

## SUMMARY

### Caroleen Verly, Class of 2009

The goal of this project was to analyze the vulnerabilities of New Haven's coastal structures to current flooding conditions and to investigate the potential for rising sea levels to change these conditions and increase the vulnerabilities to flooding.

I found that a significant number of New Haven's structures lie within the coastal zone and are at risk of being damaged under current flooding conditions. In addition to these baseline risks, it is important to take into consideration how global warming will change flooding patterns. Not only will global warming lead to rising sea levels, but it is also thought that global warming could lead to an increase in the size and frequency of storms. As storms would be starting from a higher base elevation and would be able to more frequently reach farther inland, global warming could increase the potential for flooding damage to coastal structures. I tried to estimate this potential for increased damages by increasing the baseline flood elevations by the total sea-level rise expected at the end of this century; however, I did not account for the possibility of increased storm strength and frequency as this area of climate change is much less well understood.

I was responsible for finding, obtaining, and manipulating data in order to provide estimates of structure vulnerabilities. I acquired elevation data for the City of New Haven from the U.S. Geological Survey's "Seamless Data Distribution" website at <http://seamless.usgs.gov/>, current flood elevation data from FEMA's Flood Insurance Study (FIS) for the City of New Haven, the most recent tax data available from the City of New Haven's GIS analyst Alec Vincitorio, as well as maps of roads, railroads, and other physical features of the New Haven landscape from the CT DEP website at [http://www.ct.gov/dep/cwp/view.asp?a=2698&q=322898&depNav\\_GID=1707](http://www.ct.gov/dep/cwp/view.asp?a=2698&q=322898&depNav_GID=1707). I used Microsoft Excel and ArcMap to analyze this data and produce graphs and diagrams of different flooding scenarios. I was also responsible for researching the history of flooding in the New Haven area using the archives in the library of the New Haven Museum and Historical Society located at 114 Whitney Avenue in New Haven.

Over the summer, I honed my skills at finding and manipulating raw data. I also learned to use ArcGIS mapping software and increased my knowledge of using Excel. The SRO program was a great opportunity to develop these research skills and to get a taste of how economic research is done.

A suggestion for future years of the SRO program would be to split the stipend into three parts (the second could be given when the student turns in a mid-term report) to make it easier to cover summer living expenses. Another suggestion would be to increase the contact between the SRO students. It would have been nice to get to know the other students who are interested in economic research and to hear what they were working on. A few (informal) SRO gatherings throughout the summer would be a good solution to this.