



Water Column Data Integration in MBMAX64

By Mike Kalmbach

New for HYPACK® 2015 - water column data is included in the 64-bit HYSWEEP® EDITOR. Integration includes automatic file loading, coverage mapping and the traditional water column display. Soundings may be re-digitized based on water column information, a powerful tool to guarantee least depth at critical survey sections.

LOADING FILES

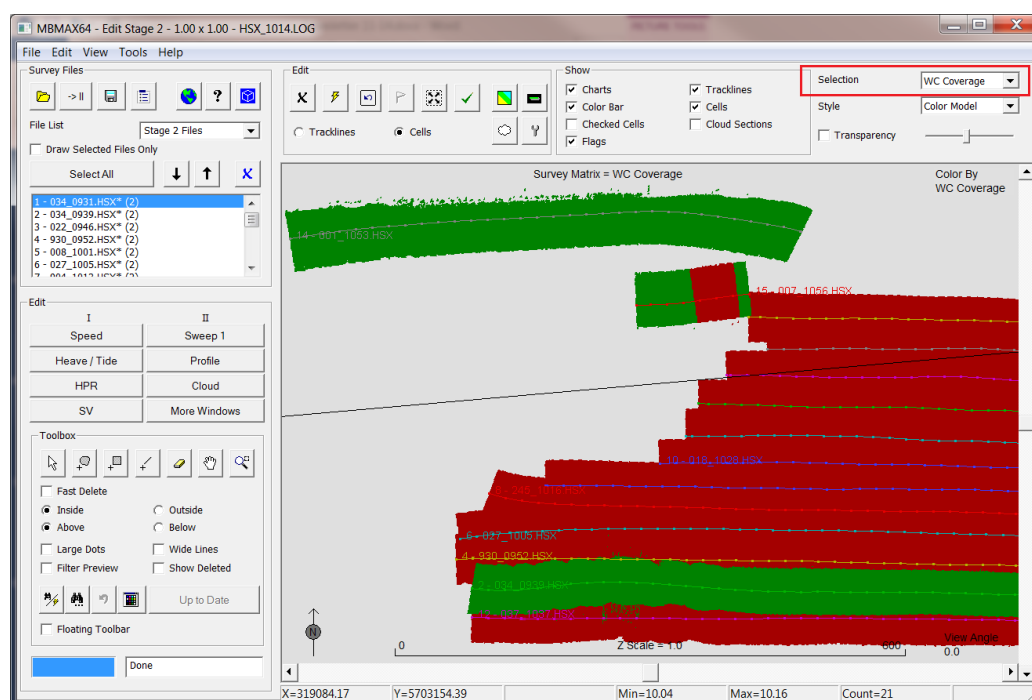
If water column data is present in the raw data folder, it is automatically loaded into the editor. ("Loading" is slightly inaccurate in the case of water column. There may be 100's of gigabytes! Loading here mean indexing; the file location (index) of every ping is loaded and the index is used for fast file access.)

It may turn out that solid state disk drives are more efficient for water column data, although we haven't confirmed that. It's clear though that a solid state drive will not slow things down.

COVERAGE MAP

Due (again) to the large size of water column data, logging may be turned on and off depending on location. The survey window of MBMAX64 can be used to show where water column data is present. Green = present, red = not. Use data selection in the upper right corner to choose water column coverage (Figure 1).

FIGURE 1. Select "WC Coverage" to show where water column data is present.



WATER COLUMN DISPLAY

Click More Windows then Water Column Data in the left side panel of MBMAX64 (Figure 2).

FIGURE 2. Here's how to access the water column display.

Similar to survey and playback, the water column display shows backscatter amplitude with color coding. Looks like an ultrasound display, which is exactly what it is. The mouse wheel zooms in and out and dragging with the right mouse button pans the display. Zoom and pan allow for very close inspection of the data (Figure 3).

As the mouse pointer moves across the display, raw depth and beam number are updated in the bottom panel.

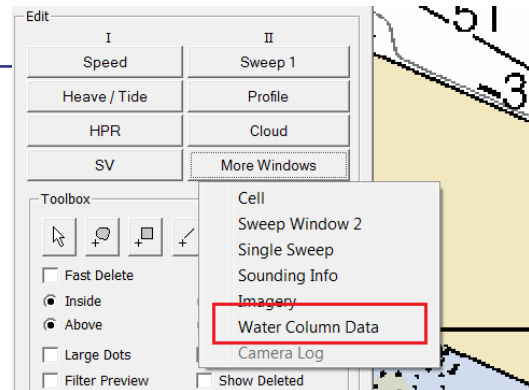
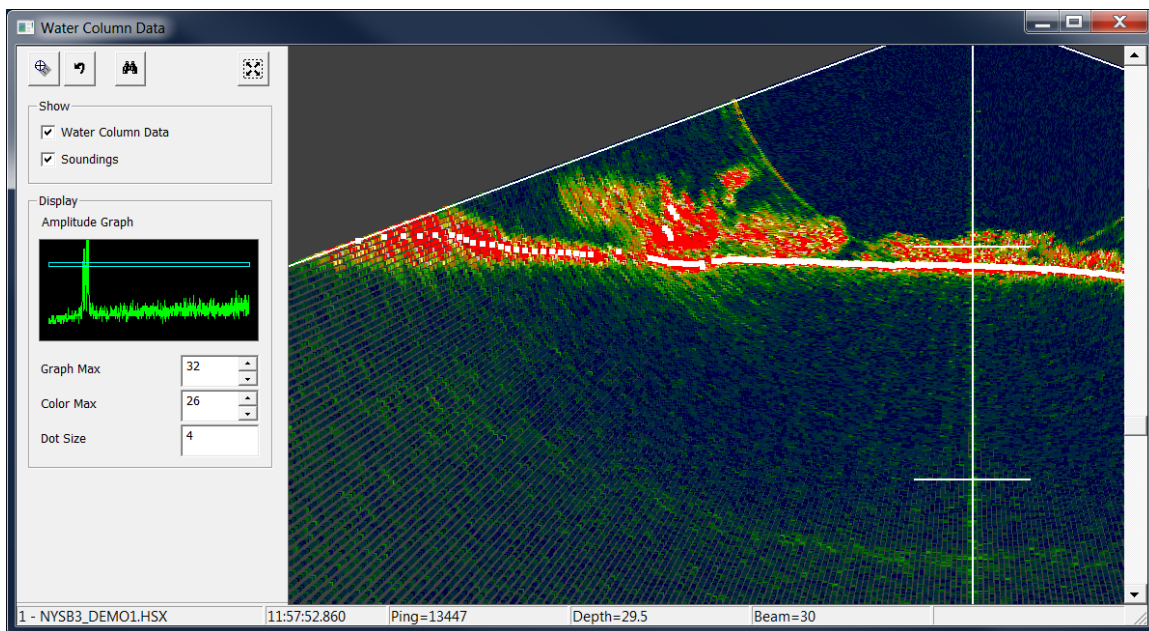
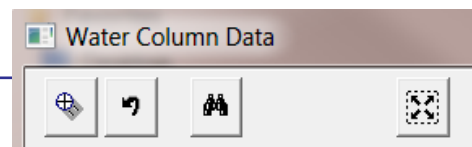


FIGURE 3. Water column display in MBMAX64 supports pan and zoom for close inspection and digitizing. Note information (ping, depth, beam) at the bottom.



TOOL BAR

FIGURE 4. The water column tool bar supports digitizing, digitize undo, data search and zoom extents.



DIGITIZE

Click the digitize button to enter / exit digitize mode. The mouse pointer changes to a digitizer when enabled and reverts to an arrow when disabled. With digitize enabled, left button click relocates a sounding to mouse position. Left click and drag re-digitizes a line of soundings.

UNDO DIGITIZING

Digitizing blunders are fixed with the undo button. Unlike other editing in MBMAX64, which flags data without actually changing it, digitizing changes the actual data. That's why digitizing has its own specialized undo, separate from the beloved and often used MBMAX64 undo.

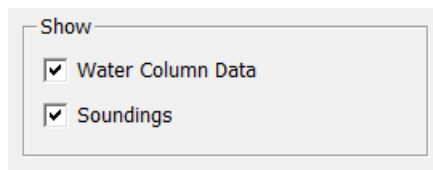
DATA SEARCH

The search button finds the next block of water column data. This is useful for stepping through data blocks when logging is sporadic.

SHOW GROUP

Selects data for the display. Water Column Data is backscatter amplitude. Soundings are the survey raw depth points. Sometimes it's useful to see just one or the other.

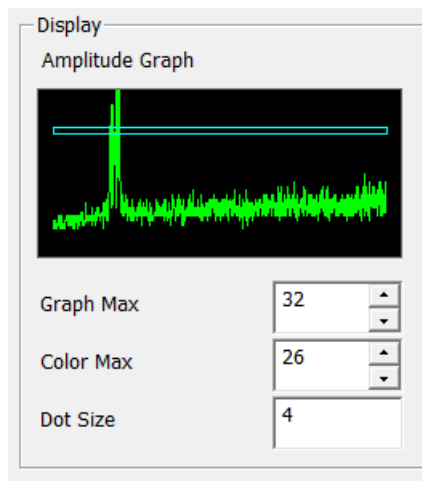
FIGURE 5. *Select Data for Display.*



DISPLAY GROUP

Controls the water column display (figure 6). The amplitude graph shows sonar measurement at nadir. Graph Max changes scale, Color Max sets the color saturation limit. The blue horizontal bar is at the saturation limit and left click / drag relocates the limit.

FIGURE 6. *Control of the Water Column Display.*



SUMMARY

Water column data is integrated into our multibeam editor in HYPACK® 2015.

The data is not actually loaded, instead index information is loaded into memory for fast access to the data on disk.

Coverage mapping is included in the survey window and a water column display window shows the data with great detail and allows soundings to be re-digitized. Digitizing is particularly useful where very accurate least depth is required.