

**9<sup>th</sup> CSPWG MEETING**  
**Seoul, Republic of Korea, 13-16 November, 2012**

This is an information paper circulated to compilers in UKHO. It may be of interest to other HOs and so is offered for information only.

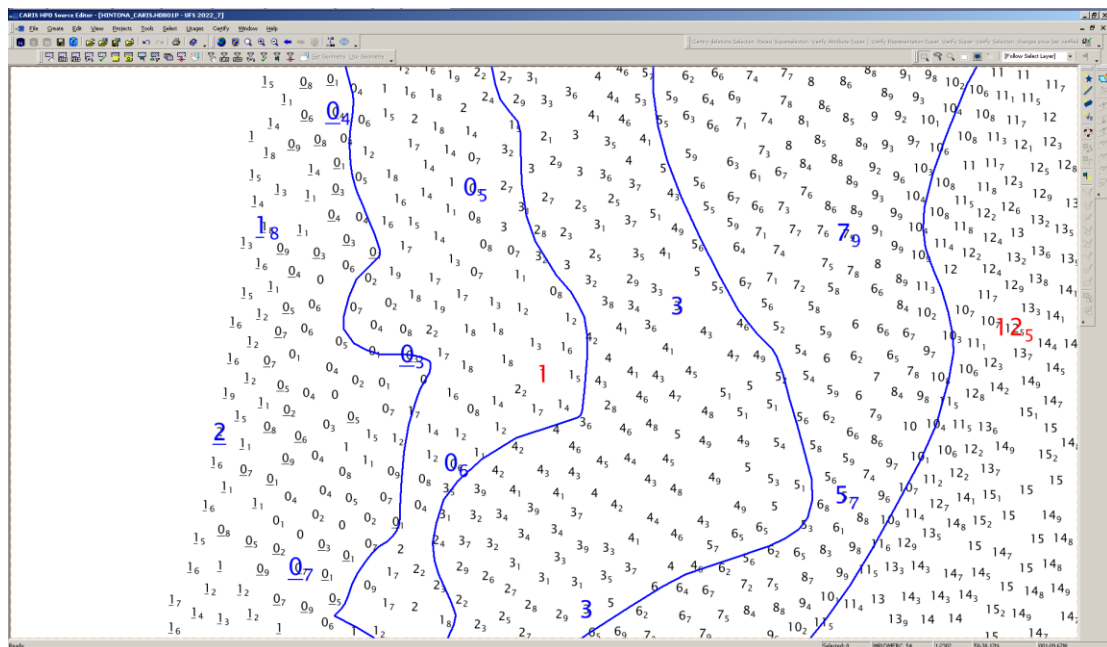
**USE OF SURVEY SURFACES TO ASSIST IN COMPILATION.**

When compiling a large digital survey dataset, it is worth considering the use of graphics to assist you, especially the use of ‘surfaces’ as a backdrop. The use of surfaces can really bring a compilation to life and add interest to what can be a rather mundane process. In addition, it allows for rapid appreciation of what is happening on the seabed which improves the speed and quality of sounding selection, contouring and eventual verification.

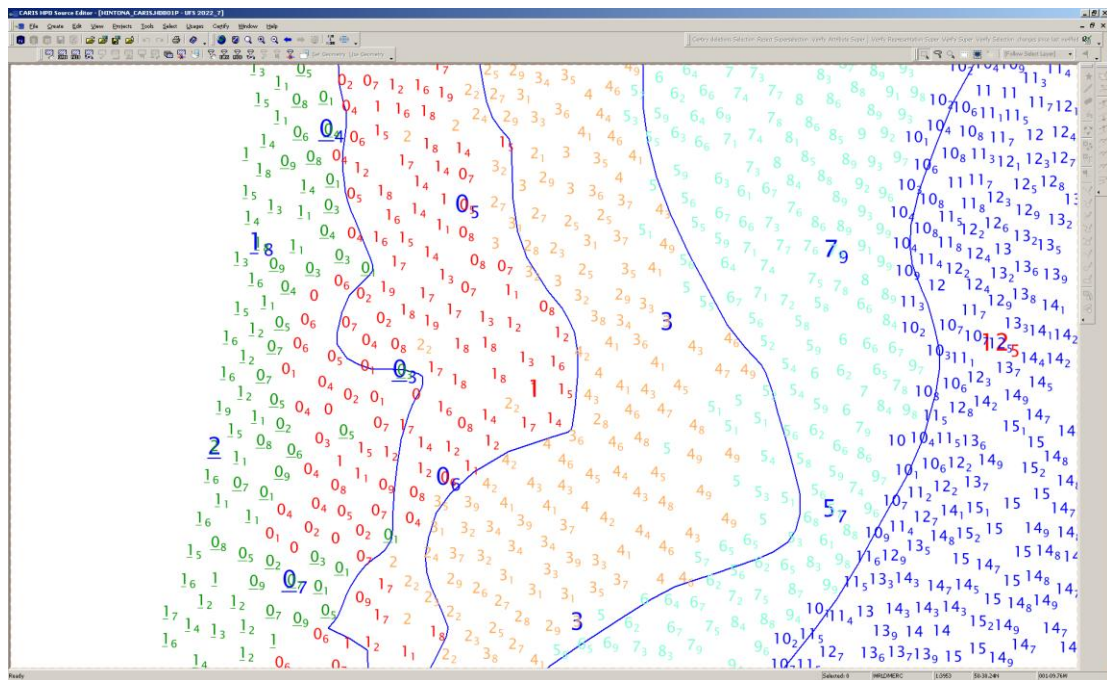
For [those using] CARIS Raster Editing Tools in HDB, these surfaces are very easy to create and display now.

To show this, here is a purposely unremarkable multibeam survey dataset in Sandown Bay. We can now view it using different plots and surfaces as a backdrop.

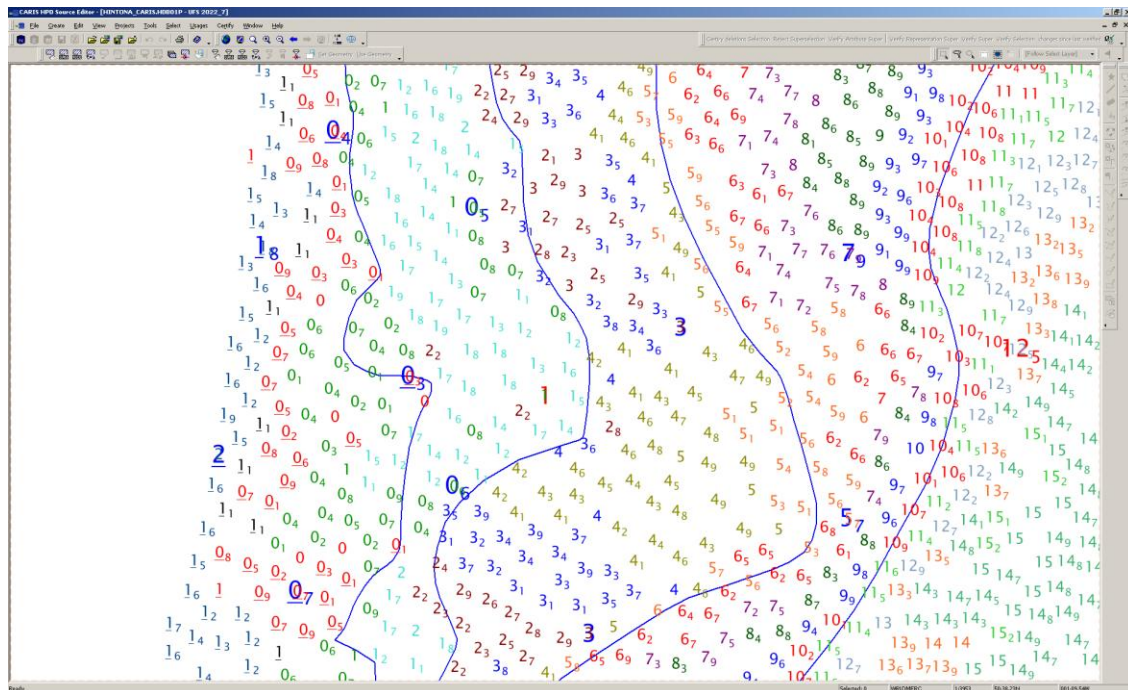
1.a. Here is the dataset without any surfaces applied. This is the traditional backdrop we use for analogue surveys. As can be seen this is a generally flat, two dimensional and largely uninspiring view of what is going on. Note: Blue and red depths are the verified/ unverified selected depths.



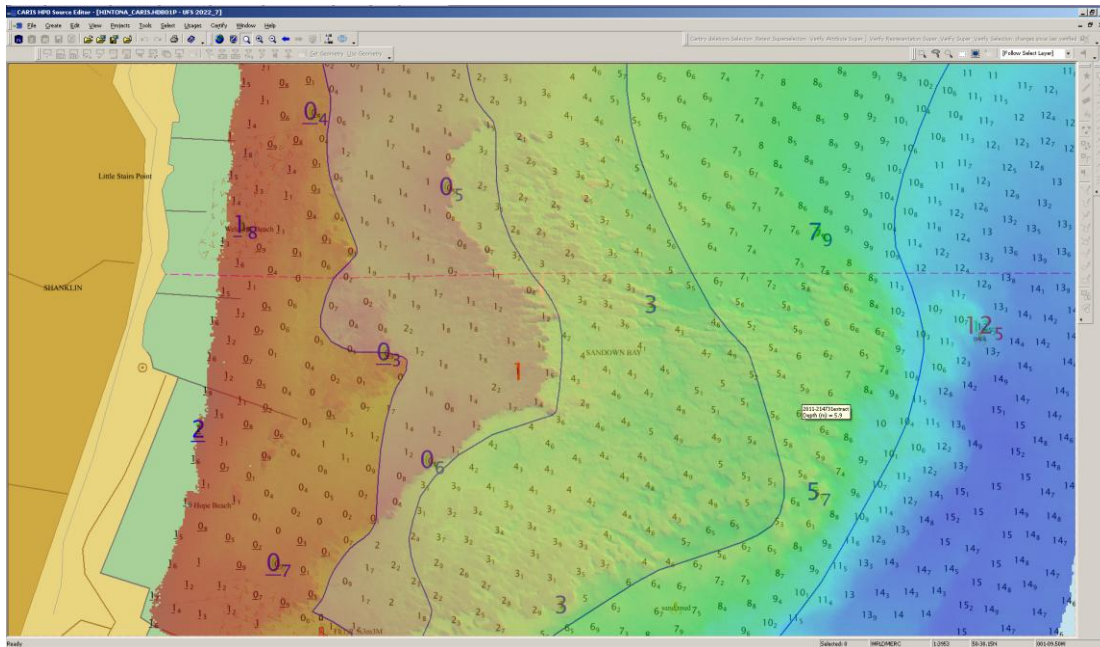
1.b Traditional colour banded plots improve the situational awareness greatly and have been the standard display for years but they are relatively crude and do not convey what is happening in between the contours...



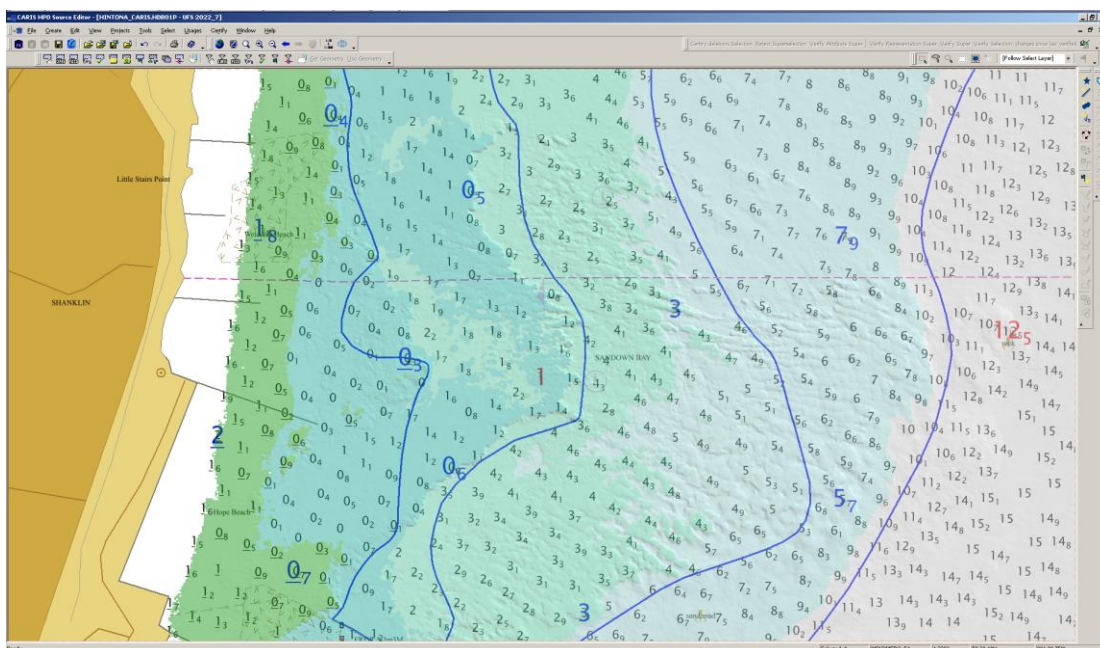
1.c To see what is going on in between contours we can increase the resolution to 1m colour banding but the end result becomes somewhat confusing...



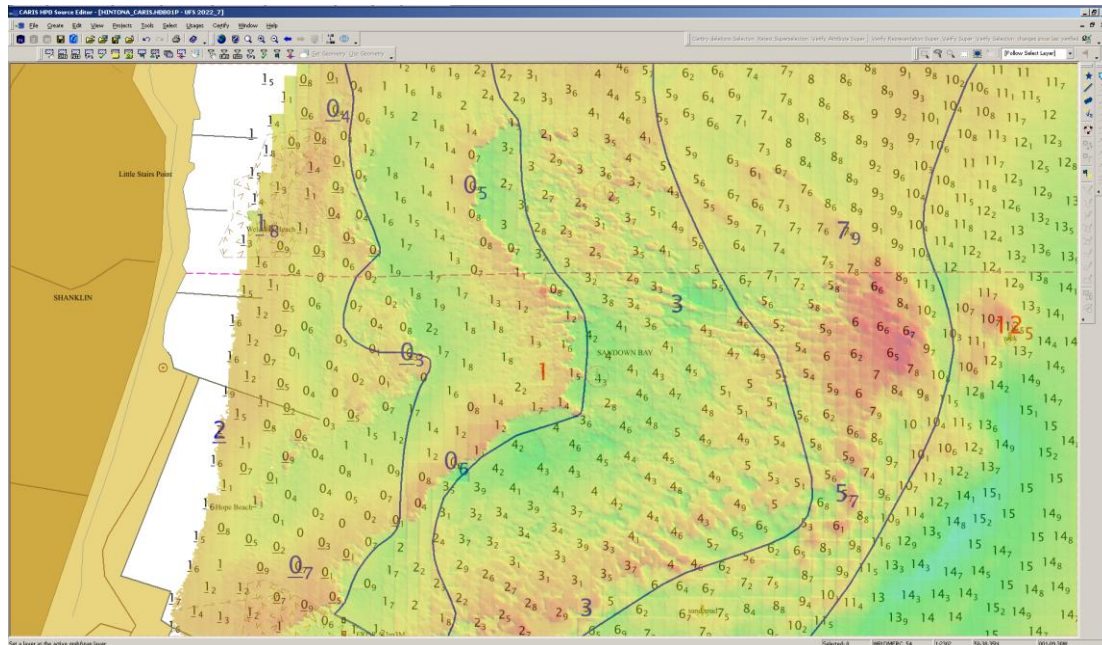
2.a. Here is the same dataset with a surface shown behind (you may need to zoom in). This is a simple colour map with a rainbow colour code. As you can see the rock outcrops are immediately highlighted as is the ledging that is occurring and we begin to see what is happening in between the contours. Straight away the use of this as a backdrop brings the survey much more to life and assists in rapid interpretation of the seabed. It also allows us to make sure shoal outcrops and deep channels are covered.



2.b Another variation is to use the colour range and colour code to the contour interval of the chart. Again the rock outcrops are clearly defined and the contouring is made much easier.



3. To make the process more interesting, we can create additional surfaces to assist us. Below is a Difference surface created when we get Bathy Editor to automatically compare the surface created by the compiler against the surface of the original survey. The results are then colour coded such that large 'shoal' differences show in red and deeps in green and blue. The backdrop then looks like this:



In the example above the display clearly shows in red where survey depths of 6.5 to 6.7m extend further seaward than the 7.9 depth selected and it also brings out the 10.7m survey depth very close to the 12.5m selected. This difference surface needs care when applying but used wisely it is a powerful tool for both the compiler and verifier.

As can be seen, the use of surfaces in your display can really make a difference to the task in hand and allow for rapid situational awareness. With the use of HPD this is to a resolution not seen before. The benefits of using survey and difference surfaces for assessment, compilation and verification purposes are clearly shown. This is something those in HDB should bear in mind.

Andy Hinton  
Regional Team 1, UKHO  
30/07/12