



SUBSEA SOLUTIONS ALLIANCE

UNDERWATER SHIP MAINTENANCE SPECIALISTS

ALL-SEA ENTERPRISES LTD

Vancouver • Great Lakes • Atlantic
Tianjin, China

MIAMI DIVER INC

Miami FL • Panama • Curacao

PARKER DIVING SERVICE INC.

Long Beach, CA

TRIDENT BV

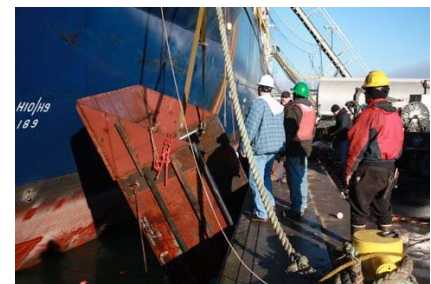
The Netherlands • Malta

Website: subseasolutions.com

The Member companies of the Subsea Solutions Alliance remain the global leaders in underwater ship repair. With the ability to mobilize anywhere in the world at a short notice with specialized equipment, approved procedures and trained personnel we can provide Class approved and Factory authorized repairs to vessel structures, major propulsion equipment and sealing systems. The Subsea Solutions Alliance remains ready to support customers throughout the world. Please find some information regarding some of the significant projects that were conducted in late 2008 and the beginning of 2009 by the member companies of the Subsea Solutions Alliance.

Hull Insert Repairs

In late December and early January 2009 the member companies of the Subsea Solutions Alliance performed 4 class approved permanent hull plate repairs throughout the world. One repair was performed when an unfortunate grounding caused significant hull damage to multiple locations in the aft section of a vessel while it transited the Great Lakes. The Subsea Solutions Alliance member company in Canada responded accordingly. Two inserts were required in the aft section of the Engine room. One insert measured 1.9 meters by 2 meters and the second insert measured 2 meters by 2.2 meters. The engineers within the Subsea Solutions Alliance applied their class approved weld procedures and developed a specific CLASS APPROVED PERMANENT REPAIR procedure for the vessel. Working in sub-zero temperatures in very rough sea conditions, specialized cofferdams were fabricated and installed to isolate the affected hull sections. Using welders trained and certified to the Subsea Solutions Alliance Class approved weld procedures, the two inserts were successfully installed under class supervision.



During the same period, repair teams from the Subsea Solutions Alliance member companies in Miami and Canada performed two CLASS APPROVED PERMANENT REPAIRS in the Gulf of Mexico. These repairs were made back to back to two vessels with damage in double bottom wing tanks; one over the turn of the bilge. The affected areas, measuring 45 cm by 30 cm, were sealed with a purpose built cofferdam. The affected areas were cropped away and new plates were inserted and welded in with certified divers to the Subsea Solutions Alliance class approved procedure. Lastly, while all of these inserts were being installed in North America, the Subsea Solutions Alliance team in Europe was busy performing a similar insert repair on a vessel in Antwerp. Alleviating a temporary repair that was put into place by the Subsea Solutions Alliance team earlier this year, the repair team was given 3 days to crop the affected area covering 1.25 meters by 1 meter and perform a Lloyds Register class approved repair. Again, a purpose built cofferdam was installed so that the affected area could be properly cropped away and the surfaces prepared. Using a team of certified welders, the repairs were performed to Lloyds Register requirements under class supervision. It has truly been the month of the Insert..... Let us show you what we can do for you, anywhere, at any time. Our engineers and diver / technicians stand ready to serve.



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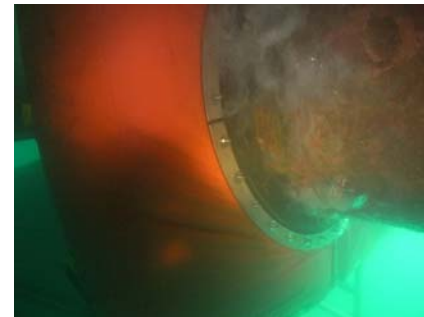
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In addition to the above referenced large repair projects completed in December 2008 and January 2009, the member companies of the Subsea Solutions Alliance completed a complex bulbous bow repair after the vessel suffered ice damage in late January 2009. After a full assessment of the damage was completed and a repair procedure was developed by the engineers of the Subsea Solutions Alliance, a purpose build cofferdam was manufactured and installed for execution of this repair. Under the watchful eyes of the classification societies and owners representatives, the repair was completed, even under the harsh winter conditions.



Aft Stern seal replacement- Strut Bearing Seals changed with Revolutionary technique

Right after the New Year celebrations were over, the Subsea Solutions Alliance team on the West Coast of the USA was tasked by one of the manufacturers of stern seals with the underwater replacement of two stern seals mounted on EITHER side of an oil lubricated propeller shaft strut. This required very specialized skills and the ability to install 2 Transhab hyperbaric seal habitats at the same time. This technique has never been applied before by the Subsea Solutions Alliance or by any other company for that matter, so a thorough engineering analysis and plan needed to be established in order to safely exchange BOTH seals simultaneously within the timeframe of the customer's wet dock period. The engineering team within the Subsea Solutions Alliance together with the seal manufacturer developed a detailed repair procedure that was applied flawlessly without incident. The repair procedure clearly demonstrated the attention to detail and safe process of underwater seal replacement. It also demonstrated the experience of the diver / technicians of the Subsea Solutions Alliance. Local regulatory bodies, the US Coast Guard and other marine service representatives in the region saw FIRST hand the value in this type of repair from an environmental mitigation and economic perspective, compared to other repair alternatives. The once impossible repair to this vessel performed in-place and in the water no longer exists. That excites not only the local regulatory bodies but the client as well since it significantly mitigates catastrophic impacts from leaking stern seals.



The Subsea Solutions Alliance (SSA) is a consortium of underwater ship repair specialists- including All-Sea Enterprises LTD, Miami Diver Inc, Parker Diving Service Inc. and Trident BV. With a dedicated staff of over 130 divers globally, SSA has revolutionized the methods of repair for ship's structure and equipment underwater. Please feel free to contact Mr. Rick Shilling, business development manager for additional questions or information.

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