

High-Resolution Underwater Surveys

Technique Description In contrast with bathymetric surveys that produce underwater elevations, sidescan sonar surveys deliver plan view underwater imagery. A sidescan sonar, when towed through project area on a series of parallel survey lines, can provide a nearly 100% image of the underwater environment. Contrasts in the imagery, such as bright returns for strong reflections and dark returns for weak reflections or shadows, provide substantial insight into the bottom conditions and act as an important supplement to bathymetric survey techniques.

Project Applications Rather than produce a quantitative set of bottom elevations, sidescan sonar surveys generate a qualitative suite of underwater imagery. For projects where a snapshot “picture” of the bottom is necessary, sidescan sonar surveys can be an excellent choice to identify bottom features such as submerged debris, remnant derelict infrastructure, exposed bottom geology, hazards to navigation, and shipwrecks. Sidescan sonar surveys can also be used to monitor ongoing progress for sensitive underwater construction projects such as protective mattress, rip-rap, and structural placement.

Like traditional bathymetric surveys, sidescan sonar surveys produce data that is geographically referenced. The image data is post-processed to create image mosaics that highlight bottom conditions and produce nearly seamless imagery. The image mosaics can be fed into a variety of computer-aided design (CAD) and geographic information system (GIS) packages, even ubiquitous visualization software such as Google Earth® so that engineers, contractors, and even less technically experienced personnel may view the data and better understand underwater conditions.

Our Approach Hibbard Inshore has been performing sidescan sonar surveys with a specific focus on delivering high-quality imagery that affords maximum suitability for a variety of design and visualization applications, with a particular emphasis on supporting dredging and marine construction projects. Often, our sidescan sonar surveys are utilized by engineers and contractors to identify abandoned or derelict structures, or have a direct impact on dredging, demolition and construction projects because we have the ability to identify hazards that may otherwise have been missed during bathymetric surveys or diver-based underwater investigations.

Relevant Experience Hibbard Inshore has conducted sidescan sonar surveys throughout North America to assist engineers and contractors with their projects. Our clients include some of the largest marine construction, coastal engineering, and heavy civil contractors in the Northeast United States and project owners include the U.S. Army Corps of Engineers, major port authorities, and state Departments of Transportation.

