



# Multibeam and Sidescan Coverage Mapping

By Mike Kalmbach

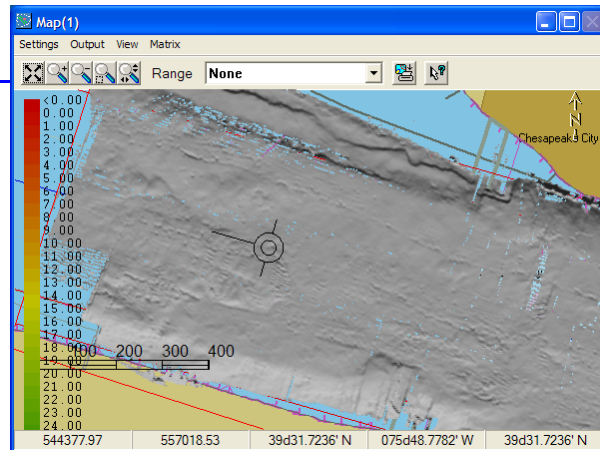
Coverage mapping can be very useful when surveying with multibeam or sidescan sonar. At the minimum, the coverage map shows where you have surveyed. Coverage can be overlaid upon electronic charts and CAD drawings. It can show 100% vs. 200% coverage. Minimum, maximum or average depth. Sidescan imagery. Can be used for QC purposes – statistics based on depth difference in overlapping areas. Many things one can do with a coverage map.

**FIGURE 1.** Multibeam coverage map shown with sun illumination in HYPACK® SURVEY.

In HYPACK®, you predefine the coverage area and mapping resolution. This is done with matrix (\*.MTX) files. Coverage area comes from the matrix outline and resolution is from matrix cell size.

A number of improvements are available in HYPACK® 2010. A few highlights:

- Automatic matrix switching.
- Sidescan mosaics in real time.
- Sun illuminated multibeam bathymetry display.



## ***AUTOMATIC MATRIX SWITCHING***

While this feature has been available for single beam projects for years, it is new for multibeam and sidescan projects in HYPACK® 2010. Matrix files can be defined for all sections of a project, and HYPACK® SURVEY continuously compares boat position to the matrix list and automatically selects the appropriate file.

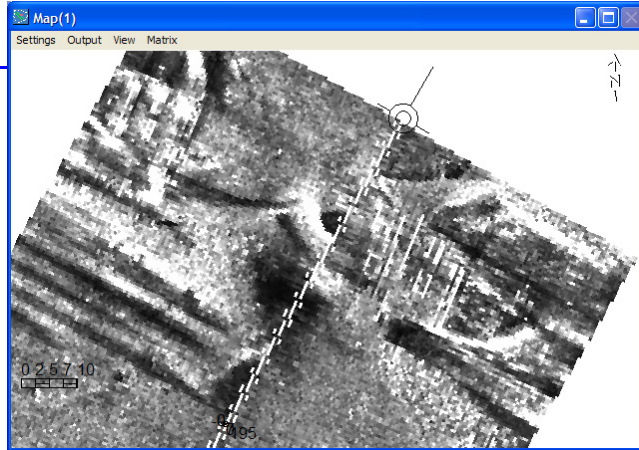
The only preparation is to (1) define the matrix files in the HYPACK® MATRIX EDITOR and (2) enable the files in project list before launching the survey programs.

## ***SIDECAN MOSAICS IN REAL TIME***

Previous to HYPACK® 2010, the only coverage mapping of side scan surveys showed 1x vs. 2x coverage. Now, a mosaic can be drawn while SURVEY is underway. It's not as good as a post-processed mosaic, but medium to large scale features are easily identified.

**FIGURE 2.** Sidescan coverage shown as a mosaic in HYPACK® SURVEY.

Real time mosaics are enabled in the SIDE SCAN SURVEY program in the Coverage map tab of the View Options dialog. Mosaic colors for the Coverage Map are selected in the HYPACK® shell color settings.



## **SUN ILLUMINATED MULTIBEAM BATHYMETRY DISPLAY**

In the HYPACK® SURVEY Map window, select MATRIX-DISPLAY OPTIONS to configure the matrix display.

- Enable or disable sun illumination
- Select gray scale or depth color codes.
- Adjust matrix transparency.

**Note:** The sun illumination matrix has actually been available since HYPACK® 2009. Writing about coverage mapping is an opportunity to publicize this nice feature.

**FIGURE 3.** Depth color-coding with sun illumination in HYPACK® SURVEY.

