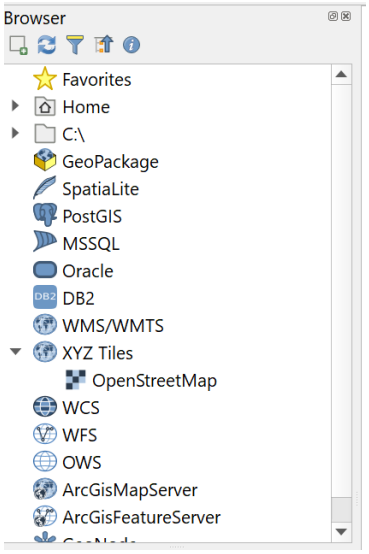
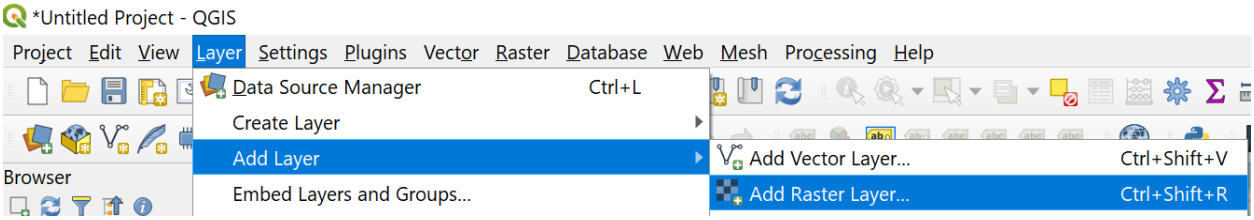
NNSB Qgis Map Display Instructions

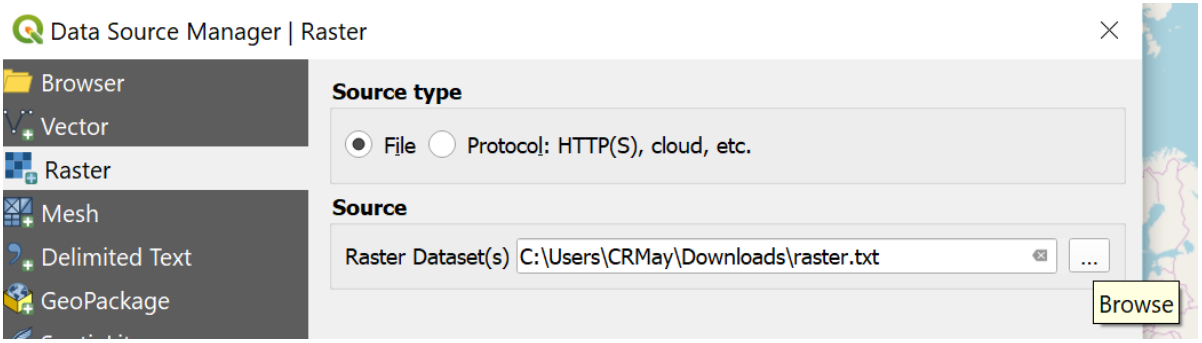
1. Load your base map: For simplicity's sake we are just going to load a basic street map.From the main browser window, scroll down until you find XYZ Tiles. Click the drop-down arrow and double-click on OpenStreetMap.



2. Load your raster, or elevation data: From the Qgis top navigation bar, click on Layer, then Add Layer, then Add Raster Layer.

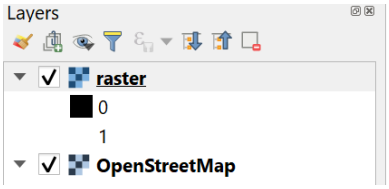


A dialogue box will pop up, click the "browse" icon to the right of Raster Dataset(s) and locate your raster dataset.

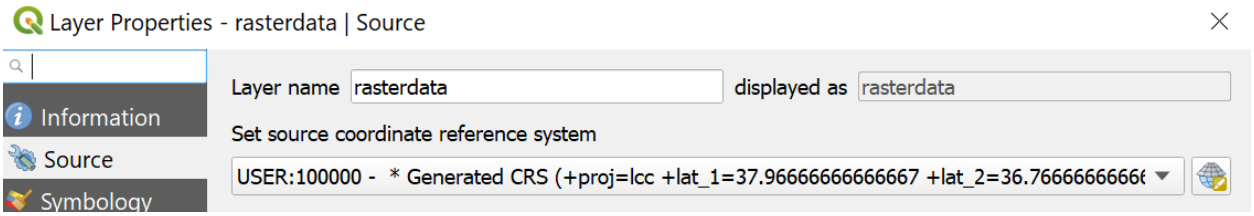


Qgis supports loading multiple files at once, simply highlight all necessary files and click "open" when ready and then "Add" at the bottom right to load your raster.

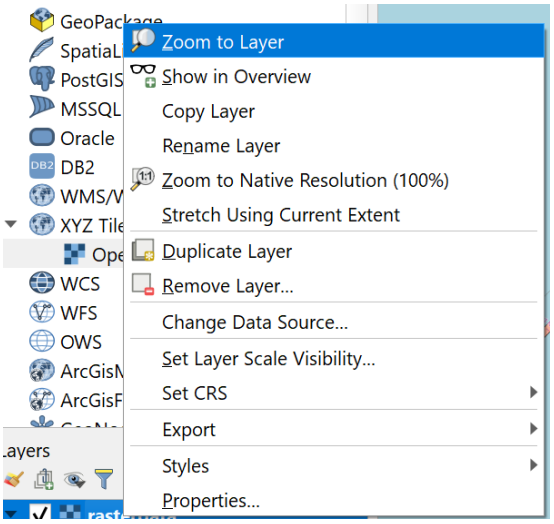
3. View your new Raster layer: You should now see your raster loaded into the Layers panel in the bottom left of the Qgis main window along with the OpenStreetMap we added earlier,



Before we view the layer, we need to make sure the data mapped itself to the correct coordinates, to verify that the raster is using the coordinate system for this demo, right click on the name of your raster file in the Layers window and select “Properties”. Under the “Source” tab, select the coordinate system labeled in the picture below, otherwise your data will be mapped to an incorrect location, and click “Apply” then “OK”.

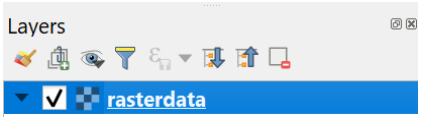


If Qgis does not automatically take you to your visualized Raster data, right click the name of your file again and this time select “Zoom to Layer”.

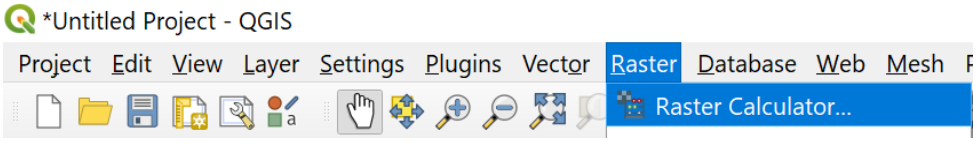


Your screen should now look something like this:

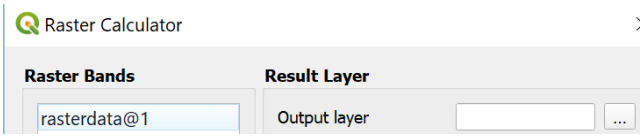
This data is only necessary for calculations and does not need to be viewed. If you wish to de-select the visualization of this data you may do so by un-checking the box to the left of the Raster file name.



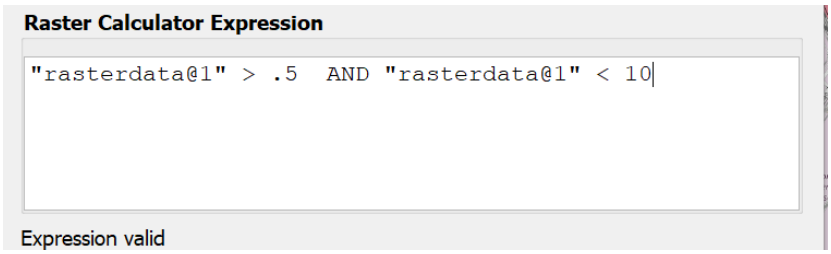
4. Put in your constraints: For this example, we are going to pretend the sea level has risen an unprecedented 10 feet (this number will be replaced by the number populated by the predictive algorithm) and you would like to see how much land in your area will be affected if this happened. Navigate to the Raster toolbar at the top of the main window and click on Raster Calculator.



Once in the Raster Calculator, choose an output file. For this, I simply made a copy of my original raster file and named it something different, the data will be overwritten anyway. Leave the other fields at their defaults unless you desire otherwise.



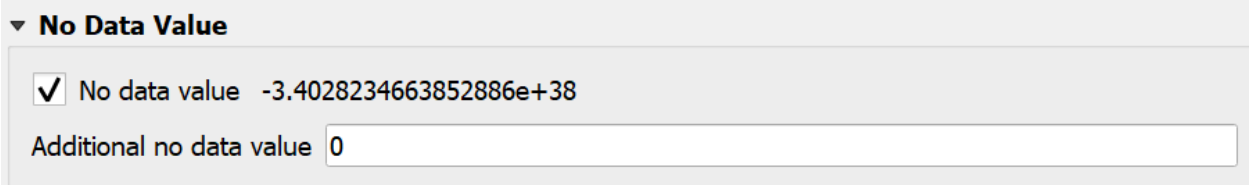
Under Raster Calculator Expression we want everything above sea level and everything below 10 feet to be highlighted as those will be the areas affected by this current situation. Double-click the name “your raster name here”@1 to add it into the expression, followed by > 0.5 (I use .5 instead of 0 to filter out some discrepancies with the Lidar data and how it maps the ocean. Essentially it’s just cleaning up the new raster a bit. For smaller calculations, I would set it to 0), Manually click the “AND” button, then click the raster name again, followed by < 10. It should look something like this:



Click “OK” and your screen should look like this:

5. Manipulate the New RasterThe white area represents the area between the old sea level and the land the new sea level covers, or the “Danger Zones”. This isn’t exactly attractive and not something you would want to show in a board meeting, so let’s make this look a little more presentable.

   Navigate to the “Layers” window again and double-click the new Raster file. From here, make sure that you are on the “Transparency” tab. Since the raster calculator results are binary (everything that matches your criteria is labeled as 1 and everything that does not match, 0) we are going to navigate to the “No Data Values” dropdown and make sure the arrow is facing downward, indicating the sub-options are displayed. Under “Additional No Data Values” place a 0, then click “Apply” then “OK” and you will notice that everything labeled as a 0 has been removed from the raster.



   From there, navigate to the “Symbology” tab. Under “Band Rendering” click and select “Singleband Pseudocolor”. Navigate to “Color Ramp” and select “Spectral” as your color (or whatever you prefer). Click “Apply” and “OK” and you should have red highlights on your map. If you wish you can navigate back to the transparency tab and adjust the settings to your liking (I find that 50% generally works best).