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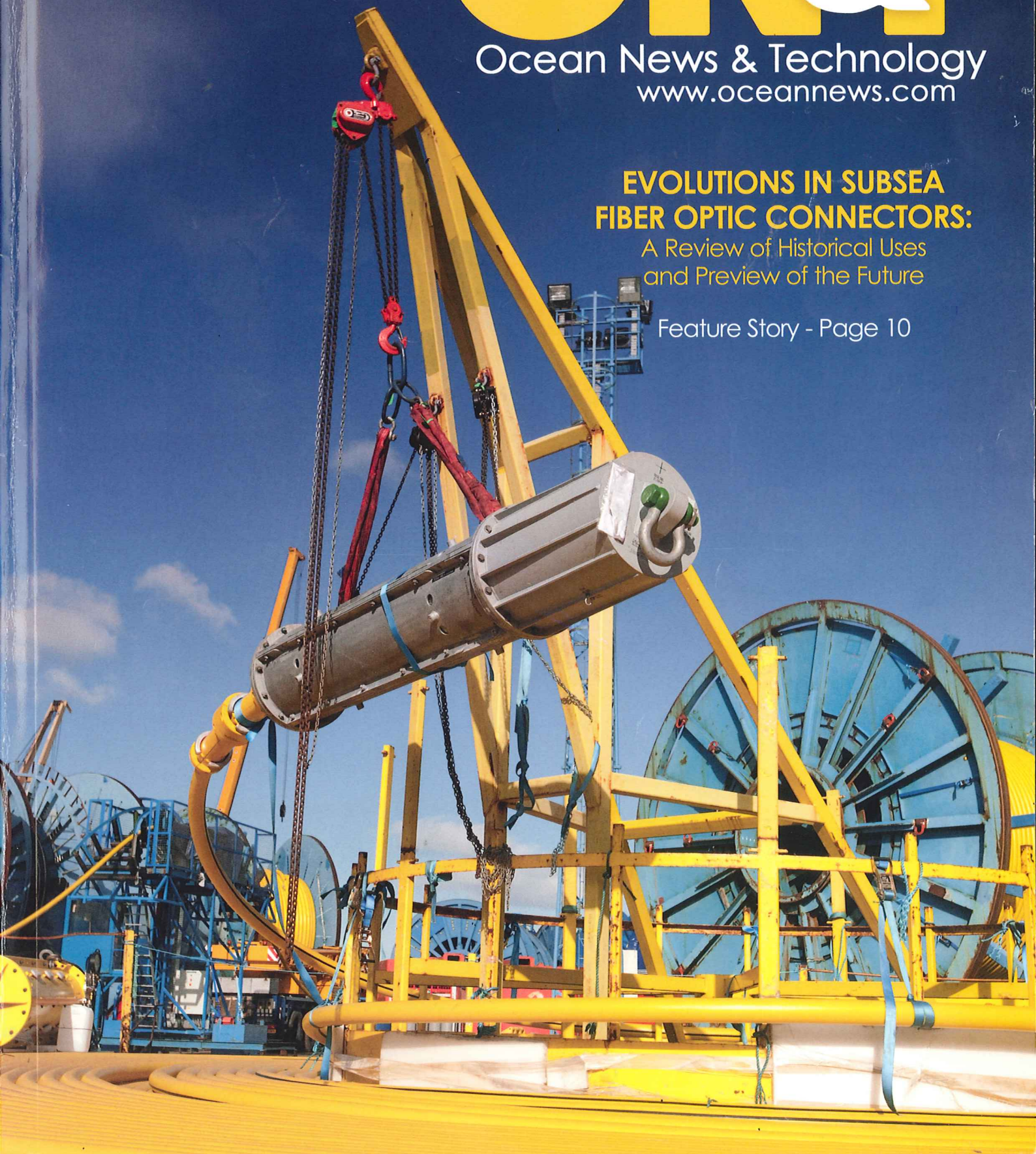
# ON&T

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## EVOLUTIONS IN SUBSEA FIBER OPTIC CONNECTORS:

A Review of Historical Uses  
and Preview of the Future

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## Bert Instruments Adds Nexus USBL to Equipment Pool

Since 1993, Florida-based Bert Instruments' team of highly qualified consultants has been providing marine geophysical and environmental studies in the U.S., Caribbean, and Latin America for prestigious major petroleum companies, the U.S. Department of Defense, major universities, and private companies. The company's expertise covers both hydrographic and oceanographic surveys and is headed up by electronic engineer Humberto Guarin Ph.D., skilled in digital image processing and underwater acoustics and with some 30 years' experience the field.

For each project, specialist engineers and equipment, from its own extensive stock, are assembled for the operation and to address any specific challenges to be encountered. One such project recently undertaken by the company and its sister company, Bert Instruments Colombia S.A.S, was a pre- and post-drilling environmental and geophysical study in the deep waters (up to 700 m) off Colombia at the Orca-1 exploratory well, 40 km north of the coast of La Guajira. Surveys, geophysical, and environmental studies were commissioned to comply with government regulations prior to any production phase.

be highly satisfactory. "Our Nexus USBL was integrated with a GNSS aided inertial navigation system POS-MV WaveMaster to provide accurate geo-referenced positioning of the seabed anomalies and proved to be a great addition to our system arrangement. We found the Nexus system very easy to use, and it greatly increased our efficiency and overall operational effectiveness."

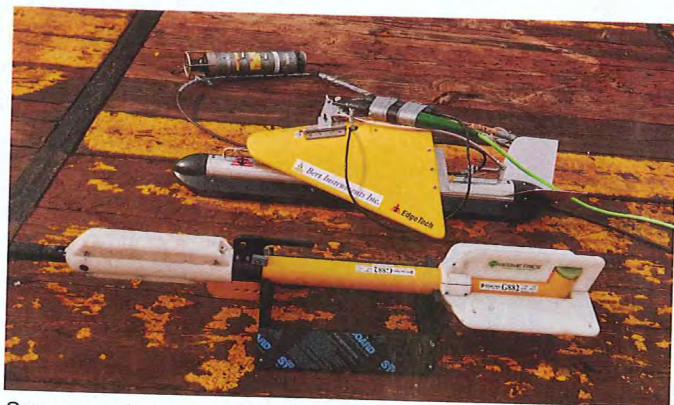


Seavee with USBL tracking beacon.

"At the end of November 2016, we followed up our original work and surveyed the planned well ORCA 2, close to ORCA 1 using our side scan-sonar, magnetometer and our Nexus USBL for accurate, reliable positioning once again."



Survey crew preparation.



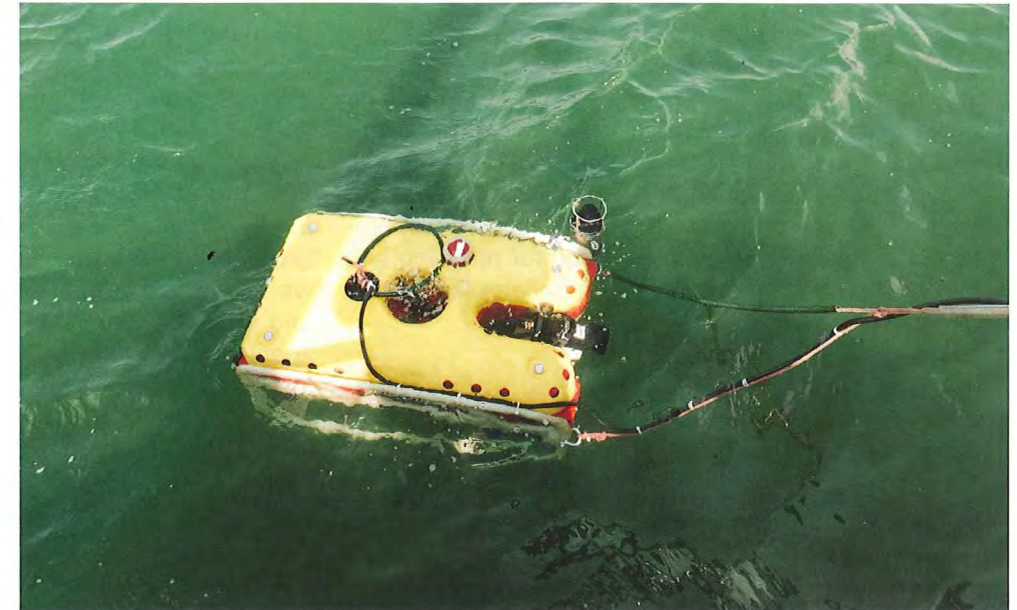
Survey equipment selection Orca 1.

For the operation, Bert Instruments first selected its side-scan sonar deployed at high resolution linked to a marine magnetometer with positioning of the field and its anomalies provided by its Nexus USBL. In the next phase, the newly acquired Nexus USBL was used to track the Bert Instruments' inspection-class ROV that was investigating the anomalies found in the initial magneto-acoustic survey and to do some transect lines crisscrossing the well position.

Humberto found the use of this particular selection of advanced equipment for the ORCA 1 survey proved to

The side-scan sonar selected by Bert Instruments is the Edgetech 4200 with its Multi-Pulse technology for crisp, high-resolution imagery, and the magnetometer is the Geomatics 882 with its easy portability and high sensitivity features. The Nexus USBL is manufactured by UK-based Applied Acoustics and is the most advanced of the range available with bi-directional spread spectrum technology for increased accuracy.

In order to obtain real-time video images of the seabed, Bert Instruments has configured an entirely new deep water sensor platform, the BerTow, for use on its projects in 2017. This includes a high-definition video and still camera, measuring lasers and depth sensors along with accurate positioning from the Nexus USBL. This newly developed sophisticated system will be used once the trade winds in the ORCA location subside over the winter months.



Seavee with tracking beacon in the Columbian Caribbean.

For more information, visit [www.appliedacoustics.com](http://www.appliedacoustics.com).



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