

CR Environmental, Inc.

Ecological and Oceanographic Consultants

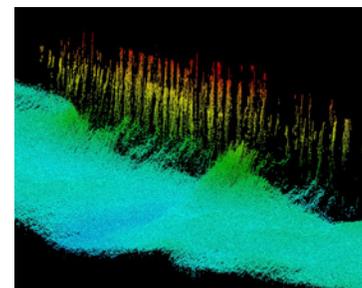


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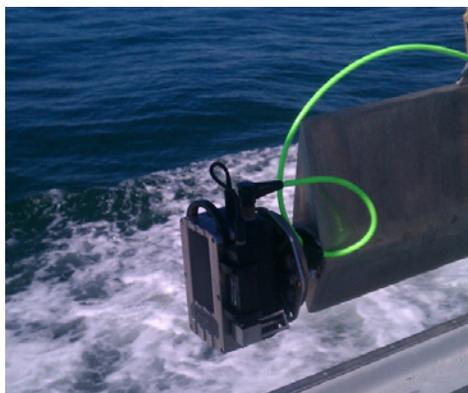
New Multibeam Sonar Purchase

March 2013

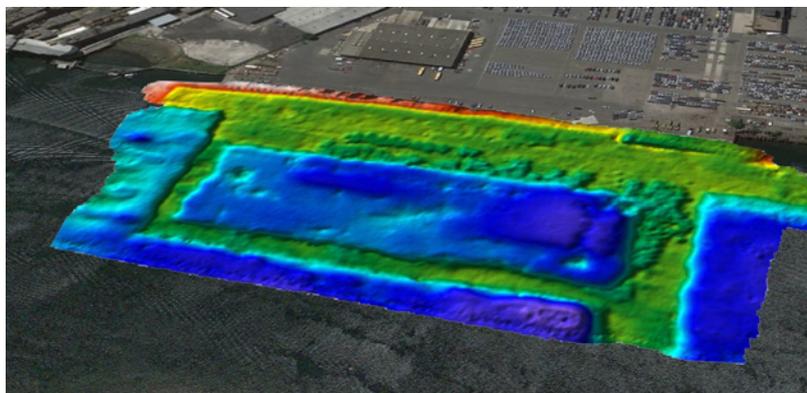
Following a successful month of demonstrations and field trials, CR acquired Odom's new MB1 shallow water multibeam sonar system in November 2012. The system receives as many as 512 beams and records both backscatter (Snippets) and side scan data. CR acquired data at depths of <2 to 20 meters on two Superfund Sites and a MA MCP-listed remediation site. Data quality has been outstanding. Compared with the relatively large Reson multibeam systems CR deploys for some of our deeper water surveys, the MB1 offers several distinct advantages to our clients, including ease of deployment on small vessels and greatly reduced shipping costs for transcontinental and overseas assignments. System specifications are provided by [Odom](#).



Pilings beneath the Fore River bridge



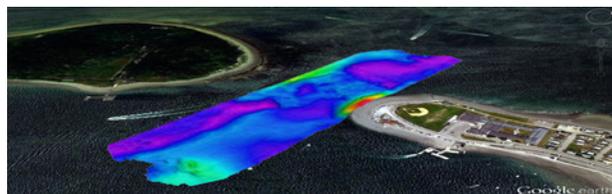
MB1 Transducer on Jamie Hanna's faired boom



Boston Harbor CAD Cell Bathymetry Acquired with MB1 Multibeam aboard R/V Jamie Hanna

55-Foot R/V *Jamie Hanna* Ready for 2013 Charters

Within a month of her August 2012 launch, CR conducted several offshore multibeam sonar, geophysical and ecological surveys using this exceptionally stable vessel as a platform. Data complied with the strictest of Performance Standards despite >2 meter seas and has been received with accolades from our industrial and ACOE clients. The R/V *Jamie Hanna* will comfortably accommodate 24 hour operations and features a heated shower, four berths and a full galley with modern appliances. Detailed [vessel specifications](#) are provided on CR's web site, and a Marine Technology Reporter [article](#) describes her build and launch (p44-49).



Hull Gut Bathymetry Acquired with MB1 Multibeam



Jamie Hanna at >20 knots

CR Environmental, Inc. provides expert marine, freshwater, and wetland consulting services to government agencies, engineering firms, and commercial developers. We have extensive experience in hydrographic and geophysical surveying, sediment sampling, wetland delineation, environmental permitting, ecological risk assessment, and environmental monitoring.

WBE / DBE Certified in MA, WBE Certified in NY.

(508)563-7970 [CREnvironmental.com](http://www.crenvironmental.com)

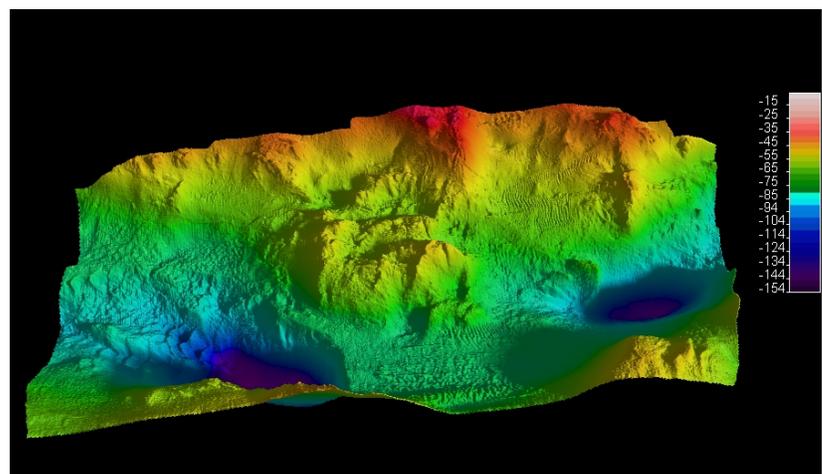
CR Welcomes Mr. Alex Nichols to Our Team

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CR is proud to announce that Alex Nichols has joined our consulting team. A Cape Cod native, Mr. Nichols' last position was in North Carolina, where he was responsible for scoping and performing precision hydrographic and topographic surveys. Most of Alex's experience has been gained on large scale ocean engineering projects using inertial aided RTK-DGPS with multibeam and single beam sounding systems. Alex also has extensive experience with environmental sampling, ROV operations and nautical cartography. Mr. Nichols is a certified Merchant Mariner Captain with Tow endorsement.

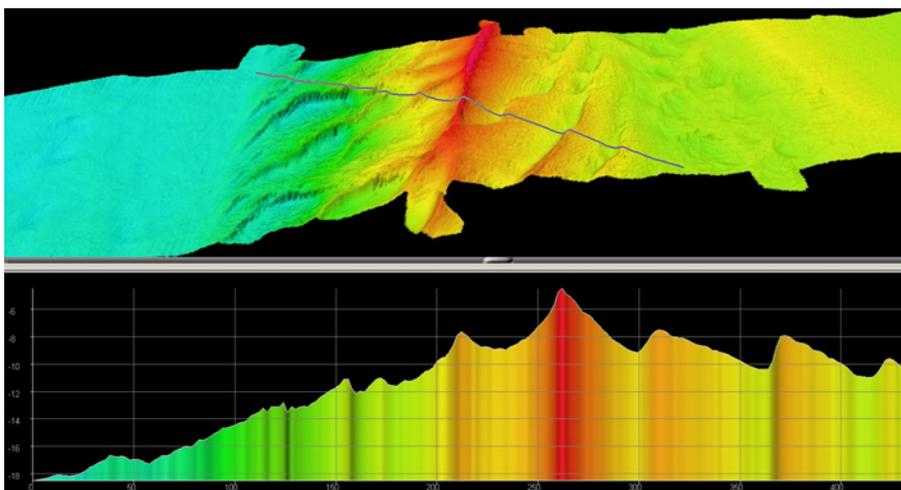
Recent Projects—Tide Turbines and Telecommunications

We've been enthusiastic supporters of Ocean Renewable Power Corporation's (ORPC) successful deployment of Tide Turbines in the Bay of Fundy with multiple hydrographic, geophysical and archaeological site surveys. ORPC's engineers competently (and bravely) secured turbines in the midst of the strongest tidal currents in New England. CR's survey approach included multibeam and single beam echo sounders, side scan sonar, Chirp sub-bottom profiling and precision magnetics. Survey efforts were conducted using the R/V *Jamie Hanna* and her predecessors.



*Oblique view of the bathymetric surface at a Cobscook Bay Tide Turbine location
(Reson multibeam)*

Survey Data Collected to Meet the Requirements of the New Massachusetts Ocean Management Plan



Typical multibeam cross-section across L'Honnideau Shoal

CR recently completed hydrographic, geophysical and archaeological surveys, augmented by underwater video and vibracore groundtruthing efforts between Cape Cod and Martha's Vineyard in support of the first project to be permitted under the Massachusetts Ocean Management Plan. The project involves installation of fiber optic cables at and beneath the seafloor in potentially sensitive habitats. Precision mapping technologies were used to minimize environmental impacts.