# TELESCOPING GRID GENERATION

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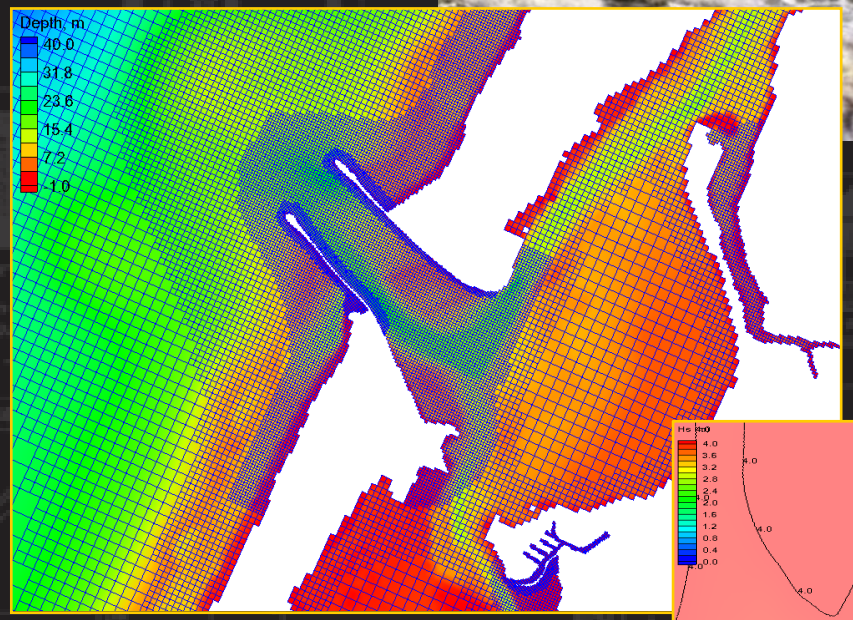


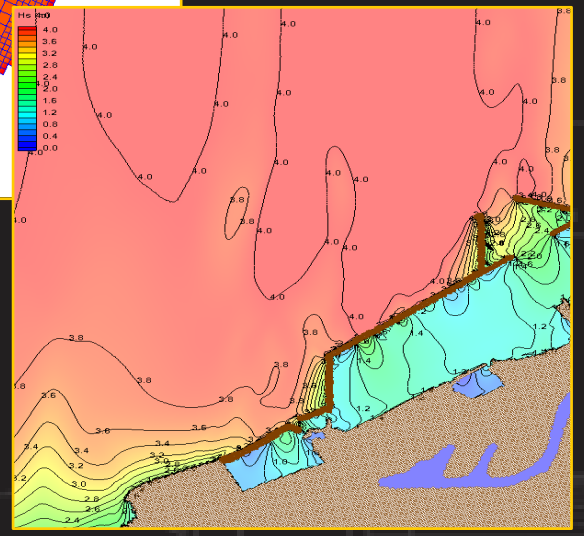

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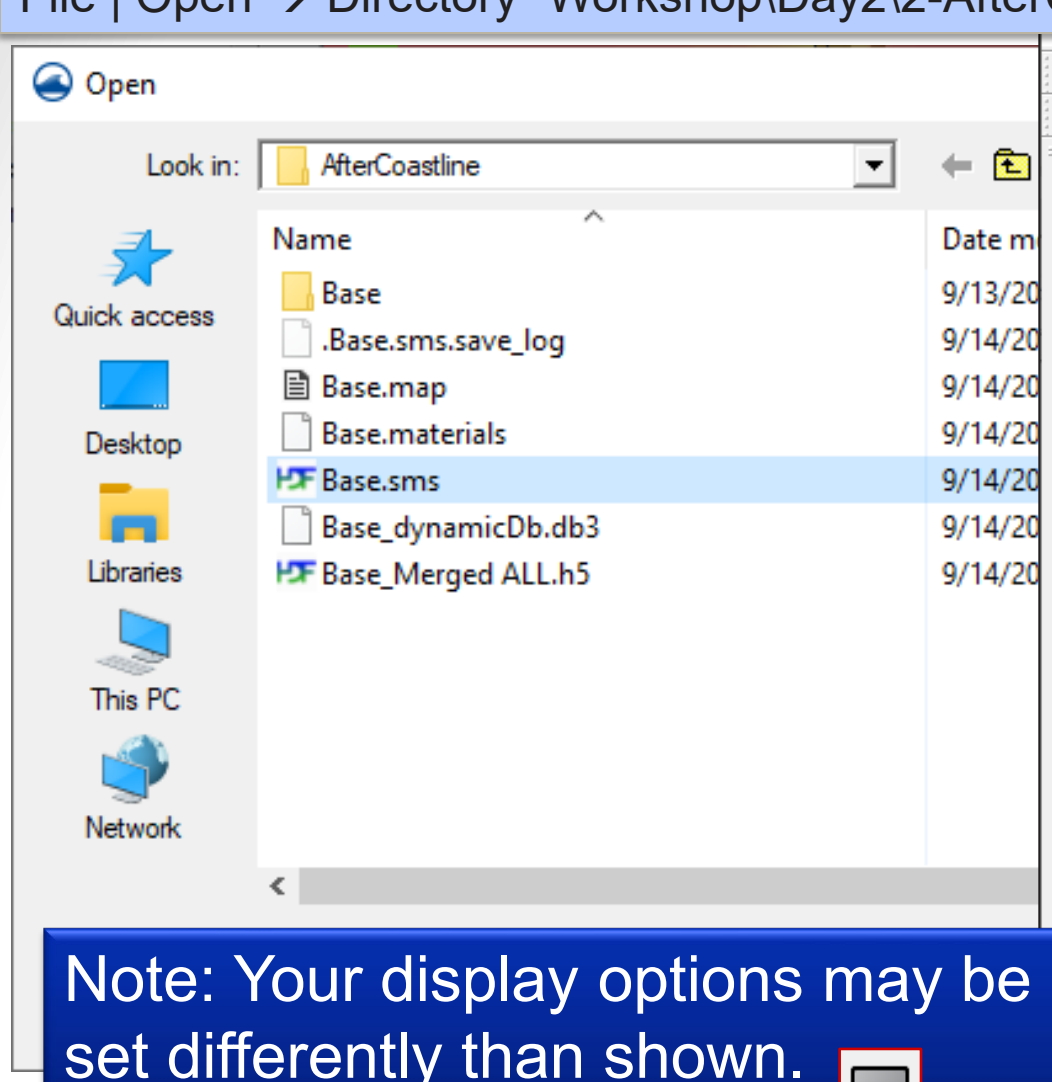
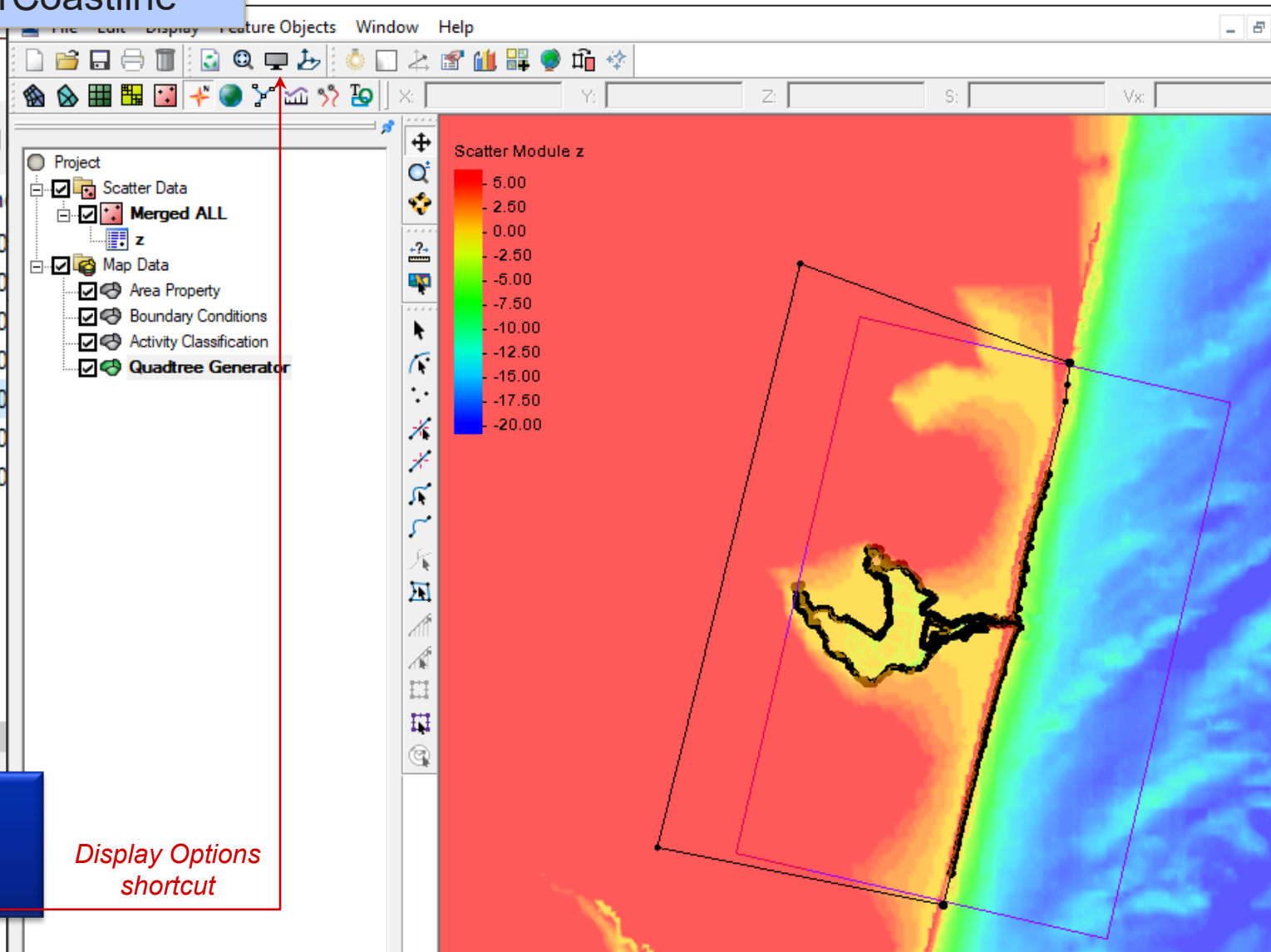
# Generating a Telescoping (Quadtree) Grid in SMS 13.3

Use your own, or open previously saved project to start from.

File | Open → Directory “Workshop\Day2\2-AfterCoastline”



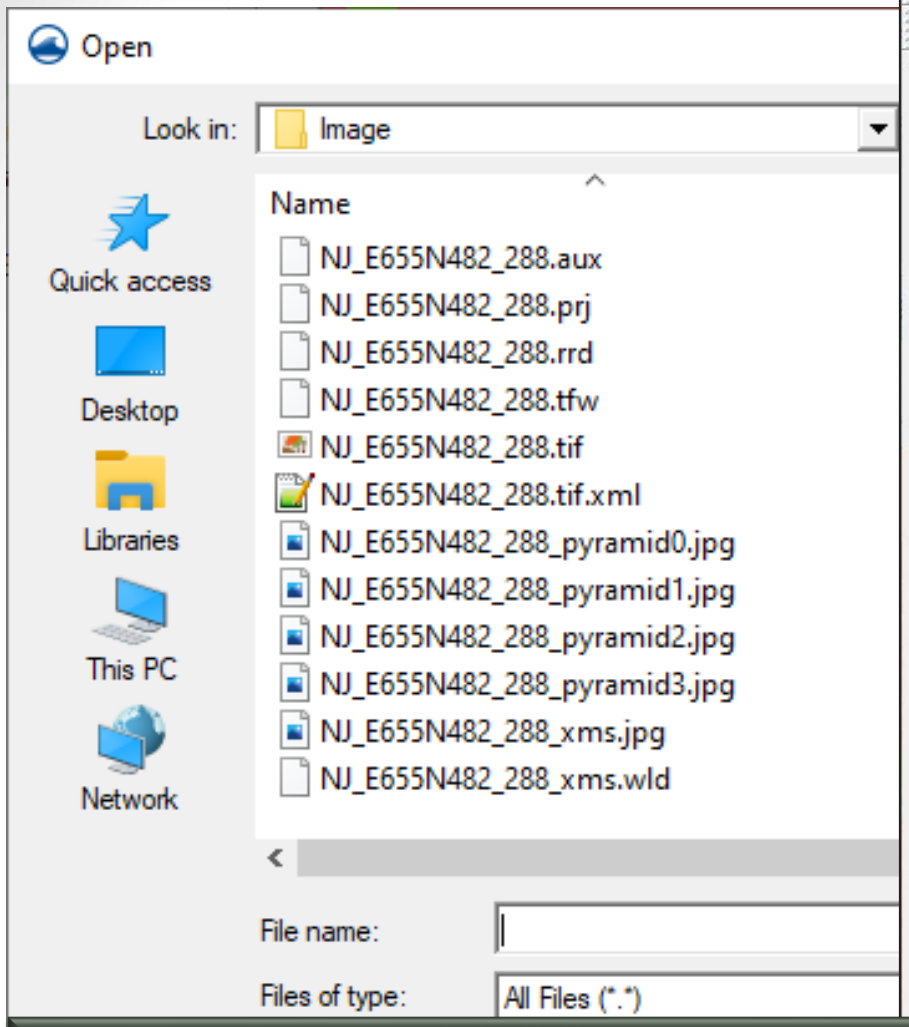



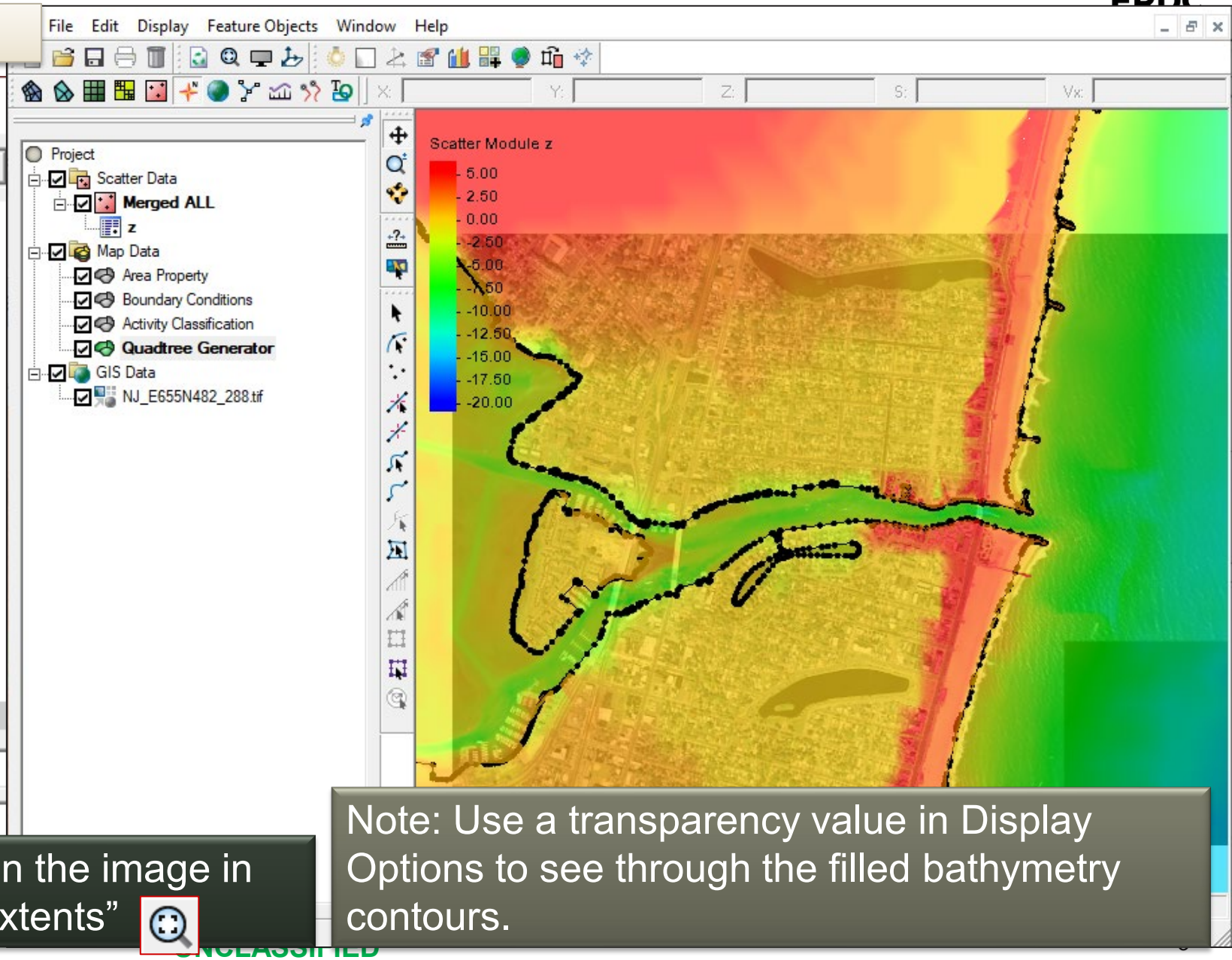

Note: Your display options may be set differently than shown.

*Display Options shortcut*

# Open a rectified image to display with loaded data

File | Open → “Day2\3-AfterB…\Image”

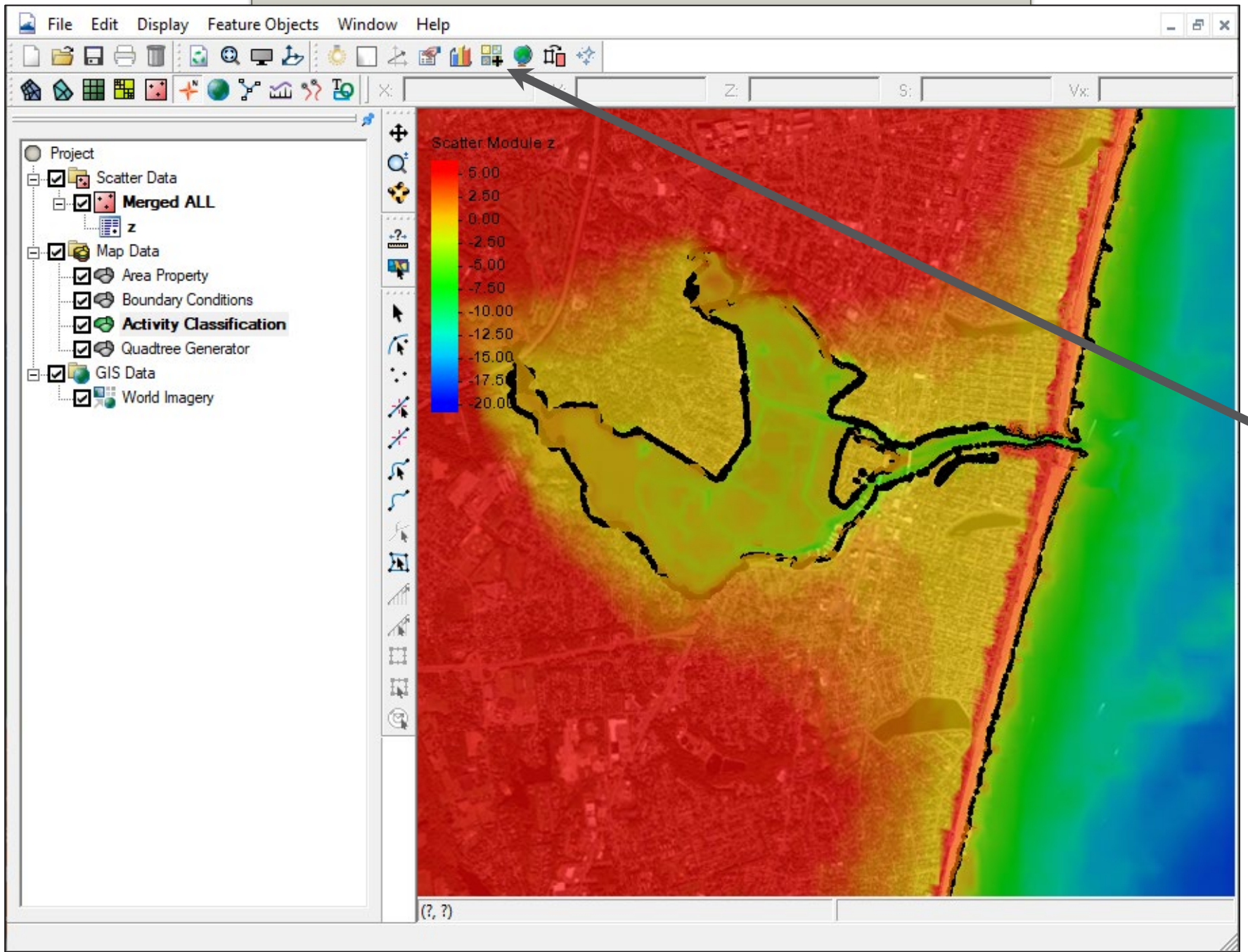


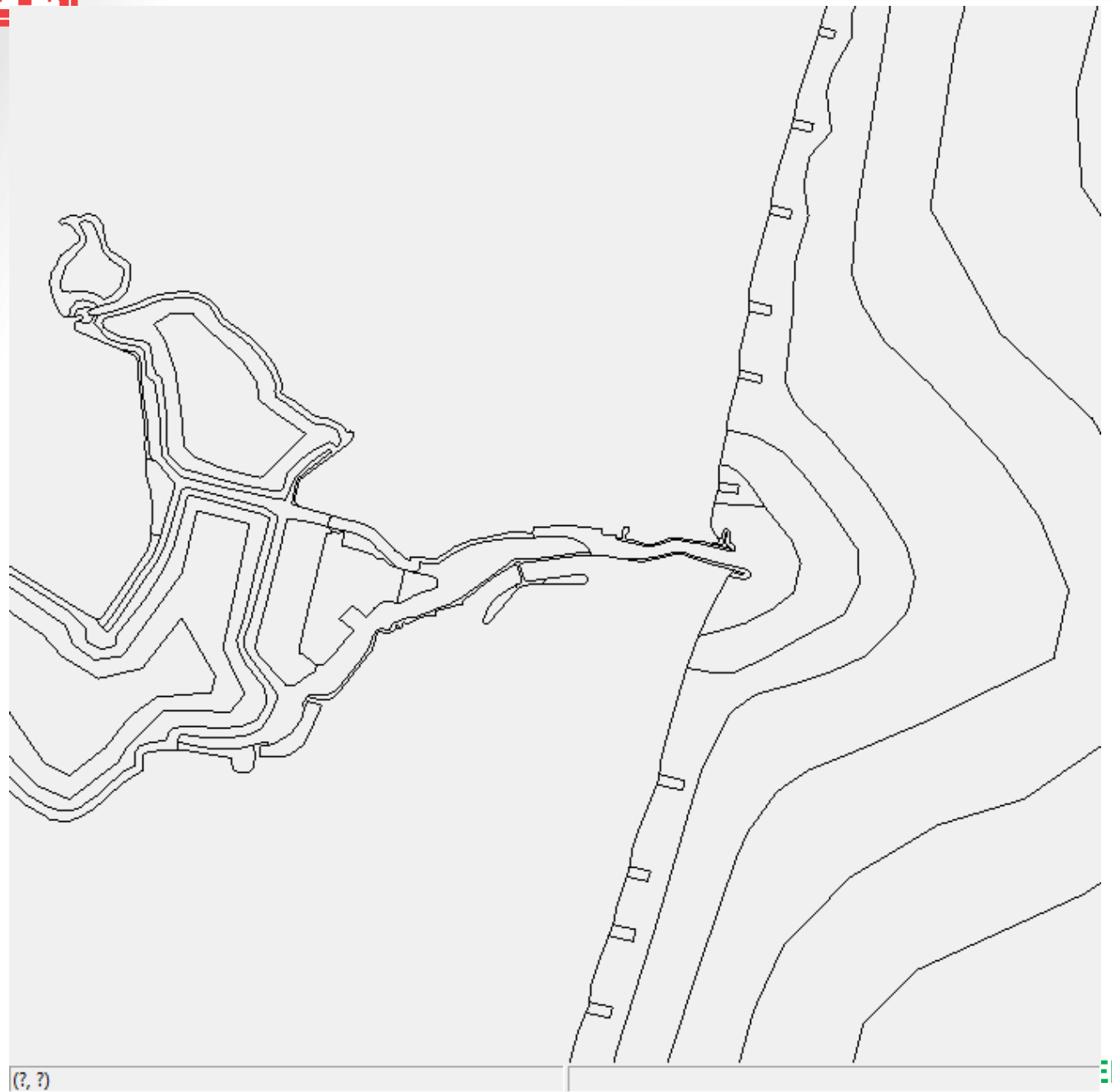

Zoom to full image by right-clicking on the image in the data tree and choose “Zoom to extents”

Note: Use a transparency value in Display Options to see through the filled bathymetry contours.

# OR use a dynamic image with SMS



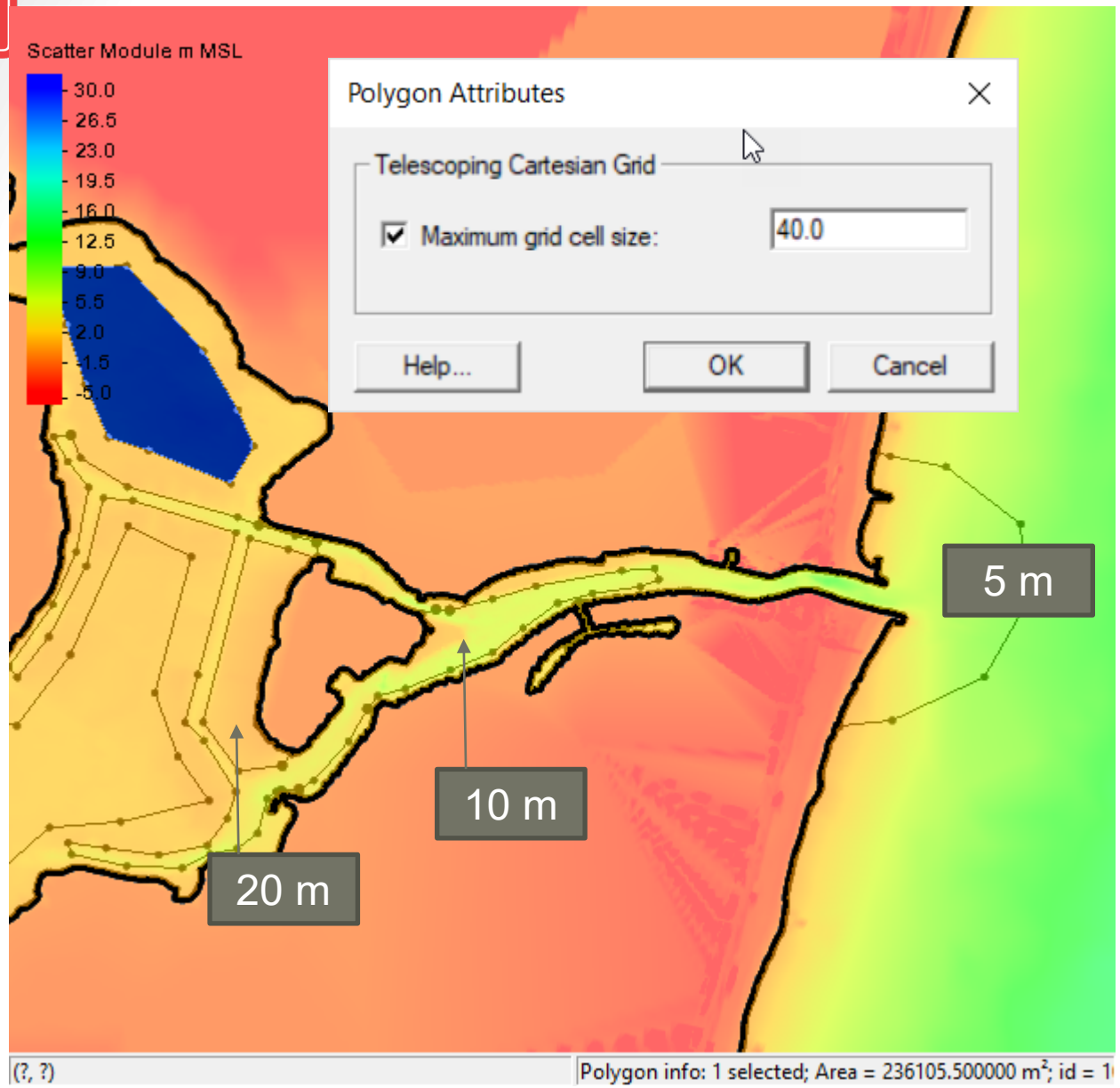
# Quadtree Resolution Areas




Resolution for Telescoping grids is done with polygons. Resolution within each polygon will have a set maximum refinement. There can be a transition region as polygons of different cell sizes interact.

An example of the final resolution map for the Shark River Project is shown to the left.

Each polygon can have a different cell size specified. Special attention is given to areas such as inlet throat, jetties, groins, constrictions of flow in the bay, bridges, etc.

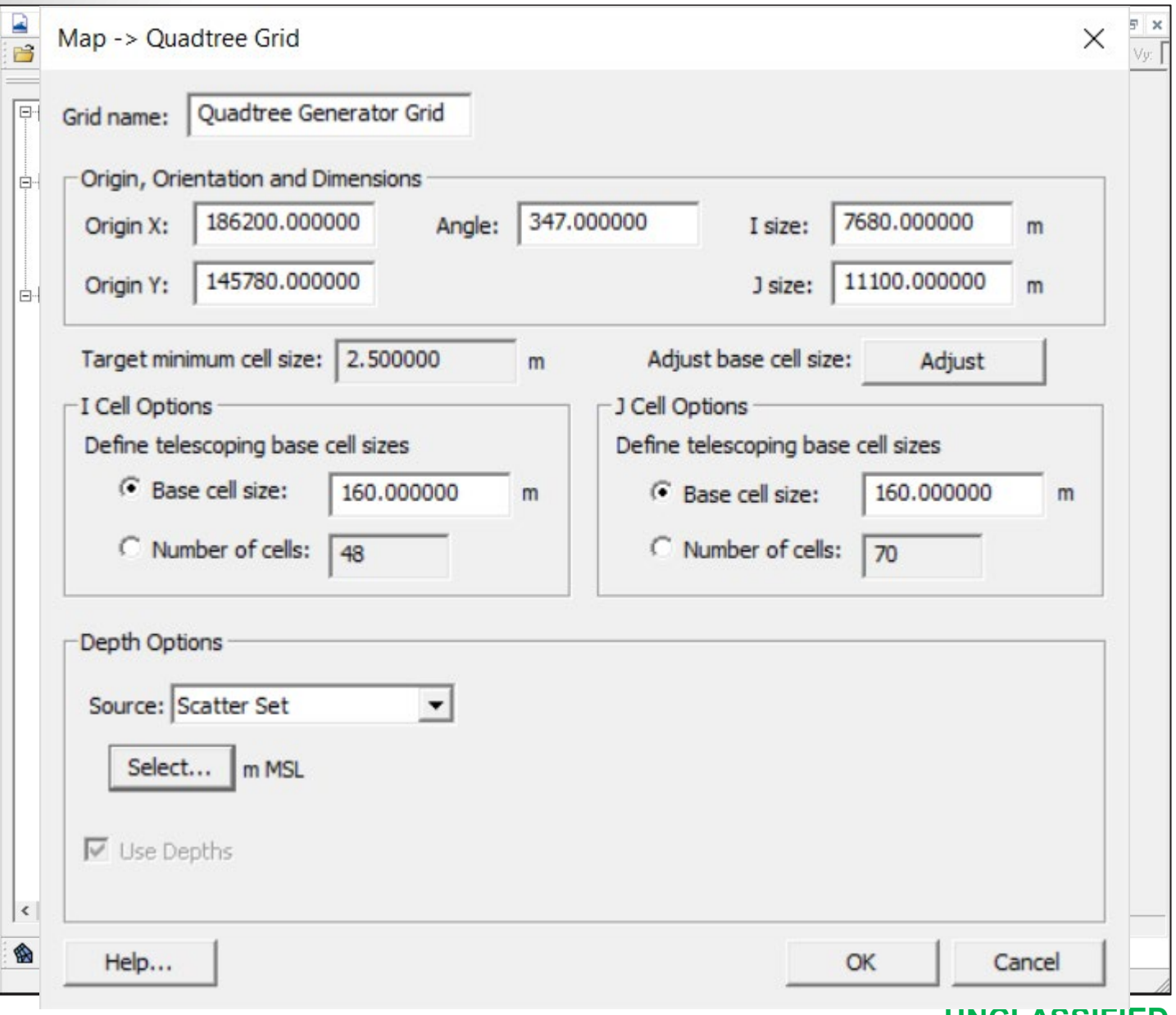



Using the Create Feature Arc and/or Convert… Scatter Contour → Map tools, create arcs to delineate areas for resolution. Each zone must form a complete polygon (no gaps in arcs).

To set the resolution, click Feature Objects | Build Polygons, select each polygon and right-click to choose attributes.

Check the box named “Maximum grid cell size” and enter a value (units are relative to the horizontal projection).

Example values are shown to the left.

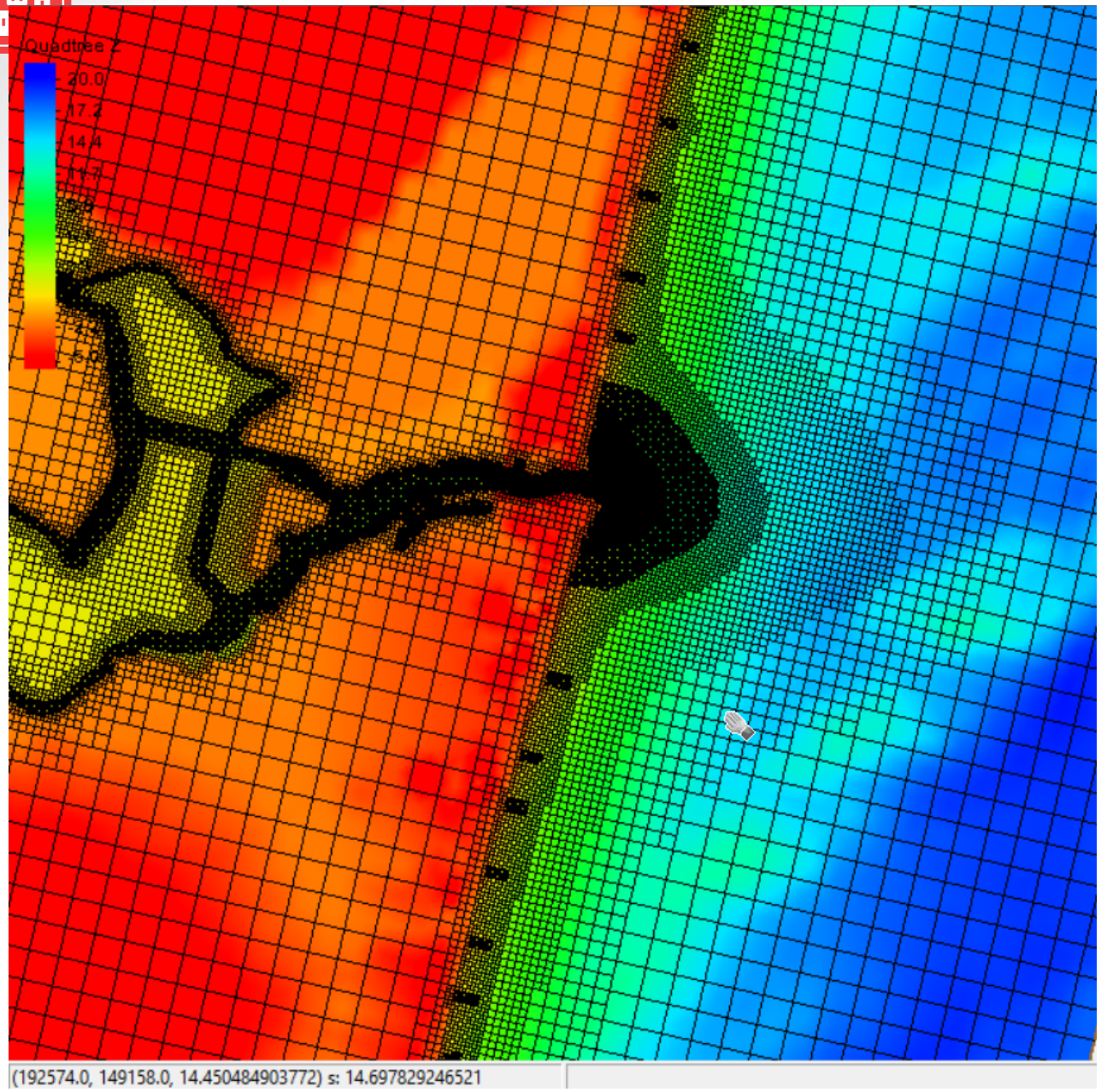



When ready to try to build a grid, SAVE the project first, so you do not lose any work if the program crashes.

Right-click on the Quadtree coverage and choose Convert | Map -> Quadtree Grid

The top part is the same as when the quadtree grid frame was created.

- Enter a maximum (base) cell size for areas where no resolution zones are specified**.
- Set the source for the bathymetry to be your scatter point set.
- Click OK and examine the resulting grid.




*You may need to go into Display Options and show the grid cells to see the resolution.*

Tips for Telescoping Grids:

1. Transition of 2-4 cells per cell resolution change (any direction). In other words, change in resolution should be ×2 or ×4 between polygons.
2. Channels with substantial currents (and transport) should be refined with ~10 cells; main inlet may need closer to 20 cells at flow confluence points.
3. Structures with variable morphology (e.g. rubble mound) may need extra resolution around edges
4. Higher resolution may be necessary in areas of rapid wetting/drying (e.g. wetlands) and sediment transport (e.g. nearshore)

# QUESTIONS?

## CMS Team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