



MARINE SEARCH in Action!

by Pat Sanders

This summer, HYPACK launched its MARINE SEARCH software package. The software is intended for use by marine units of police and fire departments in order to improve their side scan sonar searches. The SURVEY program accepts input from a GPS and side scan sonar (nothing else!) and provides for a real-time mosaic, targeting, and post-processing mosaics.

FIGURE 1. *Real Time Mosaic with Tritech 990-S*

The Middletown (CT) Police Department's Marine Unit was one of the first to put the package to use. In late July, we joined them onboard their patrol boat for an evidence search on the Connecticut River.

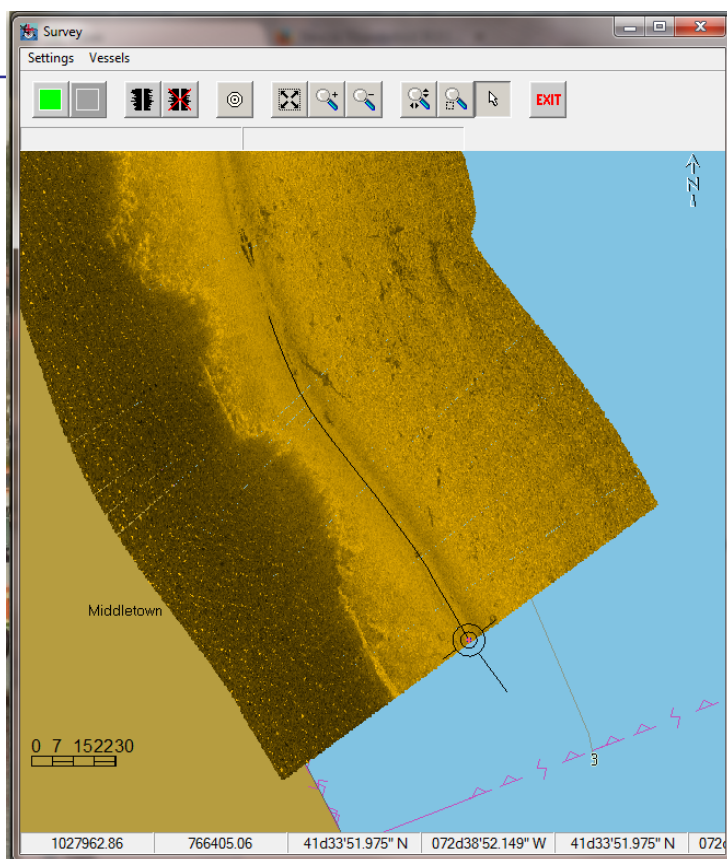
They had a Tritech 990F side scan which was pole mounted over the side, along with a Hemisphere Vector V104 GPS Compass with a built-in directional antenna. The GPS was connected to a Panasonic Toughbook computer with an RS-232 connection, while the Tritech used a USB connection.

The MARINE SEARCH SURVEY program is similar to the HYPACK® SURVEY program, without a lot of options. You can define the resolution of the real-time mosaic and either create the mosaic all the time, or only when "on line". We did our best to "keep it simple", as the Marine Units are typically officers with some dive experience, but little surveying experience.

The Configuration only requires the team to select a State Plane zone (or UTM for overseas), and specify where the GPS and Side Scan are connected. A quick "Test" routine confirms the interfaces, showing the messages from the GPS and the waterfall display from the Side Scan.

MARINE SEARCH has the tools from HYPACK® MAX that allow the you to automatically download S-57 charts from the NOAA and USACE Web servers and to download background files from available map servers.

The search conducted by the Middletown PD focused on the western shoreline of the river. They surveyed approximately 3nm of river.



One of the nice features of MARINE SEARCH is the targeting capabilities. Interesting objects can be marked as targets in either the Side Scan Waterfall window or in the Real-Time Mosaic.

FIGURE 2. *A Target (red) Marked in the Side Scan Waterfall.*

Those targets can be examined immediately to determine the dimensions and height above the bottom in the Targets window. We like the new Targets window so much, we'll be adding it to SIDE SCAN SURVEY in the HYPACK® MAX package!

If targets met their criteria, the search team would navigate back to the target and then lower a camera over the side to determine if they should send a diver over the side.

I got to ride along with the search team as an "observer". I was impressed with the images from the Tritech 990F. It's a high frequency system (1MHz Chirp) system that provides a lot of value for the money. The unit was pole-mounted over the side, about 2' below the waterline. We surveyed in about 15' of water and got effected imagery out to 40' either side of the transducer.

The Hemisphere Vector V104 is about as simple as you can get. Apply power to it and it spits out NMEA sentences. Position accuracies are estimated at 1m (95% confidence) with heading accuracy at 2 degrees. It is sufficient for our marine search activities and worked flawlessly throughout the day.

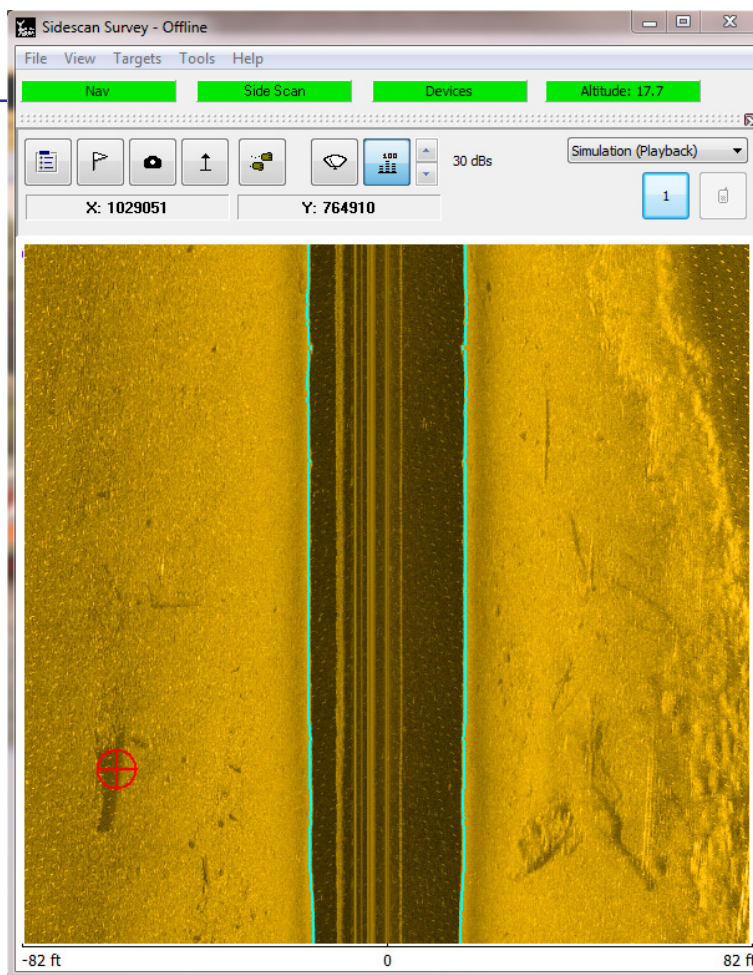


FIGURE 3. *The Targets Window Allows for Real-Time Measurements.*

After the search operation was completed, I assisted the Marine Unit in reviewing the targets and generated a Target Report using the tools in MARINE SEARCH.

The powerful HYPACK® HYSCAN (Side Scan Targeting and Mosaicking) program is included in the MARINE SEARCH package. It allows you to review the bottom track, select and analyze targets, generate a target book (Rich Text format that loads into Microsoft Word) and assemble mosaics.

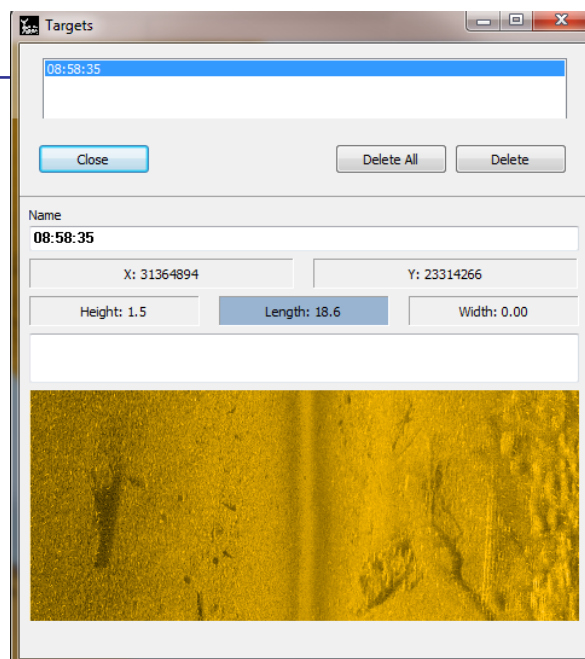


FIGURE 4. *Imagery from Tritech 990F in MARINE SEARCH.*

