APPLICATION NOTE

Finding a Sunken Boat Using a High Resolution Sonar

CUSTOMER APPLICATION

Underwater search and recovery of a sunken boat using a high resolution side scan sonar

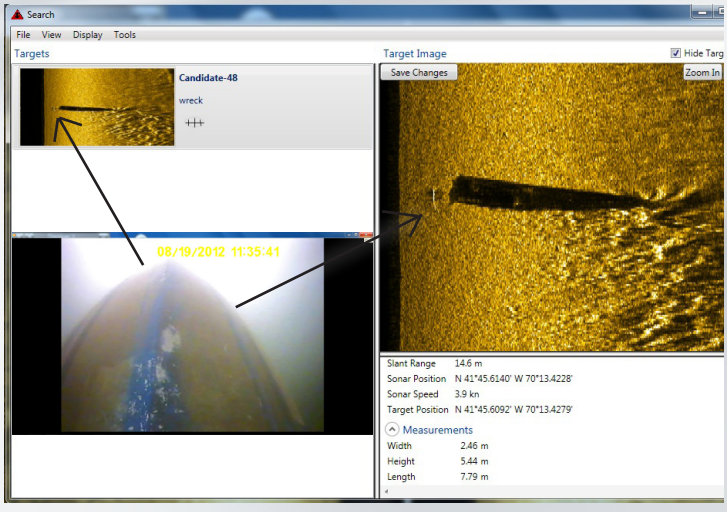
SOLUTION

EdgeTech 4125 Side Scan Sonar

EQUIPMENT

Underwater Equipment:
4125 Side Scan Sonar Towfish with:
- Dual simultaneous 400/900 kHz freq
- Pitch, roll, heading & depth sensors
- Rugged portable transport case
- 50m multi-conductor Kevlar tow cable

Surface Equipment:
- 4125 Portable Topside Processor
- Splashproof Laptop Computer
- DISCOVER Software



Scenario

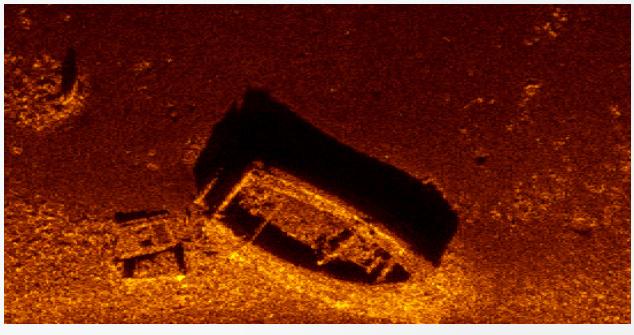
Sunken boats present numerous hazards to people in and around the water. Every year thousands of boats sink in the United States. Whether it is due to storms, mechanical failure or human mistakes, boats of all sizes often find themselves under the very water that they are supposed to be safely floating upon. Sunken boats can be a danger to navigation, and a potential hazard to the environment. Additionally, for business and insurance purposes, it is often important to put a closure to a missing boat scenario.

Any time a boat, large or small, is presumed sunk it is advantageous to relocate the vessel in a timely manner. Utilizing a towed side scan sonar system is arguably the most efficient method of performing an underwater search for an object such as a sunken boat. Towing a dual frequency high resolution side scan sonar can be the most effective method for searching a large underwater area because the system can "see" long distances underwater regardless of the, often poor, visibility.

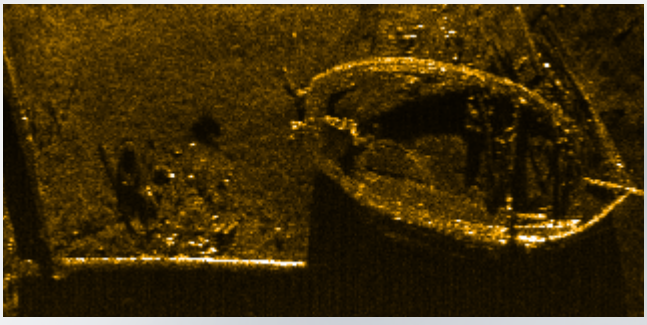
Recently in waters off Cape Cod a boat was presumed sunk in the vicinity of an area known for high boat traffic and human activity. Presented with the challenge of searching a relatively large area, the local Harbor Master called upon their skills and equipment to efficiently and safely complete the task. An invaluable part of this solution was the EdgeTech 4125 Side Scan Sonar system.

Solution

EdgeTech's 4125 Side Scan Sonar System is a rugged, portable, easy-to-use system that provides ultra high resolution underwater imagery over a relatively large area of interest. The 4125 utilizes EdgeTech's Full Spectrum® CHIRP technology, which provides higher resolution imagery at ranges up to 50% greater than many other systems on the market. This translates into more accurate results and faster surveys, both critical components for shallow water large area searches. The 400/900 kHz frequency set provides an excellent combination of long range search capability and high resolution images.



Often sunken boats settle to the seafloor and provide easily identifiable images such as the one depicted above. However, in this case the vessle had air trapped in the bow of the boat making it submerged but adrift in the water column. The sonar image and video image of the vessel is shown on the front page. Whether the sunken boat sits on the seafloor or floats dangerously in the water column, the EdgeTech 4125 can be used to quickly search a suspected area and clearly identify objects underwater. The high resolution imagery resulting from the system is very important. Sonar equipment that provides less definition can result in added delays. Underwater targets are often verified using divers, or in this case a remotely operated vehicle (ROV). While divers and ROVs are a surefire way of completing the final identification task, the time required to deploy those means are much greater and should therefore be confined to the specific area where sonar targets were identified in the wide area 4125 side scan sonar search.



For additional reference, above is another image of a sunken boat that was recently identified with the assistance of an EdgeTech sonar. While the sunken boat in the waters off Cape Cod was not as clearly identifiable due to it's positioning underwater, the imagery provided by the EdgeTech 4125 clearly assisted the Harbor Master in locating this dangerous hazard.

There are many reasons a boat may sink, and there are many reasons such a vessel should be relocated and recovered in a timely fashion. The EdgeTech 4125 Side Scan Sonar can be a valuable tool to perform this task.

A special thank you to the Barnstable, Massachusetts Harbor Master organization for providing us with the images and information used as a basis for this Application Note.