult to deal with and even the FBI has said that people may have to pay to get their files back.

To prevent the installation of ransomware on your computers, the FBI recommends:

- Keeping your antivirus software updated
- Enabling automatic patches of your operating system and web browsers
- Creating strong passwords and using different strong passwords for different sites
- Using a pop-up blocker
- Downloading software only from sites you know and trust
- Never opening email attachments unless you’re expecting something from the sender

Make regular backups so that you have a way to restore your data if your computer does get infected with ransomware. You can then buy a new computer or get your current computer completely wiped before reinstalling your data. “You’re talking about a day or two being down as opposed to not having any data

and not having any way to recover it except by paying the ransom,” says Kaiser.

You can store backups on a separate hard drive and/or pay for a cloud backup that will be available no matter what happens at your physical location.

Take Preventive Steps

There are several steps that businesses should take to reduce their risk of cyber theft:

Keep software updated. “Businesses should be making sure constantly that they put the most recent patches or updates on their software, since those updates often include security fixes,” said Kaiser.

Talk with third party vendors about security. Kaiser said that businesses should ask themselves how they feel about their vendors’



Cyber Security Resources for Your Business

The Federal Communications Commission offers a Small Biz Cyber Planner that provides a step-by-step guide on a dozen different cyber security topics including privacy and data security, mobile devices, payment cards and developing a cyber safety policy. It’s available for free online at www.fcc.gov/cyberplanner.

The website of the National Cyber Security Alliance, www.staysafeonline.org, features an entire section on small business cyber security that includes information on risk assessment, threat monitoring, employee training and links to a variety of free security checkups and tools.

The Small Business Development Center at Florida International University recently sponsored a conference on small business cyber security, and counselors there may be able to provide some guidance to businesses in Miami and Dade Counties. Get more information at www.business.fiu.edu/centers/sbdc.

competence and security. That's especially important with credit card processors.

"That's where a lot of hacks of small businesses have taken place, because the card processor gets hacked and so my business by extension gets hacked. My customer's data got lost because I used that card processor," Kaiser said. At the very least, card processors should be PCI compliant; that means processing, storing and transmitting credit card data in a way that meets the Payment Card Industry Data Security Standard (PCI DSS) standards.

"Ask processors, 'What are you doing about security? What precautions do you take?' Even asking the questions of your vendor may alert them that this is an important issue to you," said Kaiser.

Institute good password practices. "Make sure that employees understand they need to have longer, stronger passwords," said Kaiser. Don't use the same password for different sites. Consider implementing two-factor authentication for data access, which could involve using both a password and fingerprint identification or a fob with a constantly changing access code.

Take Precautions When Working

Remotely Using tablets and cell phones to conduct business is convenient for diving contractors but it also makes you more vulnerable to cyber thieves.

"Think about some of the ways that your employees work when they're remote and

about how that may impact your security," Kaiser said. Do they log into your company's network using the WiFi connection at a local coffee shop? That can be risky. Kaiser recommends using a data connection instead of the free WiFi.

Employees who work from home may also pose a risk. A home network that's vulnerable to attacks could allow hackers to get an employee's log-in credentials for the business network and/or infect the corporate network with malware.

Using virtual private networks can help prevent some of these issues. Some mobile phone companies also offer mobile management tools that allow a cell phone user to segregate work areas from personal areas on the phone.

Act Now

If you think too much about all the cyber threats that your business can face it's easy to get discouraged about your ability to prevent attacks. But that's not the right attitude, said Kaiser.

"It's important for businesses to create a culture of security, starting with the right frame of mind," he said. "Begin with the concept of what is the most valuable data that I have, do I know where it is, do I know that I'm protecting it and am I building a wall around that data?"

"Build out from there to make your business more secure. I think that's one of the reasons that people become complacent; it starts to feel like there's so much to do I'll never get

Cyber Security: Small Businesses Can Do Better

According to research conducted by the National Cyber Security Alliance and Symantec, small businesses have a lot of information that they should be protecting:

- 69% handle sensitive information, including customer data
- 49% have financial records and reports
- 23% have their own intellectual property
- 18% handle intellectual property belonging to others


BUT ...

- 77% of small businesses don't have a formal written Internet security policy for their employees
- Only 52% have a cyber security plan or strategic approach in place
- 45% don't provide any kind of Internet safety training to their employees
- Only 50% of businesses completely wipe their computers of data before they dispose of them

it done and I'll never be secure," he continued. "Create that culture in your employees; you don't have to have a 900-page security manual for them, but have discussions with them. Make sure that they know that your customer data is really important and that if you lose it, it will hurt your business, which will hurt them."

Reach out to community resources to help you become more cyber secure. "One of the most valuable sources of information is your peers; ask them what they're doing to tackle these issues," said Kaiser. IT shops and your local Better Business Bureau may also be able to offer suggestions. Larger internet service providers like ATT, Verizon and Comcast sometimes offer tools to help small businesses in their cyber security efforts.

Just make sure that you're doing something, because there's no time to delay, said Kaiser.

"Action is really critical, because over time a business' risk is increasing if they don't do anything to protect themselves." 

This article originally appeared in the May/June issue of "Pest Perspectives," the official magazine of the Florida Pest Management Association.



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UI 2017 is the place to be February 21-23. With the economy affecting our industry, our committee has been working hard to make this Intervention something to talk about as we all feel the pinch. But what better place to network, see new technology that is being utilized and attend the technical presentations that will be available at the New Orleans Convention Center?

Please make sure you go to the Underwater Intervention website (www.underwaterintervention.com) to view any changes to the posted schedule for technical sessions and panel discussions.. This website provides all of the up-to-date information about the show. The Underwater Intervention and Technical Committee has worked on making sure that you can enjoy the exhibit floor and still make the technical sessions.

The technical Committee Members have been working hard to give us some informative and great technical sessions again this year.


Technical Program Tracks

- Commercial Diving Track
- ROV Track
- Instruments and Sensors
- Manned Submersibles
- AUV and ASV Track
- Ocean Research and Marine Archeology Technology
- Marine Education/Academia



FEBRUARY 21-23 NEWORLEANS

The Commercial Diving track will have sessions every day this year that will discuss topics from Medical, Safety, Training, Audits, Equipment Maintenance (which includes 5 things to do to SAVE YOU Money on Your Equipment Maintenance), Lessons Learned, Improvements due to using other technology and a US Commercial Diving Fatalities 2008-2016 review. We will also have another workshop hosted by Prime Time Training again this year also.

No matter what your interests are, please take a look at all the events that are happening and make the trip to New Orleans and see us at Underwater Intervention. Use this networking opportunity to capitalize and start off 2017 in a positive way by taking advantage of this great trade show and keep up-to-date with our industry. 

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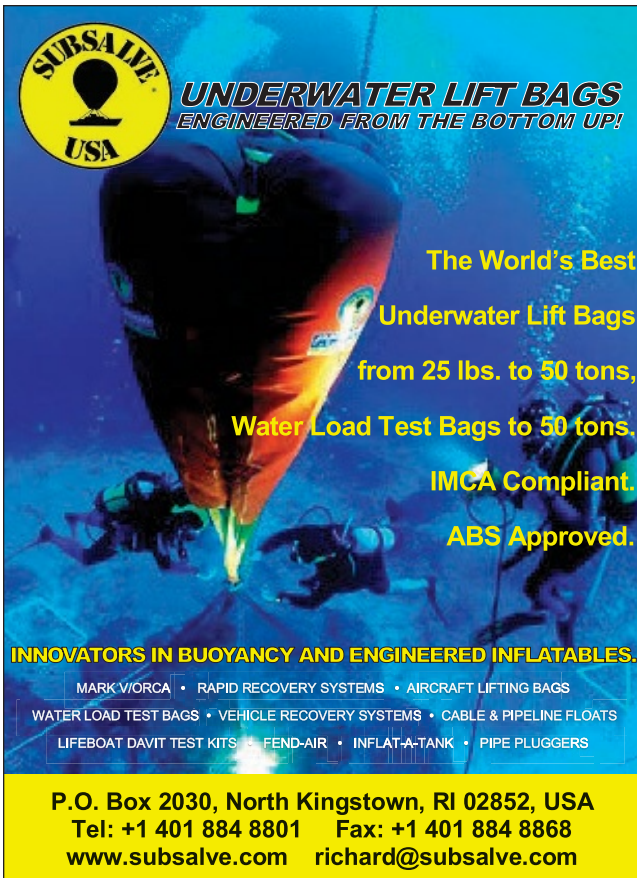
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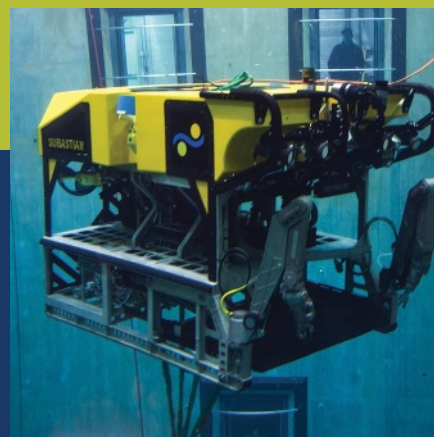
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