October 2017

ON&T

Ocean News & Technology
www.oceannews.com

FEATURE STORY

AUV Pipeline Inspection

Page 10

ON&T

Editor
Rhonda Moniz

News Editor
John Manock

UK Correspondent
Kira Coley

Art Director
Allison Smith

Copy Editor
Robyn Bryant

Newsletter Editor
Inger Peterson

Web News Coordinator
Whitney Schwerin

Circulation
Jessica Lewis
Jlewis@tscpublishing.com

ADVERTISING SALES

Lisa Chilik
Tel: 574-261-4215
Lchilik@tscpublishing.com

Mimi Shipman
Tel: +44 (0) 777 6017 564
mshipman@tscpublishing.com

Meagan Kohls
Tel: 985-519-0583
mkohls@tscstrategic.com

ADVISORY BOARD

Philippe Pierre Cousteau
Washington, D.C.

Dr. Phil Hart
Halifax, Canada

Drew Michel
Pierre Part, Louisiana

TO SUBSCRIBE

www.oceannews.com/subscribe

PUBLISHED BY

Technology Systems Corporation
Patrick C. Lagrange, CEO

Greg Leatherman,
Managing Editor, TSC Publications

Ocean News & Technology ISSN# 1082-6106 is published 12 times a year by Technology Systems Corporation, 7897 SW Jack James Dr., Suite A, Stuart, FL 34997, telephone 772-221-7720.

Garry Kozak
GK Consulting
Undersea Search Specialist

Deep Ocean Searches: The Challenge is not as Challenging Today

I look back to my first experience in 1979 in doing a side-scan sonar search in what I thought was an amazing depth of 2,000 meters. The challenges were many—needing large winches with up to 10,000 meters of tow cable and the subsequent problems associated with driving power down and sonar signals up these long cable lengths, not to mention cable failure from the loads experienced during towing operations. But this was the only way in those days to search in these deep depths.

Positioning of the towfish became a major issue, and position of the towfish is required to allow the calculation of a target position. The inelegant use of cable layback calculations to position the towfish would get target positions in the ball park of where they needed to be, but there was great uncertainty, resulting in a really large ball park. The use of acoustic positioning systems greatly improved the uncertainty in target positioning, and as the deep tow systems evolved, on-board INS systems were integrated to further refine towfish and target positions. Modern deep tow systems, such as the EdgeTech DT-2 used during the Malaysian MH370 search, use a USBL/INS solution that allows for position uncertainty of less than 50 meters with 10,000 meters of tow cable streamed.

Another frustrating part of deep tow operations is when a target is actually located and you want to make several more passes on shorter sonar ranges for higher resolution to allow the proper classification of the feature. The reality is that with 10,000 m of towcable in the water, it will take many hours to make a U-turn to head back for another pass. The next challenge was that it was partially luck if the towfish would actually pass within the range of the sought target. A couple of deep tow systems were outfitted with horizontal thrusters to allow shifting the deep tow fish port or starboard to allow a higher success rate of re-acquiring a target.

The development of AUV technology has dramatically changed the challenge and difficulty of deep ocean searches. AUVs turn on a dime, so hours are no longer wasted making turns at the end of a line or in re-acquiring a sonar target. Navigation control is far more precise than towed systems, making even high-resolution photo mosaics possible. They follow terrain and can work in highly geologic areas where a towed system is an accident waiting to happen.

No longer do you have to deal with large winches and cables and the dreaded re-terminations when the cable fails. The maturity level of today's AUVs is such that they are very reliable workhorses. They have proven themselves on searches such as the Air France 447 (3,900 meters), the MH 370 search (4,000+ meters), and the very recent discovery of the long-lost Navy's USS Indianapolis (5,500 meters). A new company, Ocean Infinity, has recently acquired eight 6,000-meters rated AUVs and is pushing the coverage rate envelope by operating multiple AUVs in concert. It is an exciting time in deep ocean exploration, with more amazing discoveries to be made as more deepwater AUVs are put into service.