

Identifying the Change in Heat Vulnerability and Land-use Influence

Project Description

Extreme heat is among the leading causes of climate vulnerability in the United States due to potential impacts on human health and well-being. Connecticut residents are less acclimatized to heat, which could signify a higher risk for heat-related diseases during extreme weather events. The occurrence of heat islands due to urbanization produce relatively warmer air temperatures near the ground, which make urban and sub-urban areas warmer in comparison to rural areas. This project focuses on the variations of surface temperature over short-term (5-year period) and long-term (20-year period) and their linkages to land cover and land uses changes in Fairfield and New Haven Counties.

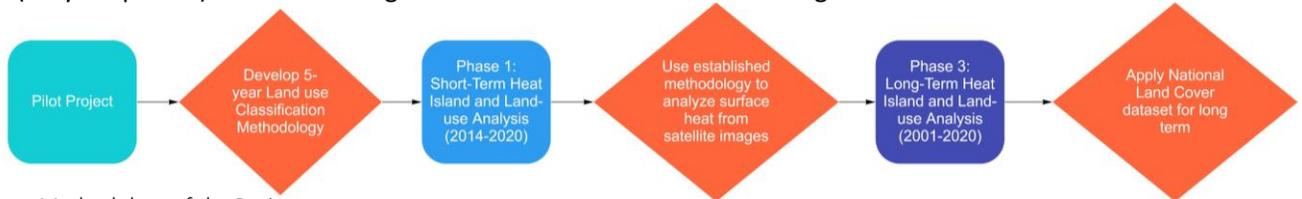


Figure: Methodology of the Project

Project Findings

The results of this study indicate occurrence and intensification of urban heat islands in the region and are directly linked to land-use planning, health, and hazard mitigation, among other fields of decision-making. Indicate land cover findings and compendium of land cover types.

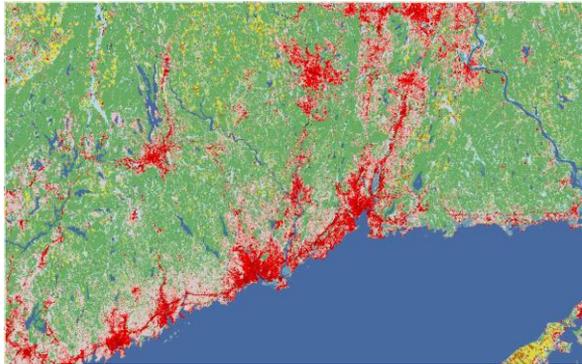


Figure: Land Use Land Cover (2016-2014) Source: NLCD 2016

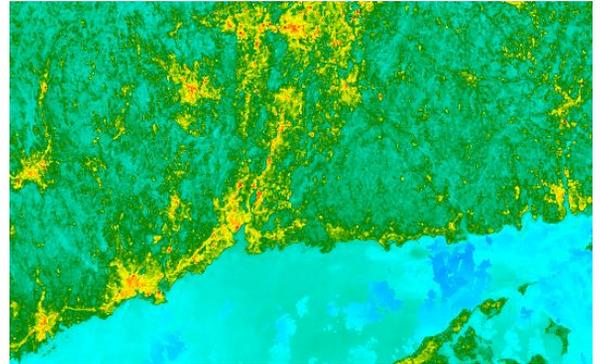


Figure: Maximum Surface Temperature (2016-2014)

Research Gaps and Recommendations

The outcomes of this project are critical to support local decision-makers in determining the thermal vulnerability of local communities in the Resilient Connecticut project. Findings from this project can inform decision-making in:

- Land-use planning
- Public health
- Hazard mitigation
- Conservation and ecosystem management

The study is focused on two counties, however, there is need to expand the methodology applied to the rest of the state. The results point to the need for conserving tree canopy cover, including woody wetlands. Furthermore, the findings from this project indicate a need to better understand the potential impacts of future losses of forested ecosystems on surface heating and heat vulnerability.