Socioeconomic Geographies and Municipal Decision Making of New York's *Climate Smart Communities* Program

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Introduction

- New York State's Climate Smart Communities program is an incentive-based initiative that rewards municipalities with increased grant funding for investing in green infrastructure
- Communities can become registered for the program by passing a resolution/memorandum
- Municipalities can become certified, at the bronze or silver level, by earning points through the number of climate-smart actions they plan for and successfully implement
- Similar requirements are outlined for both towns/villages and counties; This study will focus solely on the Climate Smart Communities program at the town/village level
- While the program is an essential part of NYS' political agenda, little research has been completed to investigate the impact of socioeconomic factors on the incentive's development, effectiveness, and spatial distribution
- As most NYS residents live in a climate smart community, it is important they are aware which actions their municipality is taking with regards to green infrastructure, and how much they view sustainability as a priority for their residents
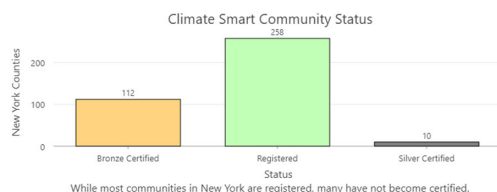
Objectives

- Investigate the spatial distribution of climate smart communities throughout NYS to determine how adoption rates of the program vary throughout different regions of the state
- Develop a hypothesis about municipal decision making toward sustainability by analyzing CSC (Climate Smart Community) and OEJ (Office of Environmental Justice) grant structure and their respective spatial distributions in New York State
- Determine if water quality classification ratings of local bodies of water are positively impacted by the close presence of a Climate Smart Community
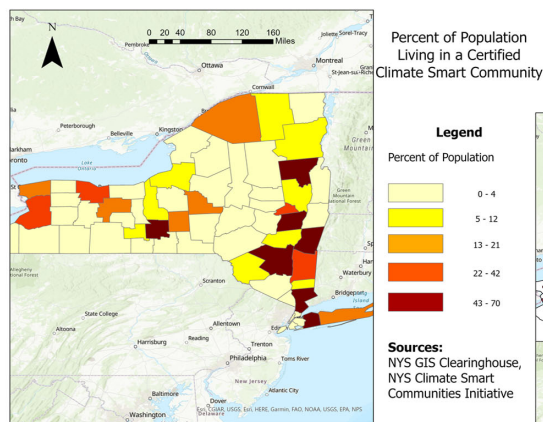
Methodology

- Data surrounding Climate Smart Communities, CSC and OEJ grants, and water body classification rating were curated from the New York State GIS Clearinghouse
- Layers with population and county data were obtained from the United States Census Bureau
- ArcGIS Pro was utilized for all data manipulation, analysis, and visualization
  - Duplicate values, and all county-level communities, were removed within ArcGIS Pro
  - Each community's join date was reformatted to make the data suitable for a time slider analysis
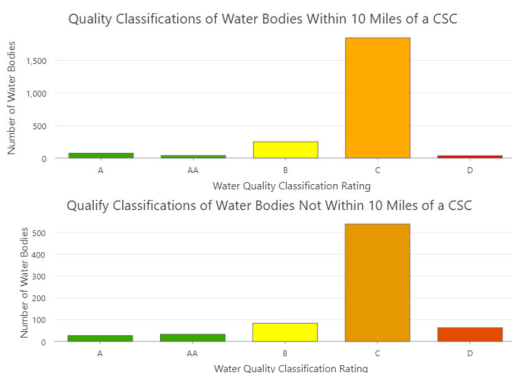 - U.S. CB data was joined to GIS Clearinghouse layers

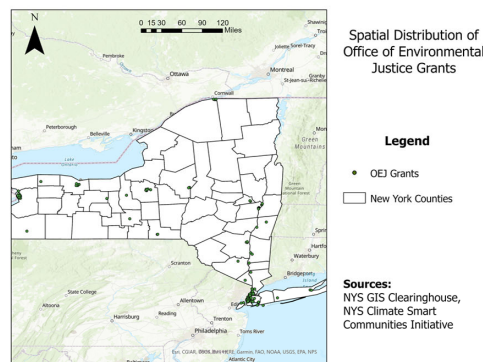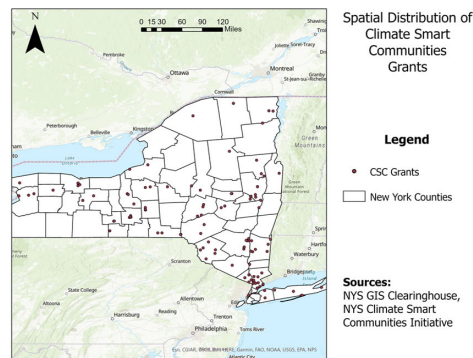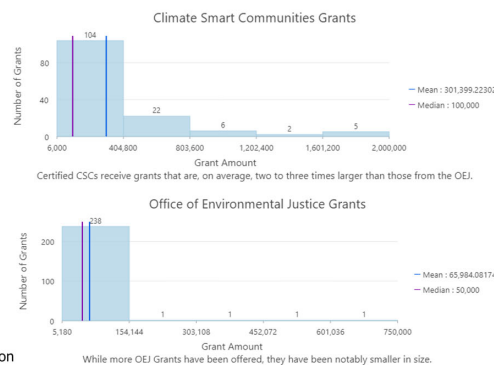## Results: CSC Spatial Distribution

Climate Smart Community Status

Bronze Certified: 112
Registered: 258
Silver Certified: 10

(x-axis: Status; y-axis: New York Counties)

While most communities in New York are registered, many have not become certified.

Results: CSC Population Geography

Percent of Population Living in a Certified Climate Smart Community

Legend — Percent of Population
- 0 - 4
- 5 - 12
- 13 - 21
- 22 - 42
- 43 - 70

Sources: NYS GIS Clearinghouse, NYS Climate Smart Communities Initiative

Results: CSCs and Water Quality

Quality Classifications of Water Bodies Within 10 Miles of a CSC

(x-axis: Water Quality Classification Rating — A, AA, B, C, D; y-axis: Number of Water Bodies)

Qualify Classifications of Water Bodies Not Within 10 Miles of a CSC

(x-axis: Water Quality Classification Rating — A, AA, B, C, D; y-axis: Number of Water Bodies)

Results: CSC vs. OEJ Grants

Climate Smart Communities Grants

104
22
6
5

Mean : 301,399.22302
Median : 100,000

(x-axis: Grant Amount; y-axis: Number of Grants)

Certified CSCs receive grants that are, on average, two to three times larger than those from the OEJ.

Office of Environmental Justice Grants

238
1 1 1 1

Mean : 65,984.08174
Median : 50,000

(x-axis: Grant Amount; y-axis: Number of Grants)

While more OEJ Grants have been offered, they have been notably smaller in size.

Spatial Distribution of Climate Smart Communities Grants

Legend
- CSC Grants
- New York Counties

Sources: NYS GIS Clearinghouse, NYS Climate Smart Communities Initiative

Spatial Distribution of Office of Environmental Justice Grants

Legend
- OEJ Grants
- New York Counties

Sources: NYS GIS Clearinghouse, NYS Climate Smart Communities Initiative

Discussion

- The spatial distribution of Climate Smart Communities centers around three regions: downstate New York (Long Island and the Mid-Hudson Valley), central New York, and eastern NY
  - These municipalities adopted the program early on and have the highest percentages of their population living in a certified CSC as a result
  - Possible urban-rural divide within the program
- The certified-to-registered community ratio is lower than expected throughout the state, highlighting the economic barriers many governments faced in pursuing CSC certification
  - While there was no correlation between median household income and total grant funding received, more affluent areas tended to have a higher number of certified Climate Smart Communities
- The rate at which new communities are joining the program has increased rapidly over the last five years
  - CSC grants are more widespread than OEJ grants, giving municipalities outside of major urban areas the opportunity to receive funding
  - Despite being fewer in number, CSC grants are more lucrative than OEJ grants, offering governments the opportunity to gain large sums in funding
- There was no statistically significant difference in water quality classification rating by having a CSC within 10 miles

Future Work

- An alternate approach to population geography in the context of Climate Smart Communities should be explored
  - The impact of population density on the number of CSC-eligible municipalities in a county
- Further research should be conducted into a possible urban-rural divide in the program and how municipal behavior could be a cause of this divide
- To help visualize how communities are earning their points toward certification, data of the exact strategies and projects municipalities instill should be geospatially analyzed
  - Can help New York State understand which pathways are commonly utilized toward a CSC certification
  - Determine if certain actions listed as "climate smart" are becoming obsolete, so the program can be continuously modified
- Future work should determine if there are benefits to the physical environment by having a Climate Smart Community in proximity

References

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