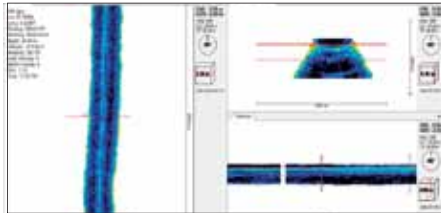




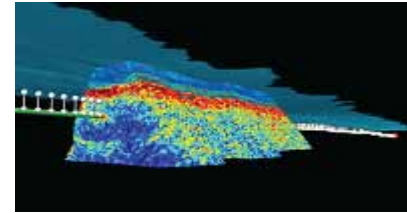
Sub-Bottom Imager (SBI™) High Resolution 3D SAS Sub-Bottom Profiler

SBI™ Features:

- Acquire continuous 2D Acoustic Volumetric Swath: 5m wide to depths of 5 - 8m
- Applications: Shallow Geohazard Pre-Route Surveys (UXO and Boulders)
Depth of Burial, Out of Straightness, Debris and Decommissioning Surveys
- Identifies size, shape, and orientation of buried hazard with 10cm resolution
- Images AC/DC Cables: No Tone or Power Required
- Depth of Burial repeatability better than 10 cm accuracy
- Images beyond the 1.5m limitation of other systems
- Verification of Mag. Targets: Reducing required UXO investigations up to 80%

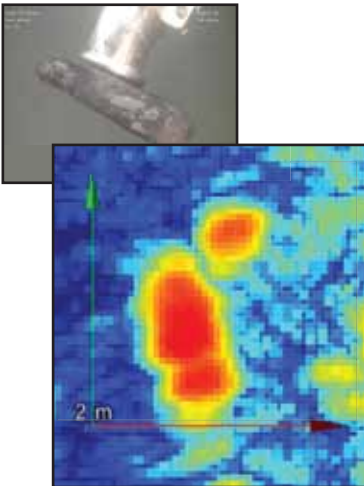


Real Time On-Line Viewer

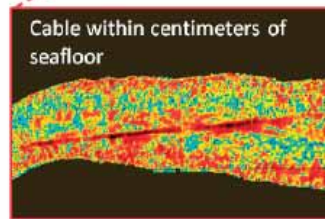
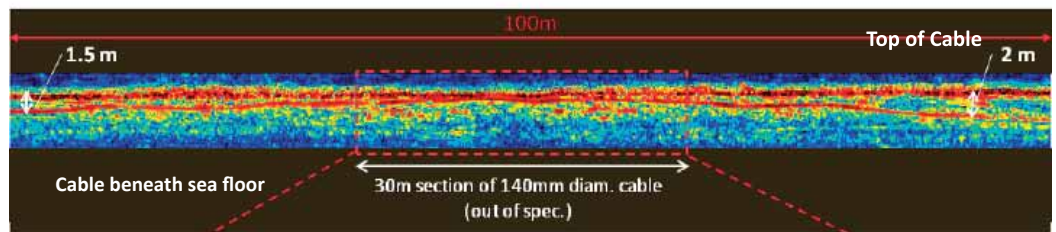


3D Volumetric Swath

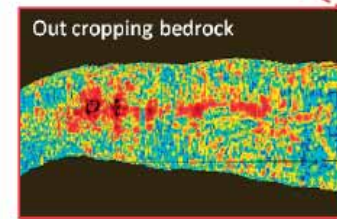
SBI™ UXO SURVEY RESULTS: Verification of Magnetometer Targets



HVDC CABLE: Out of Spec Depth of Burial and Stratigraphic Mapping



Plan view 0.2m below surface



Plan view 0.9m below surface



Tracked ROV



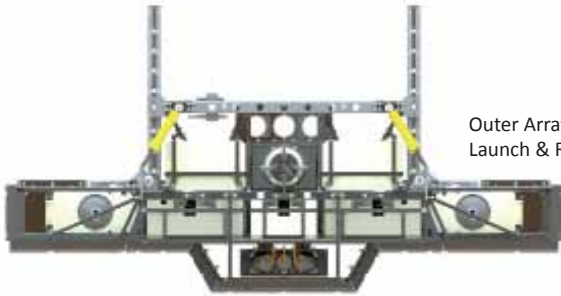
ROTV SeaKite™



AUV



SBI™ Fully Assembled with ROV Skid



Outer Array Folds for Launch & Recovery

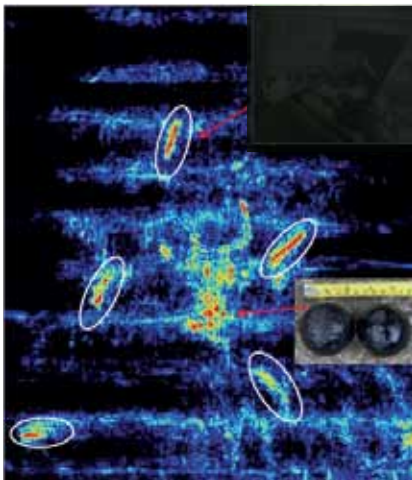
3.54m open
SBI™ Front Frame Plan View

SBI™ Payload Package:

- 5 x 8 channel hydrophone arrays
- 3 x HF chirp projectors: 4 -14 kHz
- INS/DVL – IXSEA PHINS or similar
- Electronics Bottles
- Folding array for launch/recovery

General Specifications for SBI™

SBI™ Components		
Component	Weight in Air (kg)	Weight in Water (kg)
Hydrophone, Projector	93.5	46.9
Transmitter and Receiver Bottles	83.0	10.8
INS/DVL	45.0	26.2
Misc. incl. Cabling, Depth Sensor, Velocimeter	32.2	12.3
Sub-Total * Without Frame	253.7	96.2
Current Frame Configurations Depending on Platform Interface	45 - 525	27 - 150



Operating Specifications

Nominal Operating Specifications:

- Water depth: 3m - 1,200m
- Survey altitude: 3.5m +/- 0.5m
- Survey speeds: from 0.5 to 4 knots (target dependant)

SBI™ Mosaic of Shipwreck Debris Field at 4.5m Survey Lines Showing Bronze Cannons and Cannon Balls

Launch & Recovery

- Compatible with typical ROV LAR systems

Interface Requirements

- 115 volts AC, 50/60 Hz, 6 amp circuit
- 1000 Base-T 1 Gb Ethernet/ 100 Base-T wired connection
- 1 hydraulic JIC4 @ 800-1200 psi

Email: sales@pangeosubsea.com
www.pangeosubsea.com

PanGeo Subsea Inc.
16 Mackey Place
St. John's, NL A1G 1A1
Canada
Tel +1 709 739 8032 Ext. 240
Fax +1 709 739 8035

PanGeo Subsea Scotland Ltd.
Custom House, 35 Regent Quay
Aberdeen, AB11 5BE
United Kingdom
Tel +44 1224 766180
Fax +44 1224 766181