MARINE GEOPHYSICS

SPOTLIGHT
GEOPHYSICAL SERVICES

Marine Geophysics describes a broad range of geophysical methods that are applied in marine environments or in lakes, canals, and rivers. Many of the traditional land-based geophysical methods have been adapted for marine data acquisition. Applications for environmental and engineering investigations include: rippability/dredgeability surveys, stratigraphic mapping, seepage studies, and harbor development. Examples of marine-based geophysical methods include:

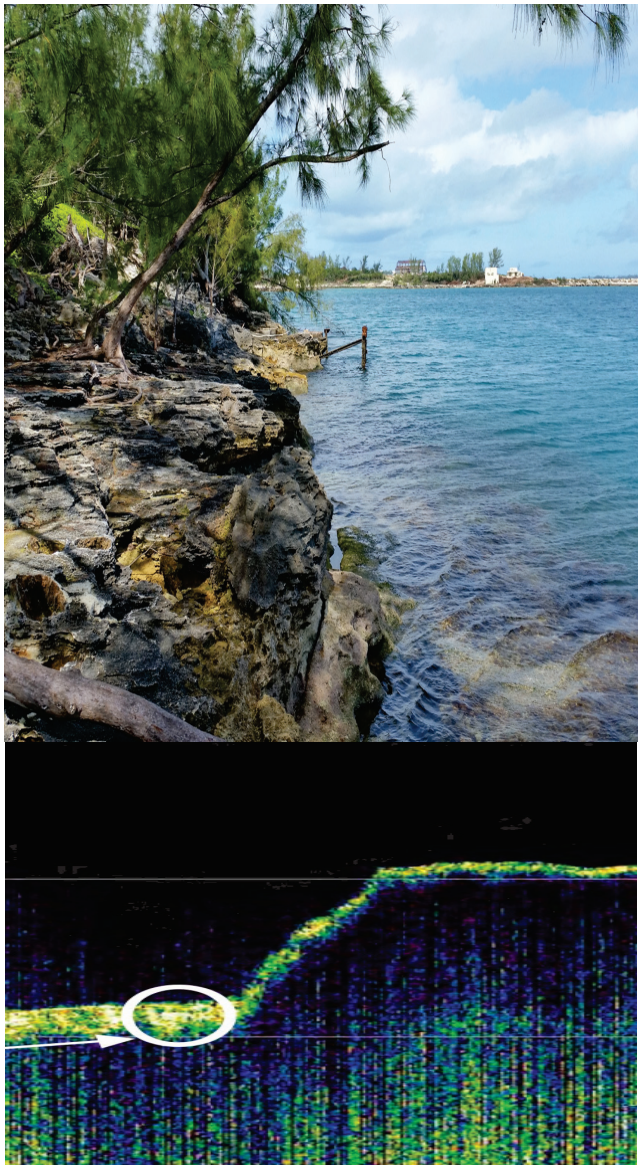
- Sub-bottom profiling to provide a 2D acoustic image of sub-bottom conditions. High-frequency systems are used to obtain profiles and thickness maps of shallow, loose sediments. Single-channel sub-bottom "Boomer" systems are extremely effective for mapping stratigraphic layers and anomalous conditions to depths of up to 300 feet. Multi-channel systems are used to provide high signal-to-noise data to greater depths.

- Electrical Resistivity Imaging (ERI) to map variations in stratigraphy and anomalous conditions. ERI is a useful tool to cost-effectively assess variations in alluvial grain size along canals to assess seepage potential. It is also a useful tool to map karst features and inorganic contaminant plumes beneath bodies of water.

- Sidescan Sonar to image bottom conditions. Sidescan sonar uses high-frequency acoustic pulses to provide a "picture" of the water bottom. It is an effective tool for bottom hazard mapping and search and recovery operations.

- Magnetics to locate and map ferrous objects or geologic formations. Similar to land-based surveys with a magnetometer, a marine magnetometer responds to variations in the Earth's magnetic field caused by man-made objects (steel drums, debris, etc) or magnetic minerals.

- Seismic Refraction to assess the rippability/dredgeability of sub-bottom materials prior to dredging or harbor development. A continuous 2D cross-section of seismic P-wave velocity can be obtained, which is directly related to material hardness.



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