A photograph of a harbor at sunset. The sky is a mix of orange, pink, and blue. Several sailboats are visible in the water, their masts and sails silhouetted against the bright sky. In the foreground, a dark metal railing is visible, suggesting the viewer is looking out from a pier or boat. The water is calm, reflecting the colors of the sky.

# **Investigating Sea Level Rise in Newburyport, Ma by Jillian Kent**

# Objectives

To produce a series of 3 maps to demonstrate which proportion of Newburyport will be inundated at .5 meters, 5 meters and 10 meters.

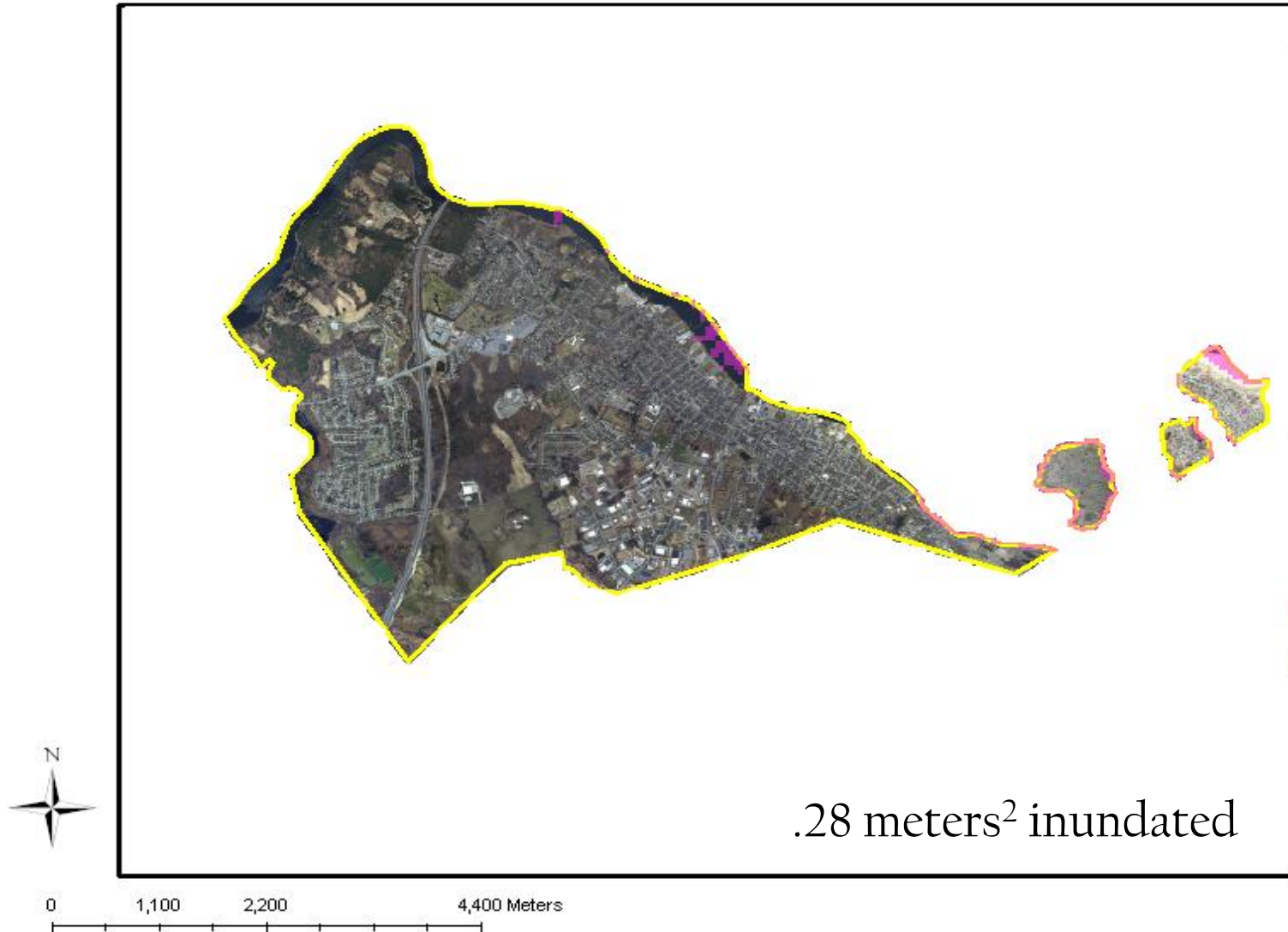
# Methods

- Using ArcGIS, I :

- Downloaded 7 DTMs that cover Newburyport
- Put them into Microsoft Excel, then uploaded them to ArcGIS
- Downloaded the towns polygon layer, and selected and clipped Newburyport from the rest of Massachusetts.
- Merged all of the DTM files together to create one layer
- Converted the merged shapefile into a raster elevation grid.
- Created an Inverse Distance Weighting raster layer.
- Used the Raster Calculator to identify areas that met my elevation criteria at .5 meters, 5 meters and 10 meters
- Calculated the total area within Newburyport that would be inundated using Zone dataset

# Results

Areas Inundated at .5 Meters



# Areas Inundated at 5 Meters

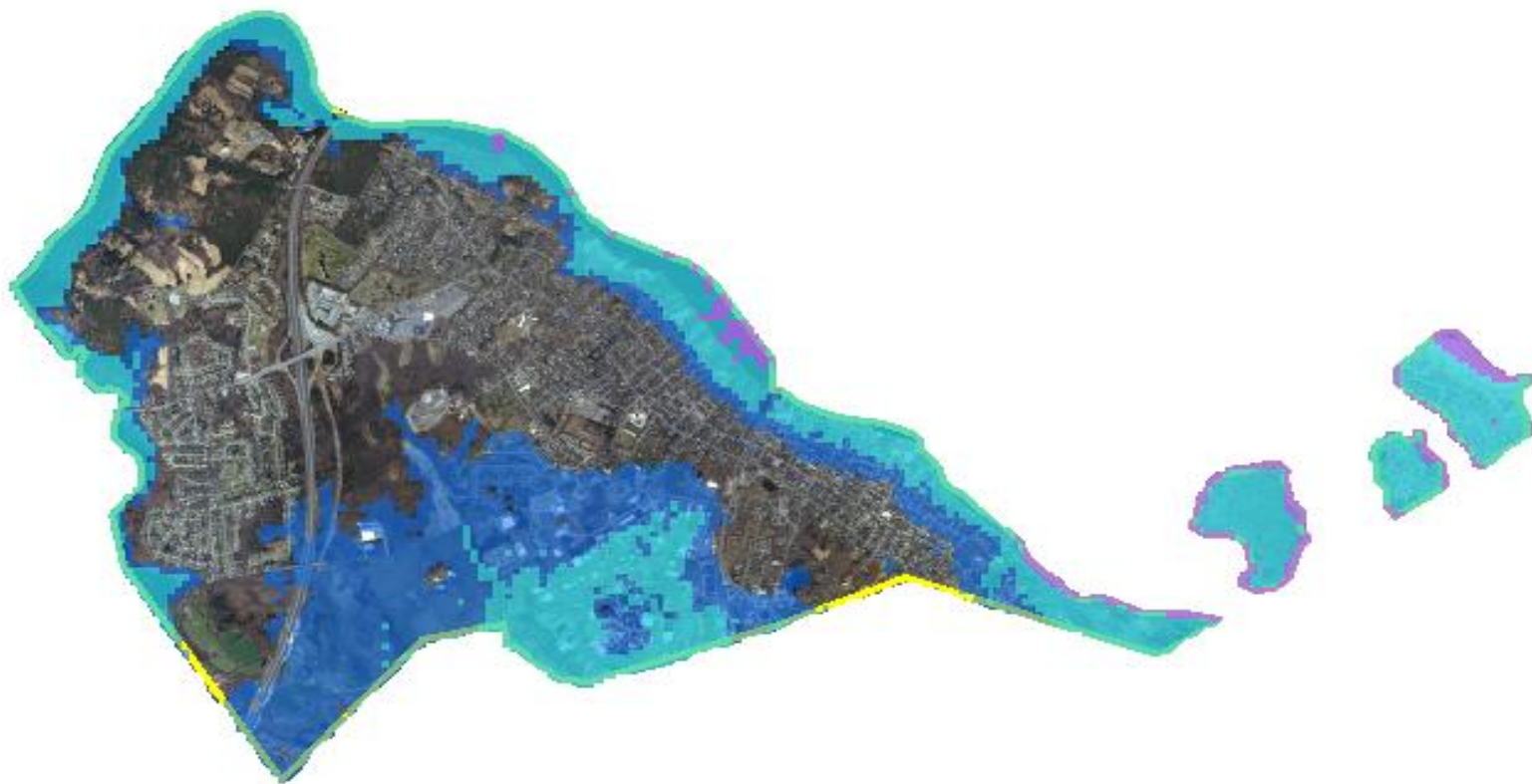


.99 meters<sup>2</sup> inundated





# Areas Inundated at 10 meters



1.16 meters<sup>2</sup> inundated



0 1,100 2,200 4,400 Meters

# Conclusion

- Using ArcGIS and [mass.gov/mgis](http://mass.gov/mgis) I analyzed the projected sea level rise of Newburyport, Ma at .5m, 5m and 10m
- At .5m, .28 meters<sup>2</sup> of land was inundated
- At 5m, .99 meters<sup>2</sup> of land was inundated
- At 10m 1.16 meters<sup>2</sup> of land was inundated
- Most of the area inundated is residential area, and wildlife. All islands are completely inundated, as well as the airport and a bunch of parks.
- Errors– I had to do this 6 times from the beginning.

# Citations

- ArcGIS
- [www.mass.gov/mgis/](http://www.mass.gov/mgis/)
- Google Earth