

# Not So Superfun: Superfund Sites and Social Vulnerability in New Jersey

## Background

Superfund sites are locations that have been labeled by the federal government as hazardous to human health. These are often the results of dumping industrial waste, hazardous waste being left out in the open, or general improper handling of waste. This can range from landfills to sites of chemical dumps from factories. The EPA certifies superfund sites, categorizes threat level, and requires the responsible party to fund remediation of the site. There is a long history of marginalized communities being subject to higher levels of pollution. This can take the form of proximity to high traffic volume, landfills, or contaminated water. New Jersey is one of the most diverse states in the US. It also contains one of the highest densities of superfund sites with 150 separate sites. This is partially due to its long history of industry, especially with regards to the chemical industry. An analysis was conducted to see if there was significant clustering of superfund sites within close proximity to vulnerable populations in the state of New Jersey.

## Methods

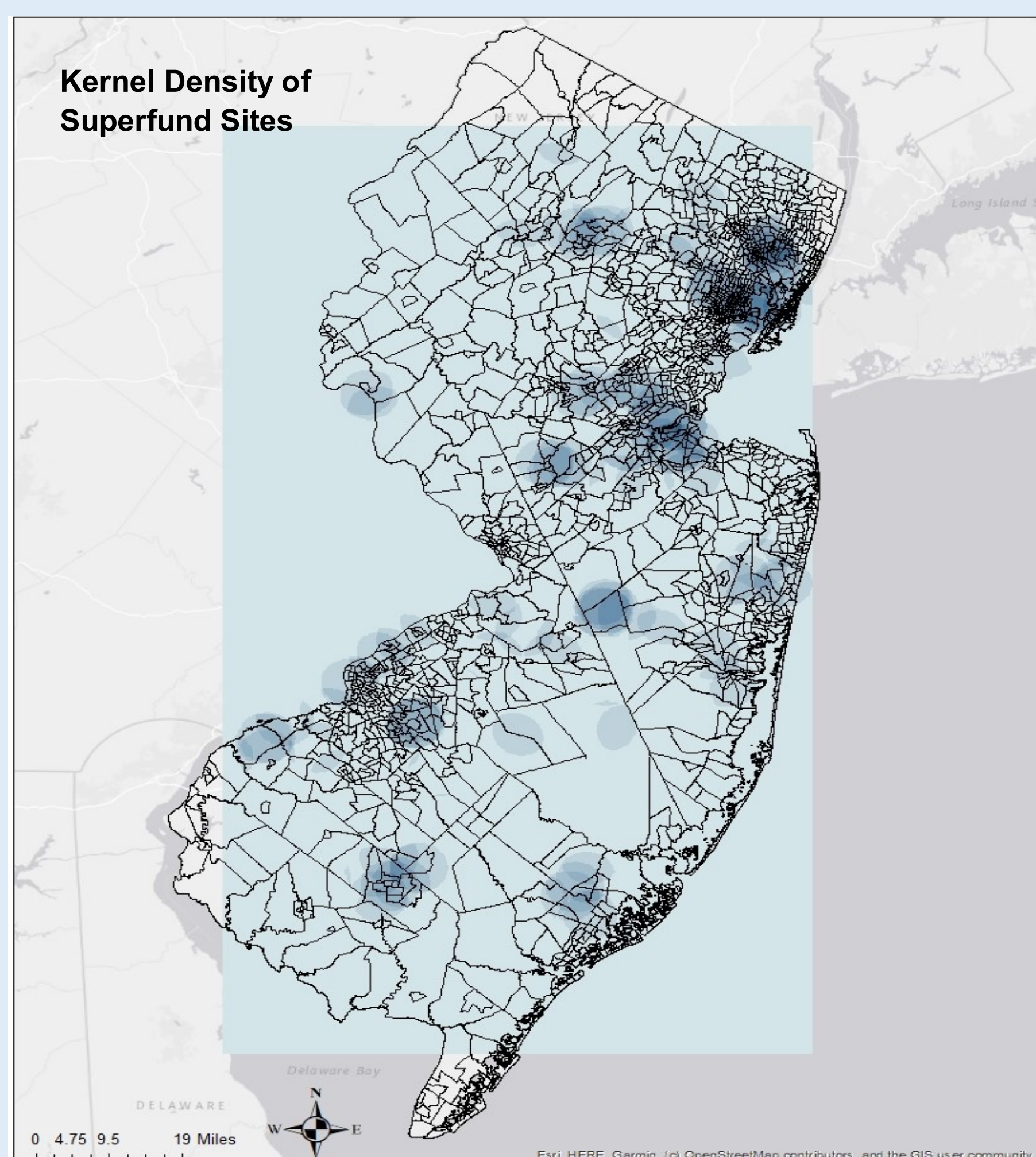
Superfund site locations were accessed from the Environmental Protection Agency superfund database. These were then geocoded. A vulnerability index by census tract was created using census data for New Jersey. The vulnerability factors included were race (broken down into Black and Hispanic), family poverty, disability, and immigration status. Local Moran's I was then used to determine the amount of clustering of sites relative to the vulnerability factors.

## Conclusions

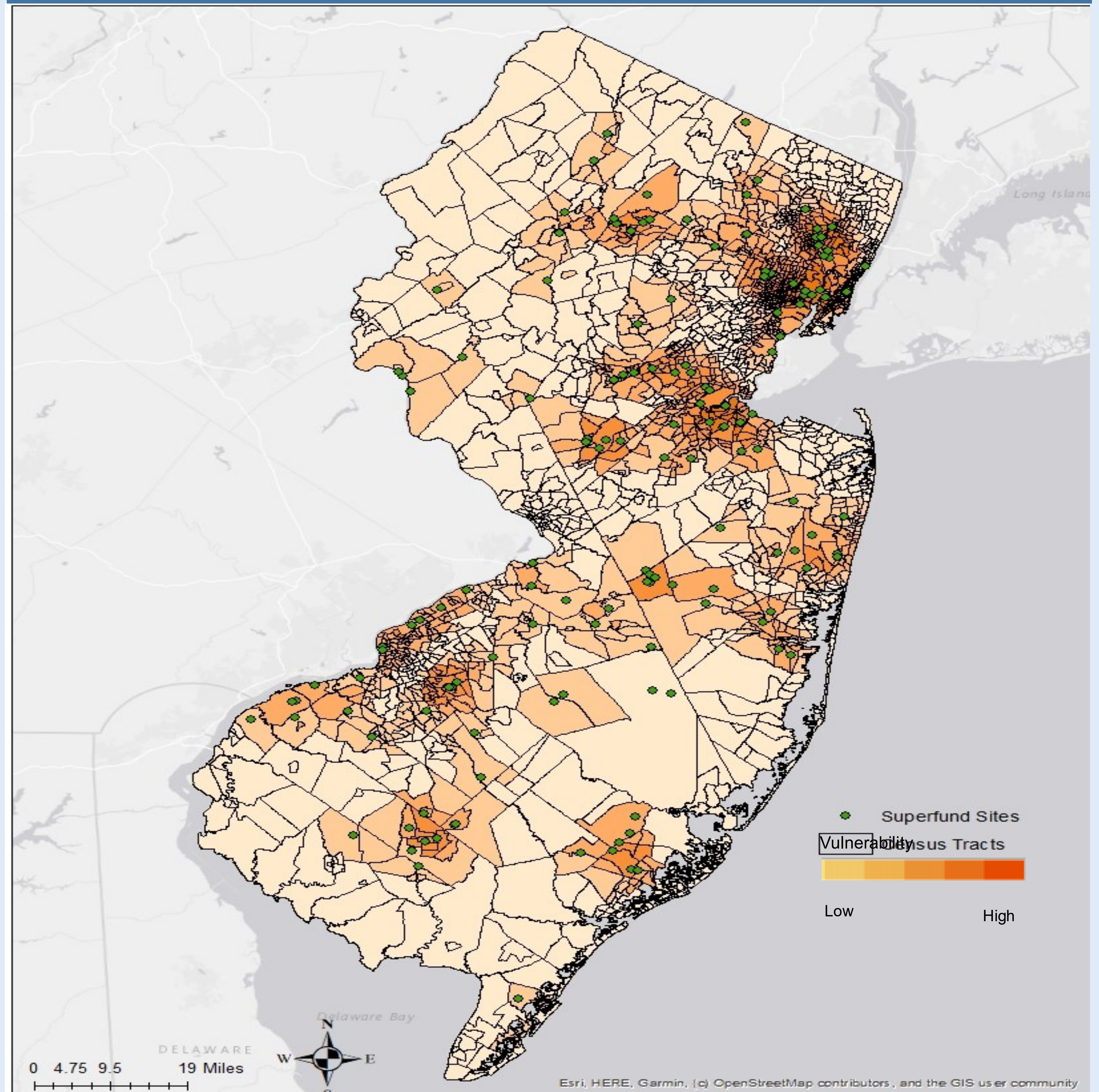
While the number of sites seems diffuse, the analysis found that there was indeed clustering of an increased number of sites around the most diverse parts of the state where there are high populations of vulnerable populations. The large high-high clusters were situated around the major urban centers that have the largest marginalized populations. These main clusters surrounded the urban areas of Newark, Camden, and New Brunswick.

## Kernel Density

The kernel density shows the number of Superfund sites in a given area relative to distance.

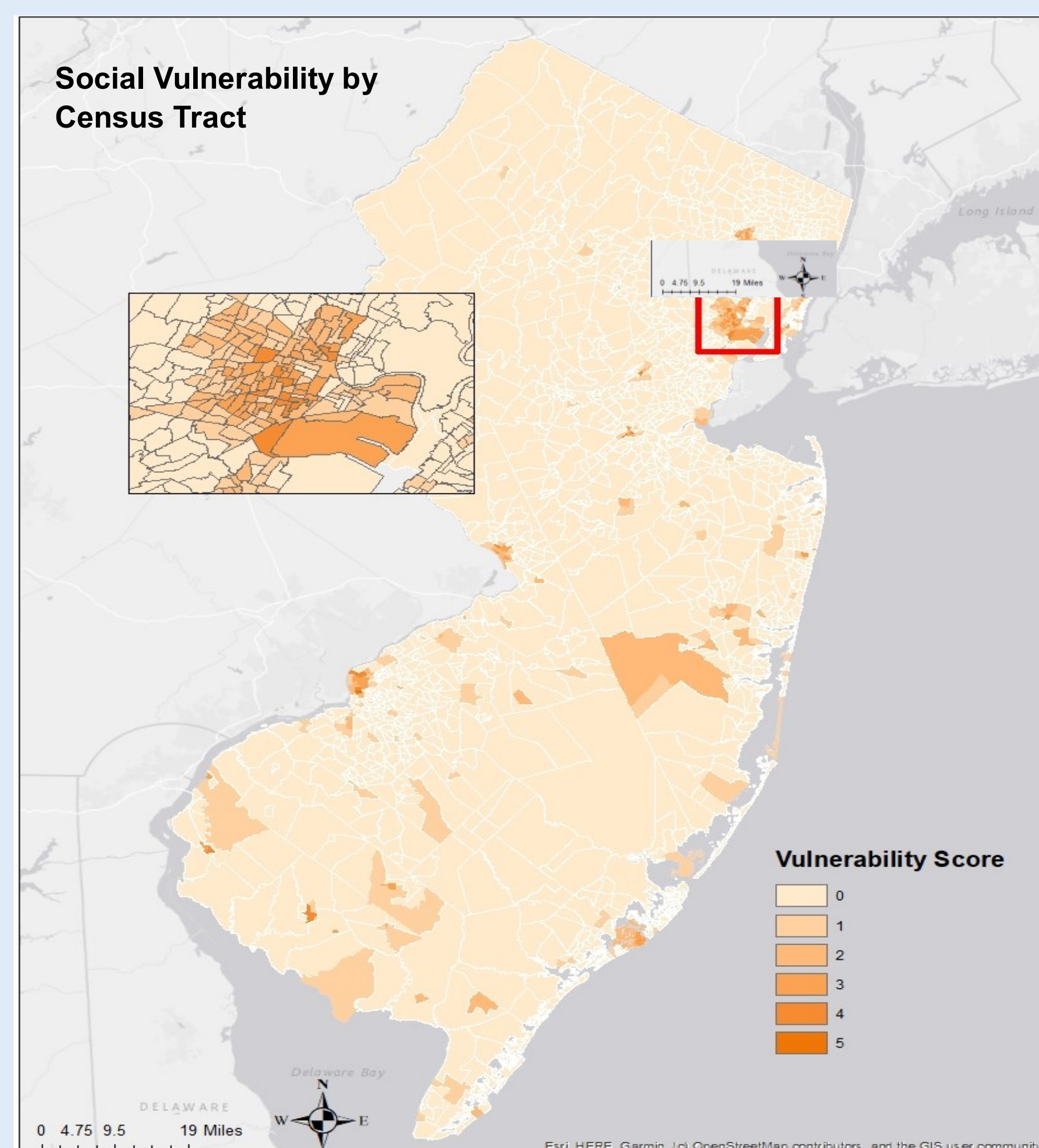


## Results: Cumulative Social Vulnerability by Census Tract



## Vulnerability Index

Vulnerability is associated with proximity to pollution as marginalized populations might not have the political resources to combat the locating of such environmental burdens, like highways or landfills within their communities.



## Clustering of Superfund Sites

Local Moran's I is used to determine whether there actually are instances of clustering. High-High clusters show areas that are surrounded by other areas containing multiple Superfund sites. Clustering here shows multiple high-high groupings around two major urban areas/

