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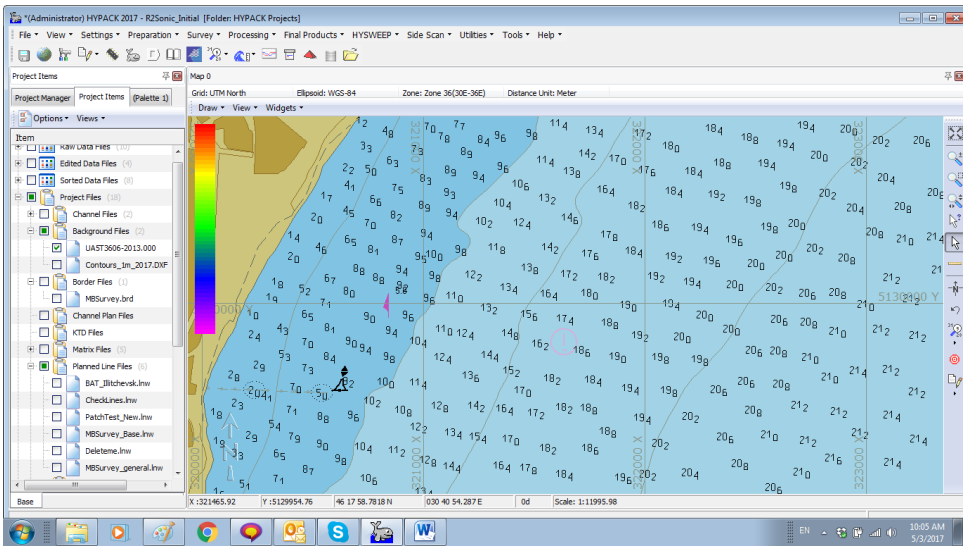
Creating Planned Lines for a Multibeam Project from an S-57 Chart

By Ivan Izaak

The new Line Planning tool in the LINE EDITOR (EXPORT-LINE PLANNING menu) allows building a planned line file for a multibeam job based on an XYZ data. This can be a good start in a project with an S-57 chart available for at least preliminary estimation of the survey.

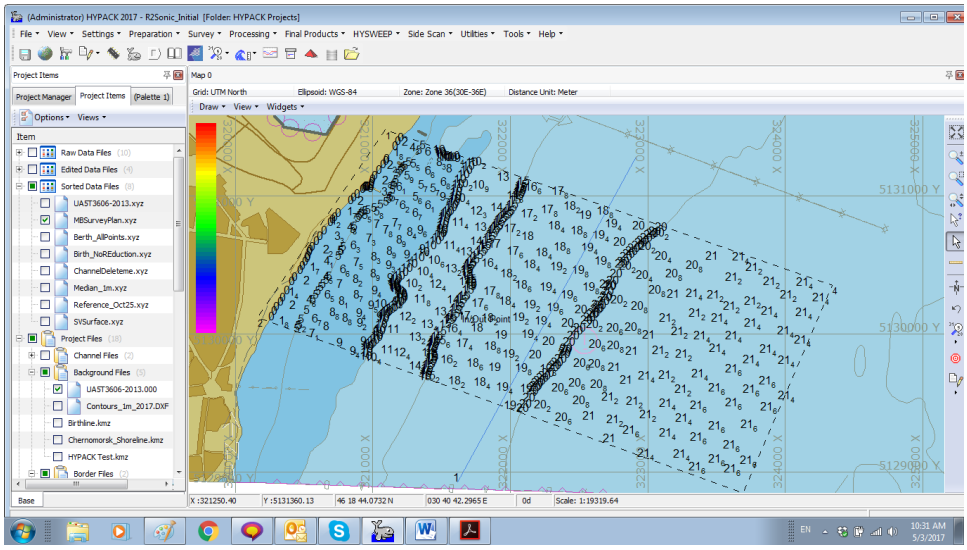
Here is an example of the S-57 chart covering our sample survey area:

FIGURE 1. *Initial S-57 Chart with the Soundings at the Multibeam Survey Area*



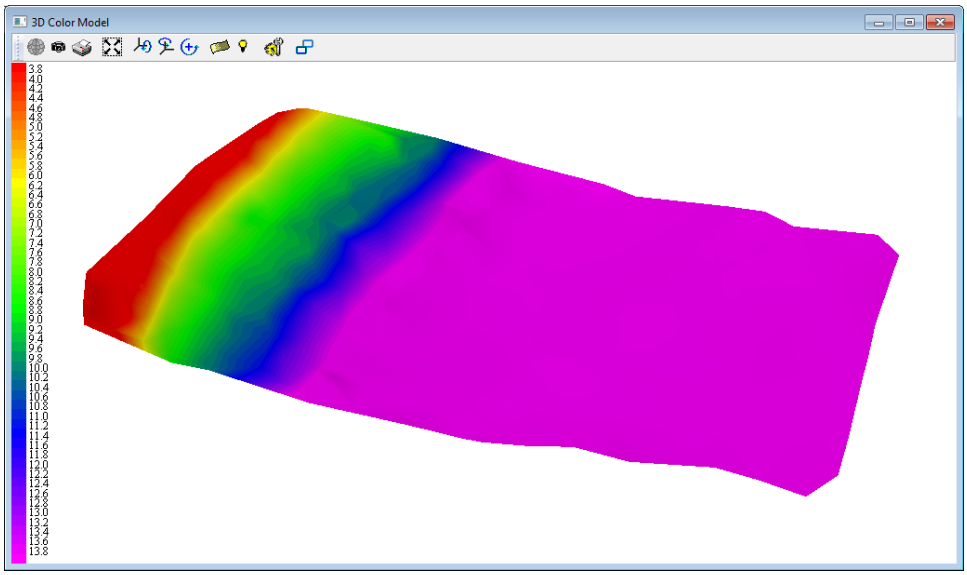
1. **Extract the soundings from S-57 into an XYZ file**.
   a. **Create a border file (*.BRD)** around the survey area.
   b. **Load the chart into ENC EDITOR and export an XYZ file** from the PROCESSING-EXPORT TO XYZ menu. The ENC EDITOR will create an XYZ file, with the same root nae as the S-57 chart, into the SORT folder of the project.
   c. **Clip the resulting XYZ with the BRD file** to have soundings only inside the survey area.
2. **Create a single planned line going parallel to the general direction of the contour lines** (Fig. 2).

FIGURE 2. Resulting XYZ File with the Base Planned Line in the Middle



3. **Load the XYZ file into TIN MODEL.**

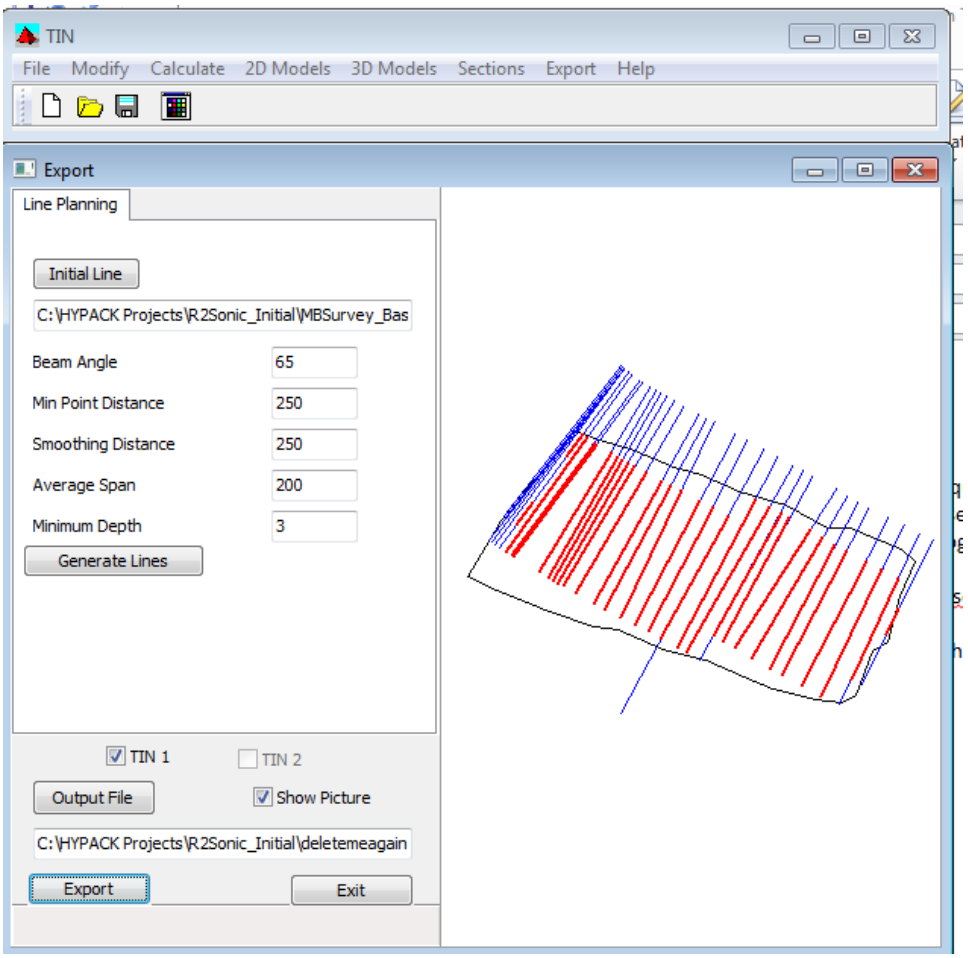
FIGURE 3. 3D Model of the MB Survey Area



4. **Select EXPORT-LINE PLANNING**. A new Line Planning dialog will appear.
5. **Set the parameters**:
   - **Initial Line:** The planned line that you created in step 2.
   - **Min Point Distance:** Minimum distance between the waypoints on each line. The bigger the number, the less detailed the lines will be.
   - **Smoothing Distance:** Once the program calculates the initial line set, it checks each line three points at a time. If a central point falls within the distance left or right of the first or the third point, it will be eliminated.

- **Average Span** is an approximate distance between new lines. Well, changing this parameter has no big effect, but it can speed up the generation process in deep water.
- **Minimum Depth:** The program will avoid creating planned lines in the areas shallower then this depth when it starts saving the LNW file.

FIGURE 4. Generated (in blue) and the Saved Planned Lines (in red)



The resulting planned line may require some additional processing inside the LINE EDITOR. For example, I have extended some lines and clipped them inside the BRD file to better fit my survey area.

To see the estimated survey time and the total distance of the lines, open the resulting LNW file in the LINE EDITOR and check the Line Report as shown in the Fig. 5

FIGURE 5. *Resulting Planned Lines and the Line Report*