

Municipal Resilience Report Card: Milford case study

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Track 2-Building Technical Capacity and Tools for Resilience

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UConn



Why Vulnerability Assessment?



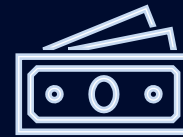
Identify areas to increase community and ecological resilience



Prioritize projects impact community assets



Evaluate urban land use planning to existing climate change vulnerabilities



Strategically allocate limited resources

Regional assessment creates a continuous and standardized data set for the CT coastal towns.

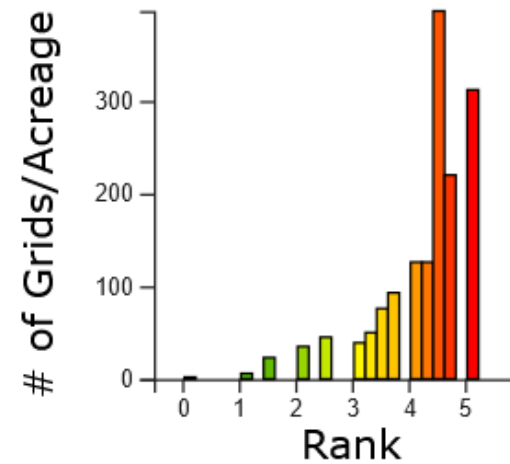
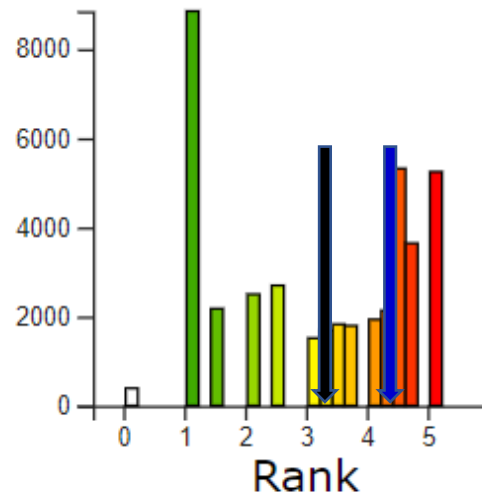
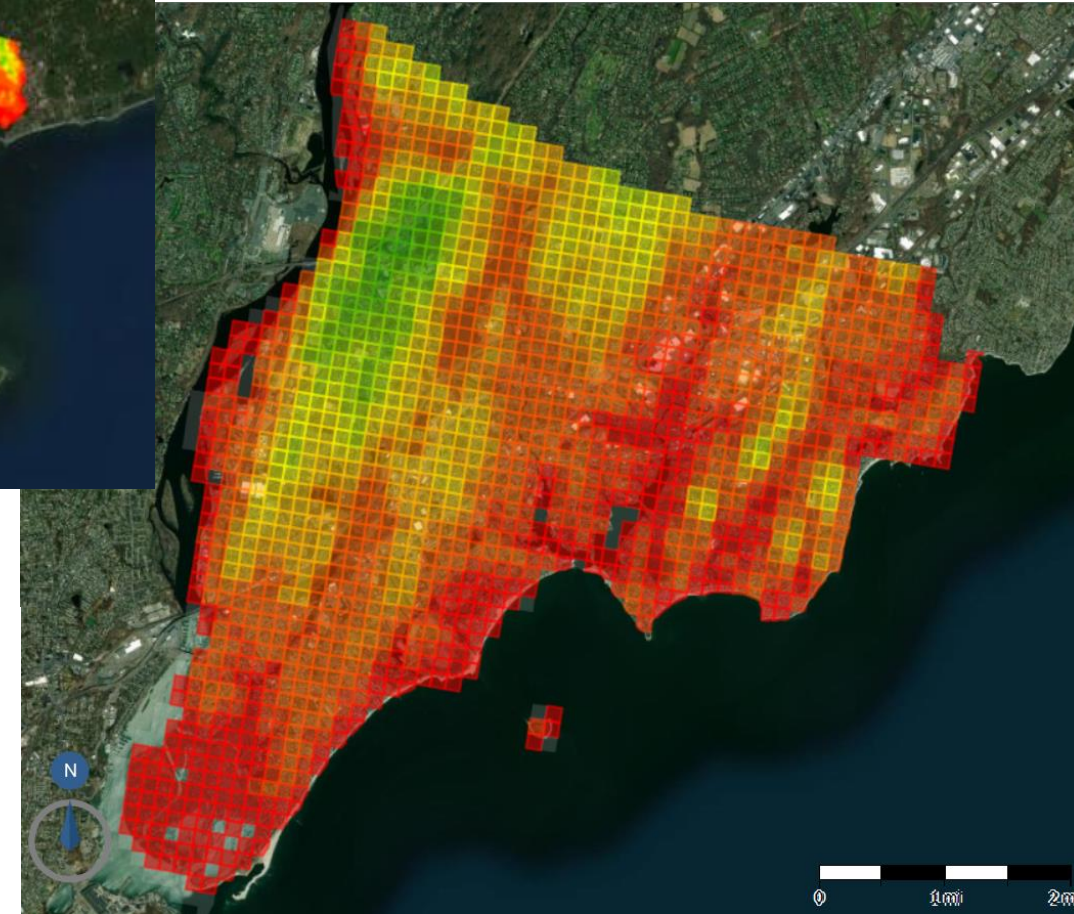
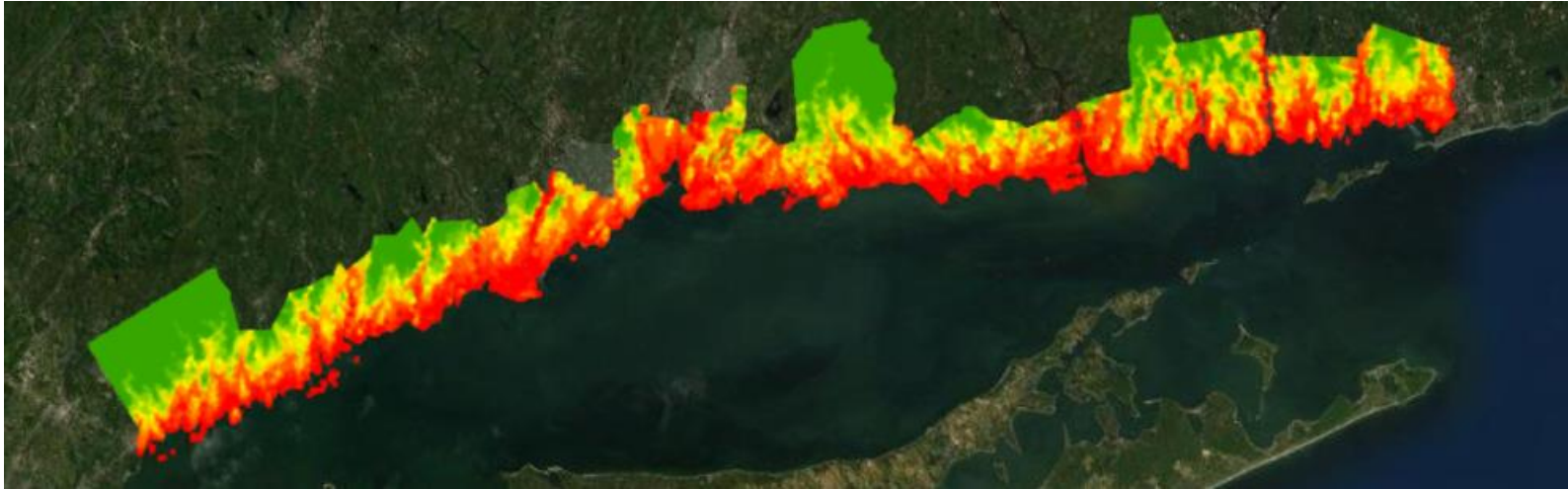
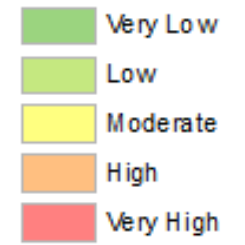


Contributor Layers

Absence of Vehicles	Distance from Rivers	Health Insurance	Population Density	Soil Flooding
Aquifer Protection Areas	Distance from Shelters	Hydrology	Quarter Household	Storm Surge
Buildings	Education level lower than high school	Impervious Area	Railways	Surficial Aquifer Potential
Building, Critical Infrastructure and Coastal Structure	Elderly Population	Literacy Rate	Roads	Tidal Range
Critical Infrastructure	Elevation	Marsh Mitigation extend by 2055	Salt Water Limits	Wave Power
Critical Habitat	Employed Population	Median Household Income	Sea Level Rise	Wind Speed
Coastal Structure	Erosion Susceptibility	Mobile Homes	Shoreline Change Rate	Young Population
Disabled Population	Land Formation	Multi-unit Household	Single Parent Household	
Distance from Healthcare	Foreshore Slope	Non-English Speakers	Soil Drainage	
Distance from I95	Habitat	Pipeline and Submerged Cables	Surficial Material	

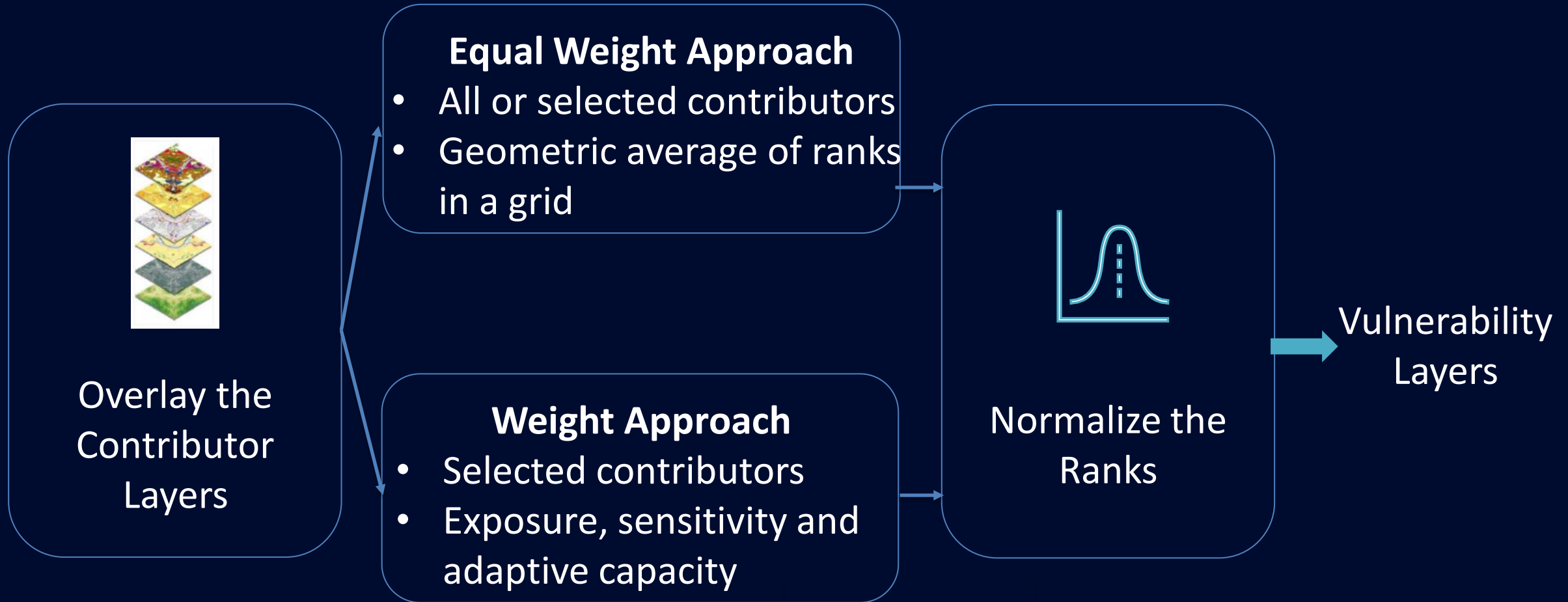
Contributor Layers

Elevation



Methodology

Post-Processing



Report Content

- Equal weight vulnerability
 - Coastal Vulnerability Summary
 - Vulnerability Contributors
 - Vulnerability Focus Zones
 - Targeted Vulnerability to Sea-Level Rise
- Exposure, Sensitivity and Adaptive Capacity Approach
 - Coastal Vulnerability Summary
 - Vulnerability Focus Zones
 - Exposure Contributors
 - Sensitivity Contributors
 - Adaptive Capacity Contributors

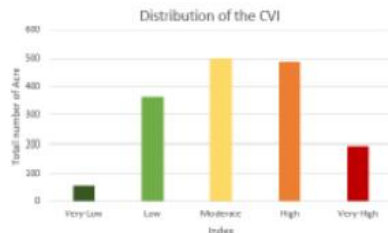
Coastal Vulnerability

Using all the contributor layers

EQUAL WEIGHT COASTAL VULNERABILITY INDEX RESULTS		
According to the equal weight coastal vulnerability index analysis, the average index score of the town is 0.53 over 1.0, which defines the town itself as MODERATELY VULNERABLE to sea-level rise and coastal flooding.	1609 Acres Analyzed	0.53/1.0 MODERATE
	11 very highly affecting contributor	14 highly affecting contributor

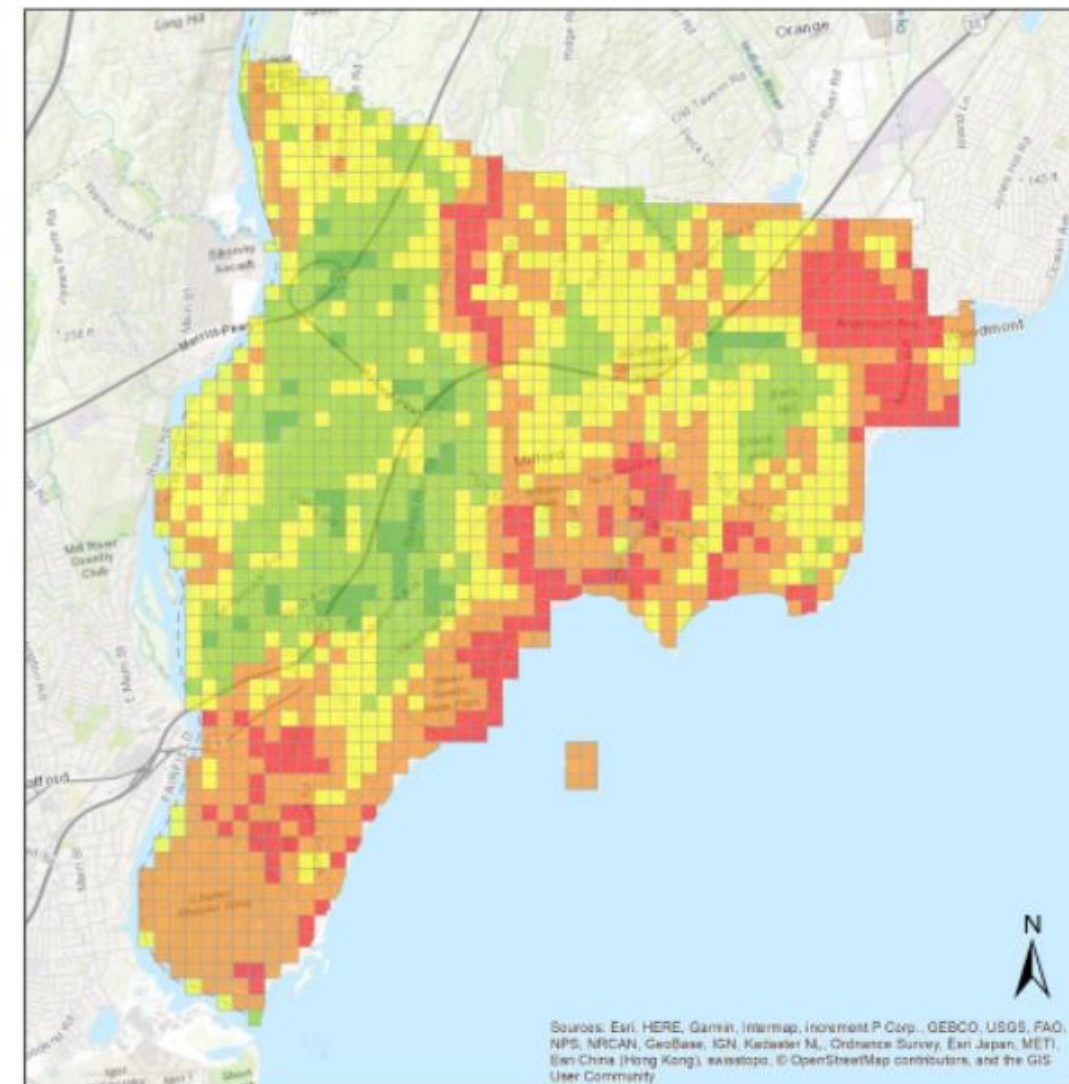
Total Acres impacted

Very High	High	Moderate	Low	Very Low
197	489	501	364	58



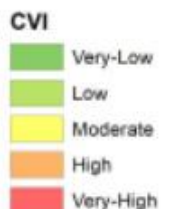
The town index score is compared to the regions. The rank is normalized within the region boundary. The maximum rank is 1.0, and the minimum rank is 0.0. The vulnerability category is defined by whether the average rank index is standard deviation range from the region's average.

Region Compared	Average rank index over 1.0	Vulnerability Category	Average Index Comparison
The town itself	0.530	MODERATE	
COG the town belongs to: South Central COG	0.491	MODERATE	The town's average vulnerability index is 3.8% HIGHER than the COG average.
County the town belongs to: New Haven	0.466	MODERATE	The town's average vulnerability index is 6.4% HIGHER than the County average.
All the coastal towns	0.459	MODERATE	The town's average vulnerability index is 7.1% HIGHER than the County average.



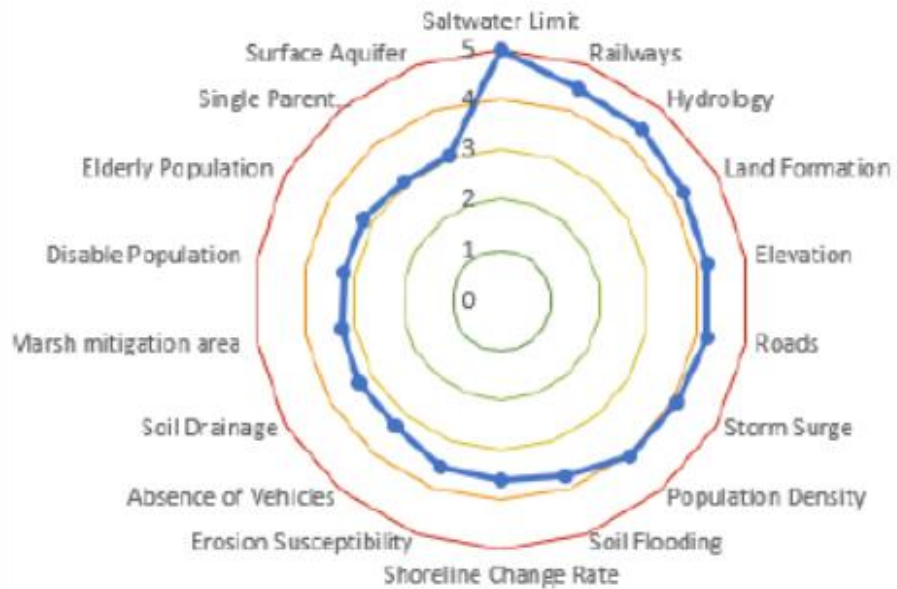
MILFORD COASTAL VULNERABILITY INDEX

This map presents the equal weight coastal vulnerability index (CVI) to sea-level rise and flooding. The index values represents high to low vulnerability relative to all the coastal towns in Connecticut

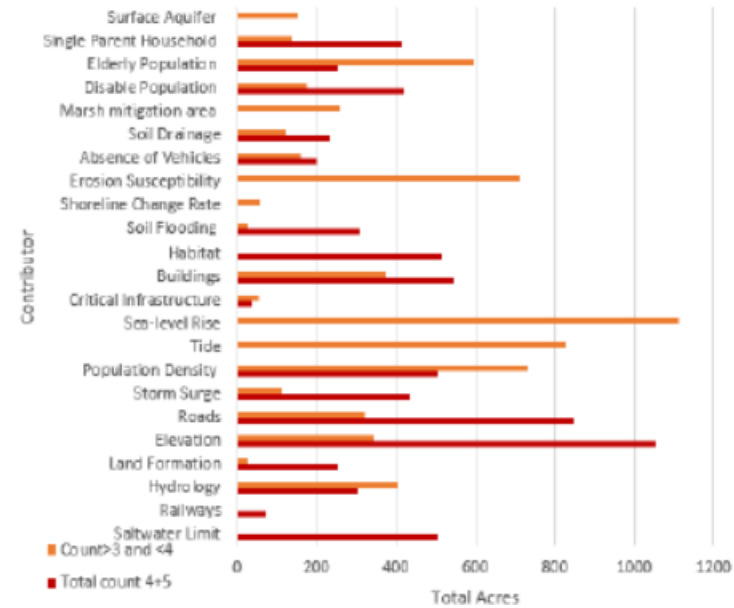


Vulnerability Contributors

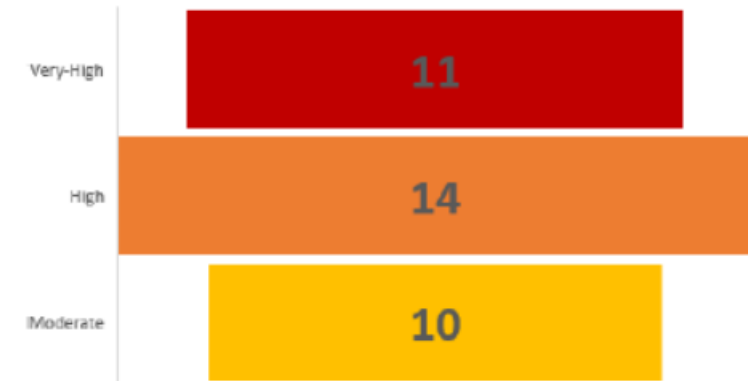
High and Moderate Contributor Indices



Total Acres of Moderate to High Index Contributors

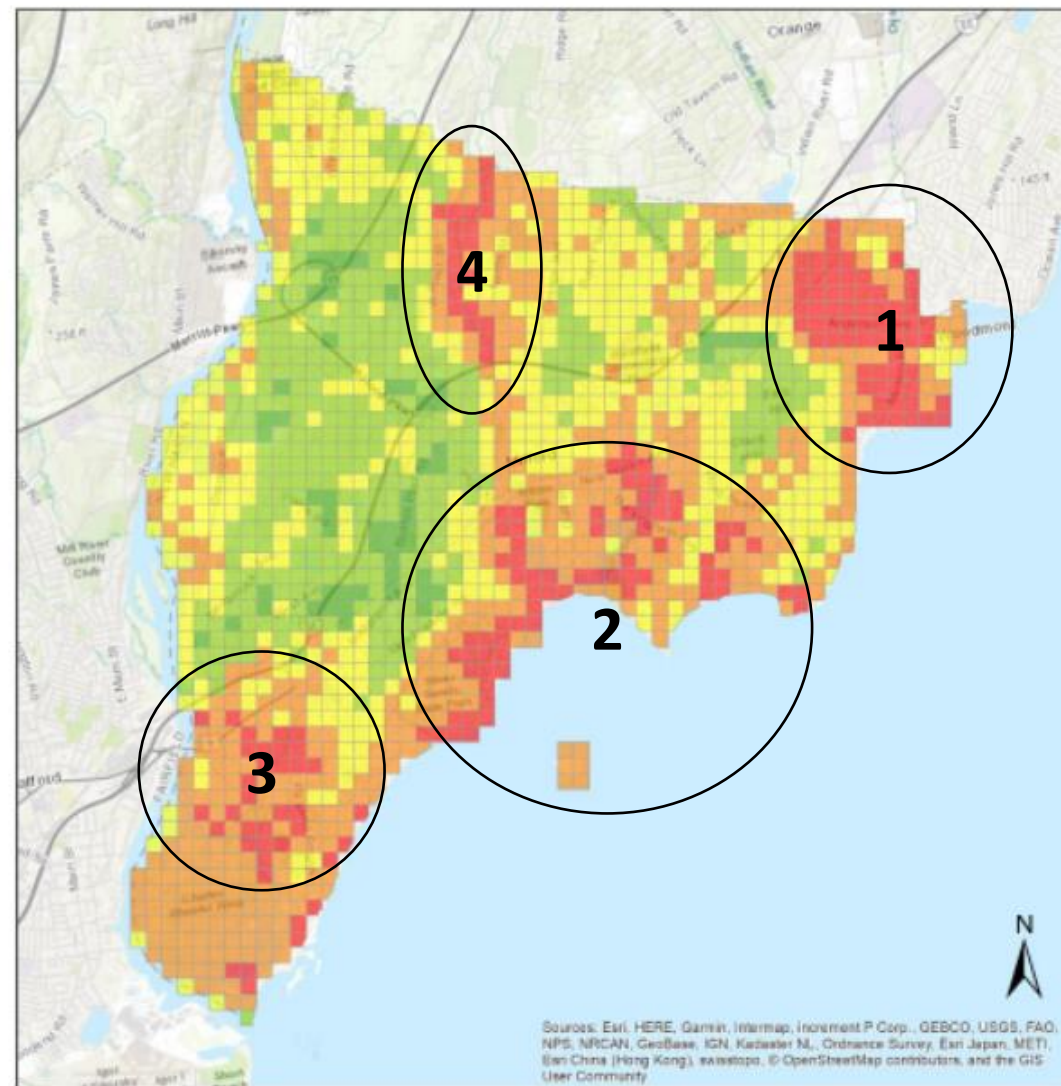


Number of Contributors



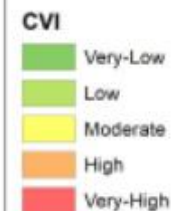
Vulnerability Focus Zones

AREA	AREA DEFINITION	AVERAGE INDEX SCORE	COMPARED TO TOWN AVERAGE	DOMINANT INDICATORS
Anderson Avenue	East, Woodmont	0.709	18% higher than the region average	Population Density, Low elevation, Distance to river and buildings
E Broadway and Gulf Pond	Middle- E Broadway st, Gulf St, New Haven, and Buckingham Ave, Welches Point Rd	0.648	12% higher than the region average	Low Elevation, Storm Surge, Street elevation, Tide, Sea level rise
Rivercliff and Laurel Beach	West-Rivercliff- Bridgeport Ave, Laurel Beach-Birch Ave.	0.642	11% higher than the region average	Population Density, Saltwater Limit, Street Elevation, Storm surge, Hydrology
Route 121-North	North- North St, River	0.622	9 % higher than the region average	Hydrology, Distance from River




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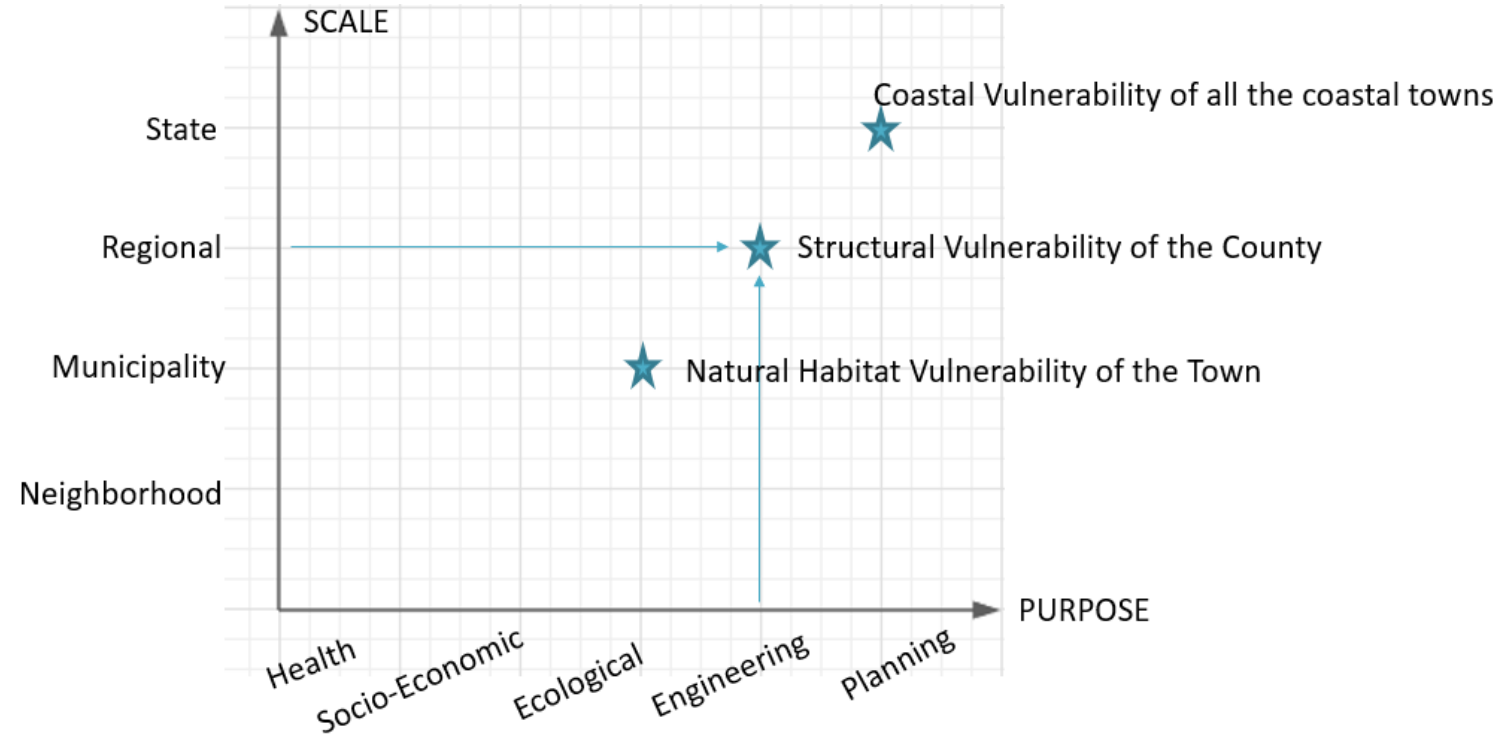


How would you use the coastal vulnerability index assessment?

 Start presenting to display the poll results on this slide.

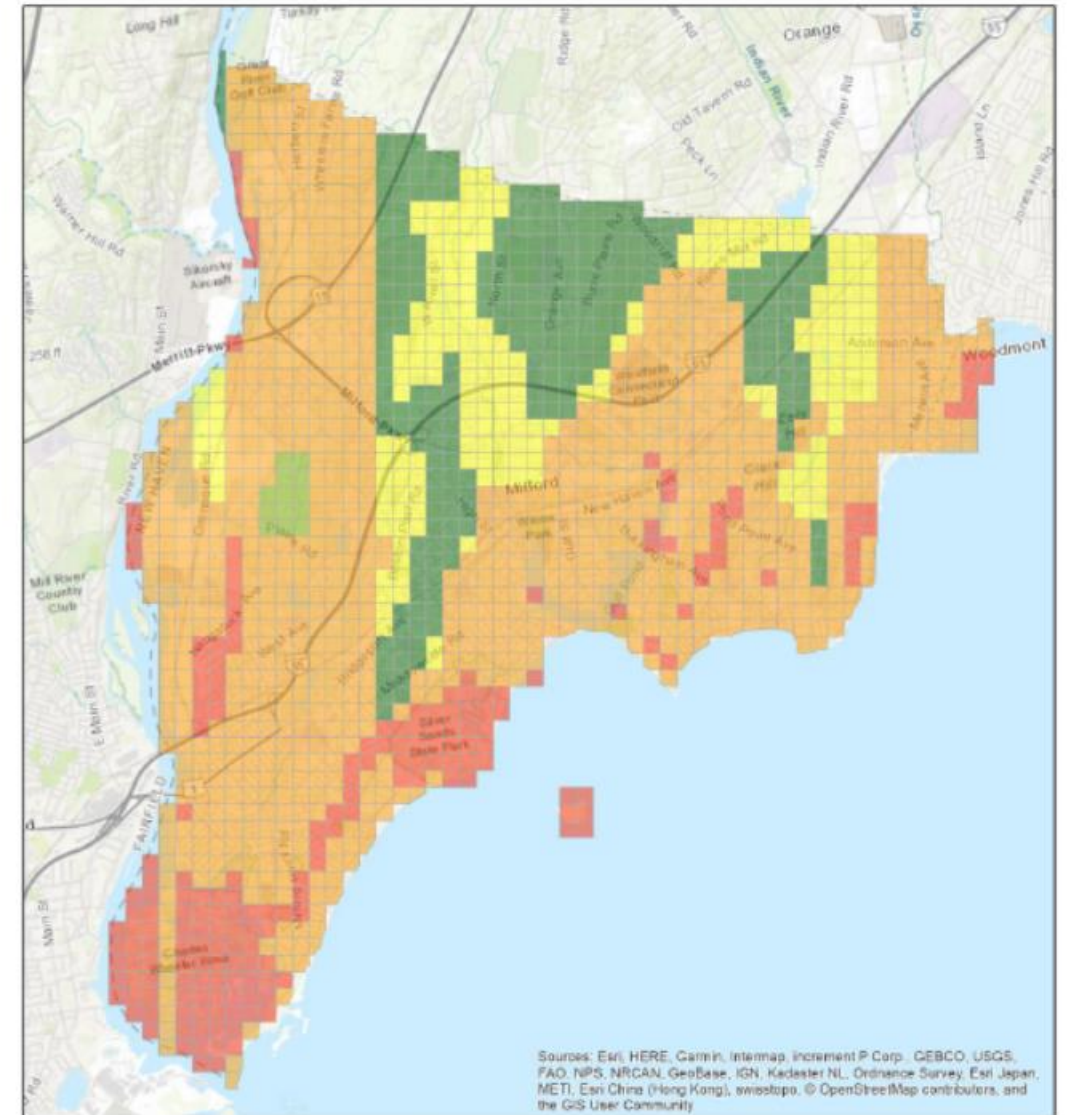
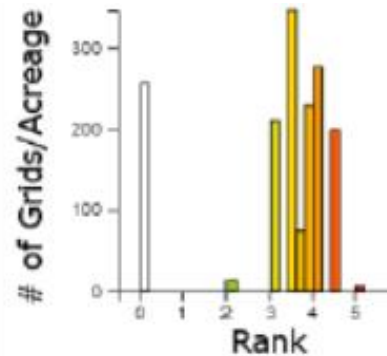
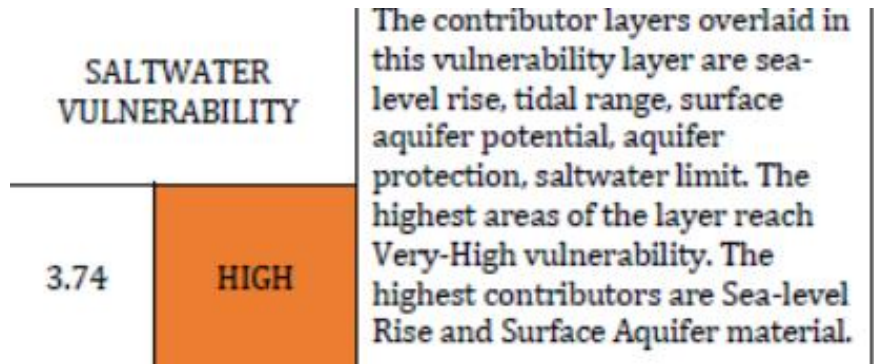
Targeted Vulnerability to Sea-Level Rise

- Erosion vulnerability
- Environmental vulnerability
- Natural Habitat vulnerability
- Saltwater intrusion
- Structural vulnerability
- Social vulnerability



Targeted Vulnerability to Sea-Level Rise

- Saltwater intrusion Vulnerability
 - Aquifer potential
 - Saltwater Limit
 - Surface Aquifer
 - Sea level rise



MILFORD SALTWATER INTRUSION VULNERABILITY

The map presents the equal weight saltwater intrusion vulnerability to sea-level rise. The index values represents high to low vulnerability relative to all the coastal towns of Connecticut.

0 0.3 0.6 1.2 1.8 2.4 Miles



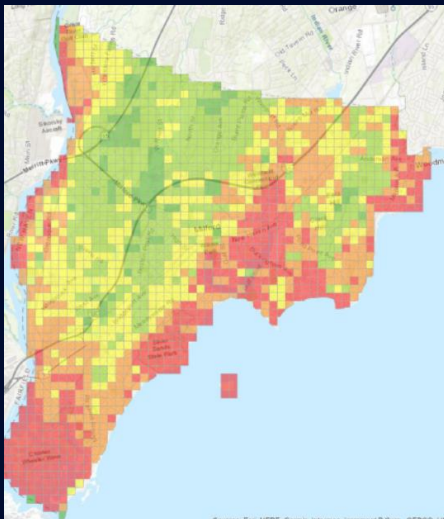
Index

- Very-Low
- Low
- Moderate
- High
- Very-High

Weighted Approach

Exposure

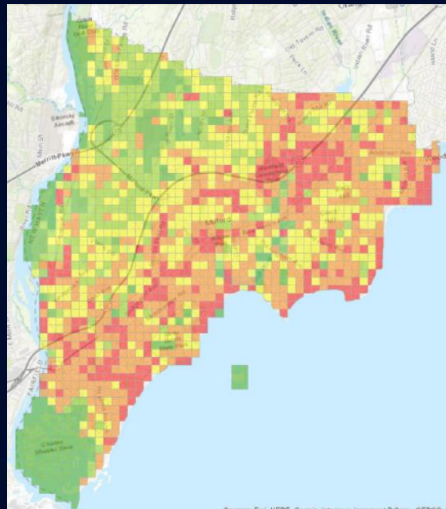
The degree of the stress that the particular asset is going through with climate variability.



X

Sensitivity

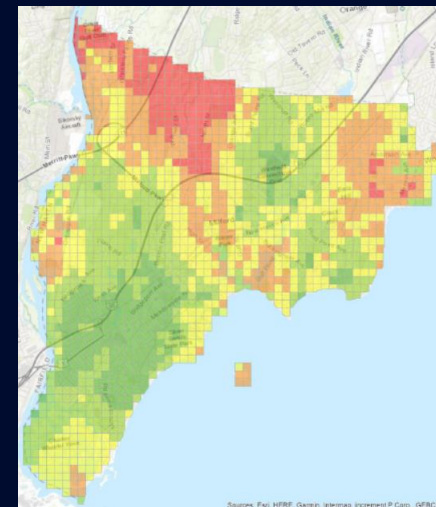
The degree to which a built, natural, or human system will be impacted by changes in climate conditions.



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Adaptive Capacity

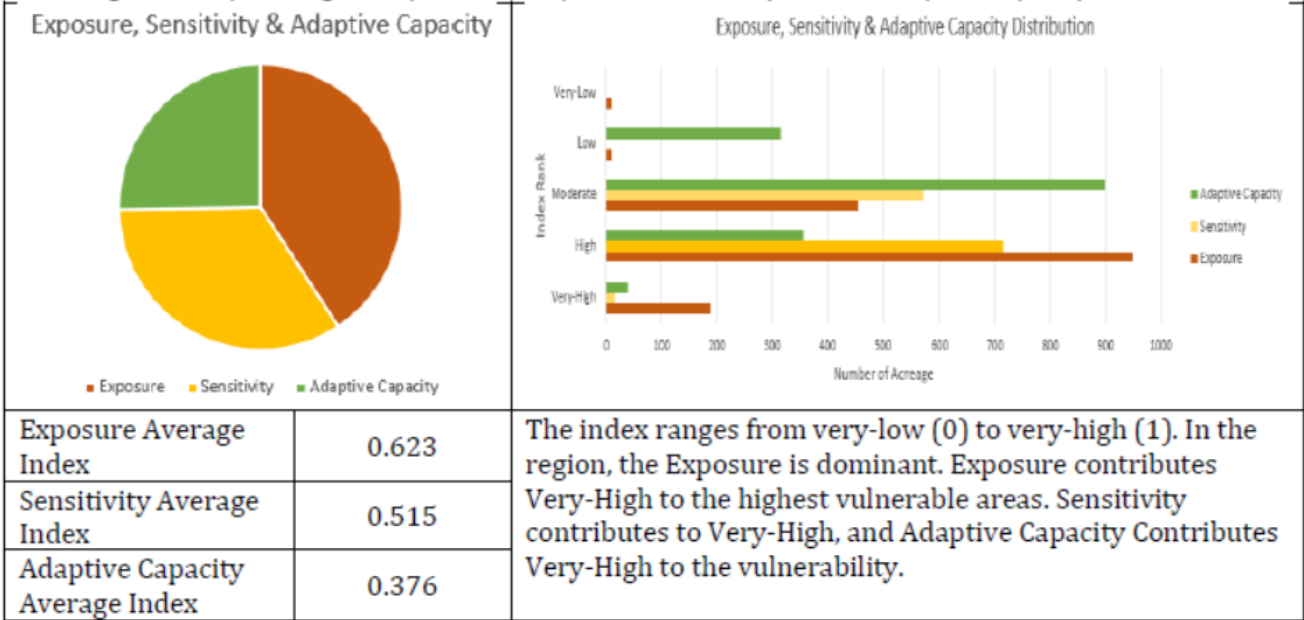
The ability of a system to adjust to changes and cope with consequences.



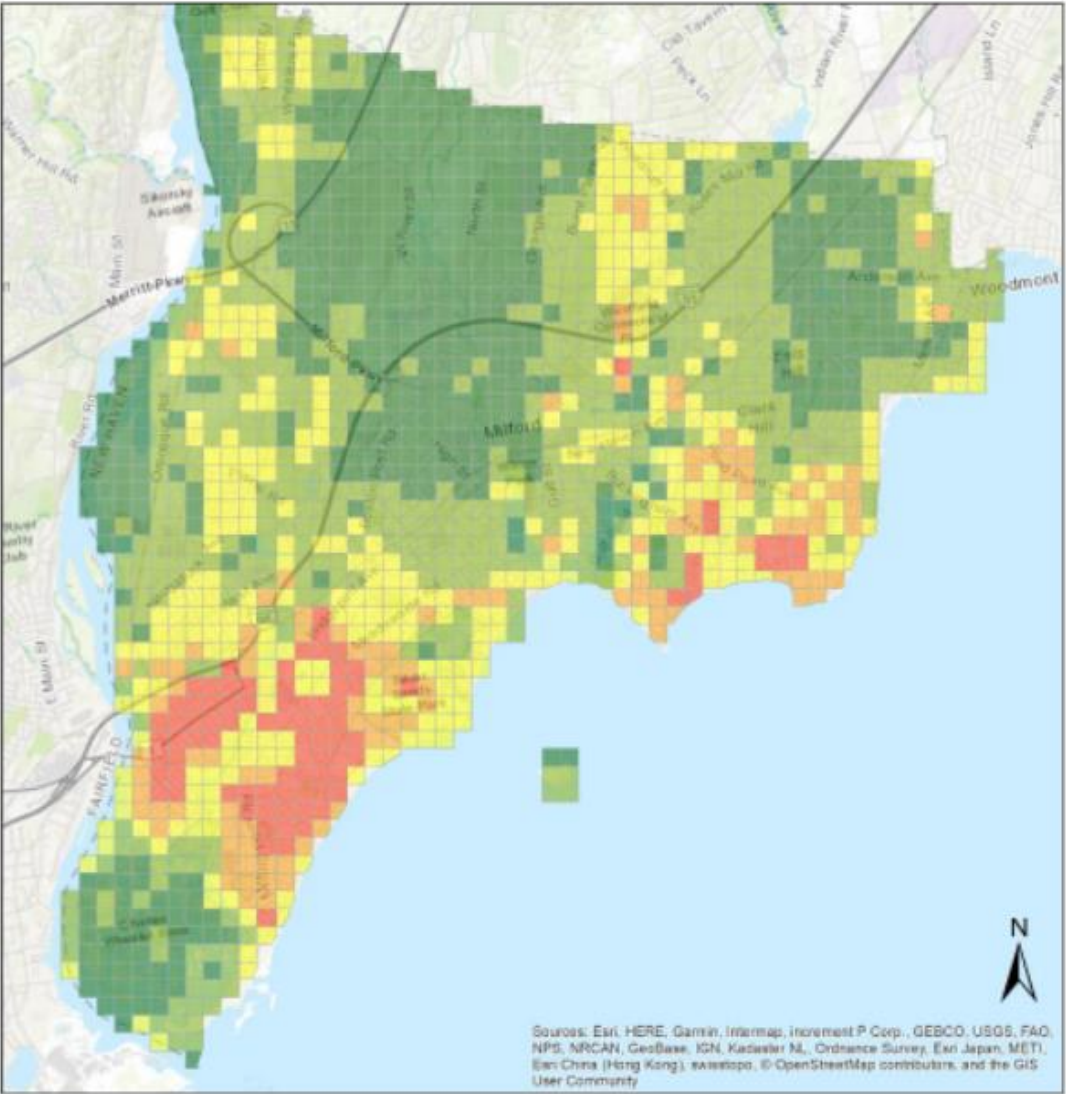
= Vulnerability

Coastal Vulnerability

According to the equal weigh analysis of the Exposure, Sensitivity and the adaptive capacity



The average vulnerability of the town is MODERATE compared to all the Connecticut coastal towns.

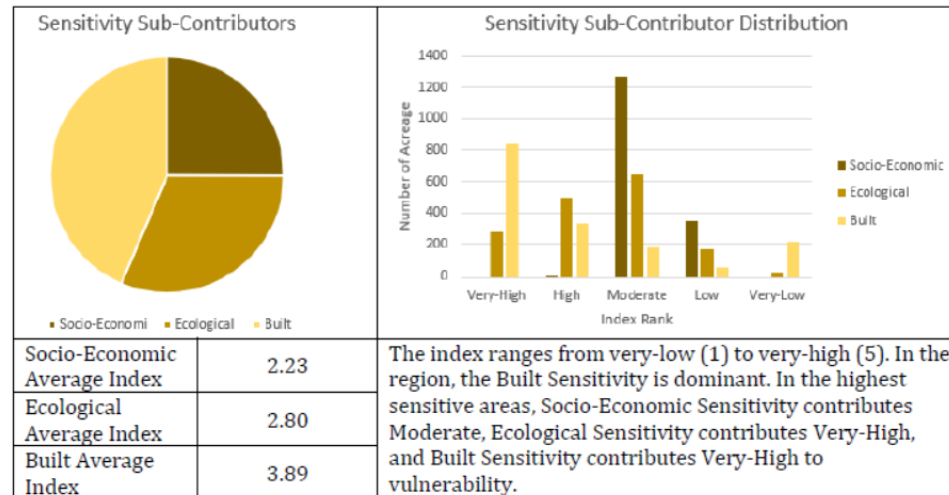
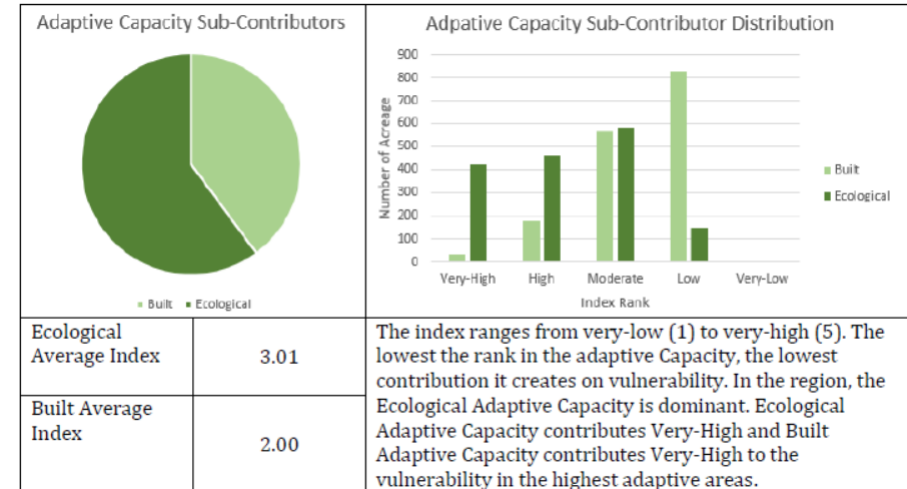
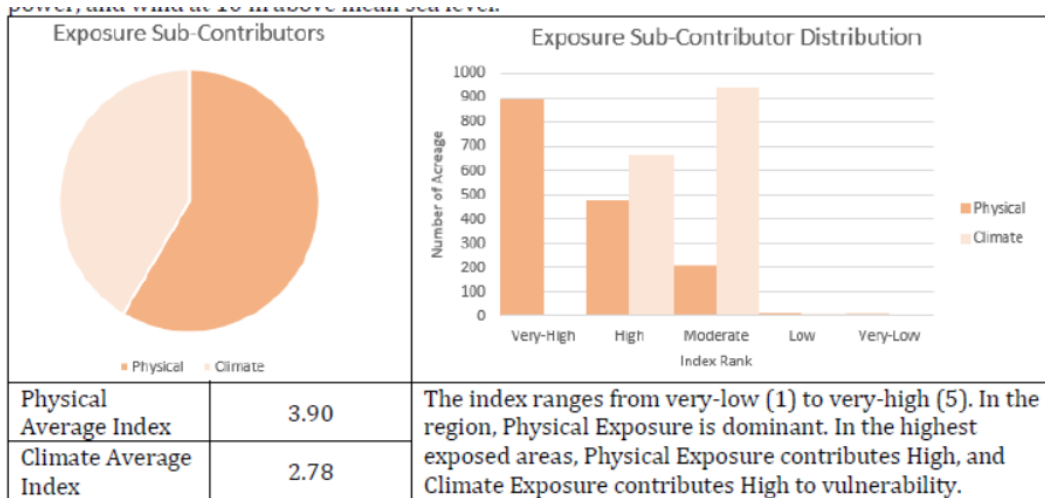


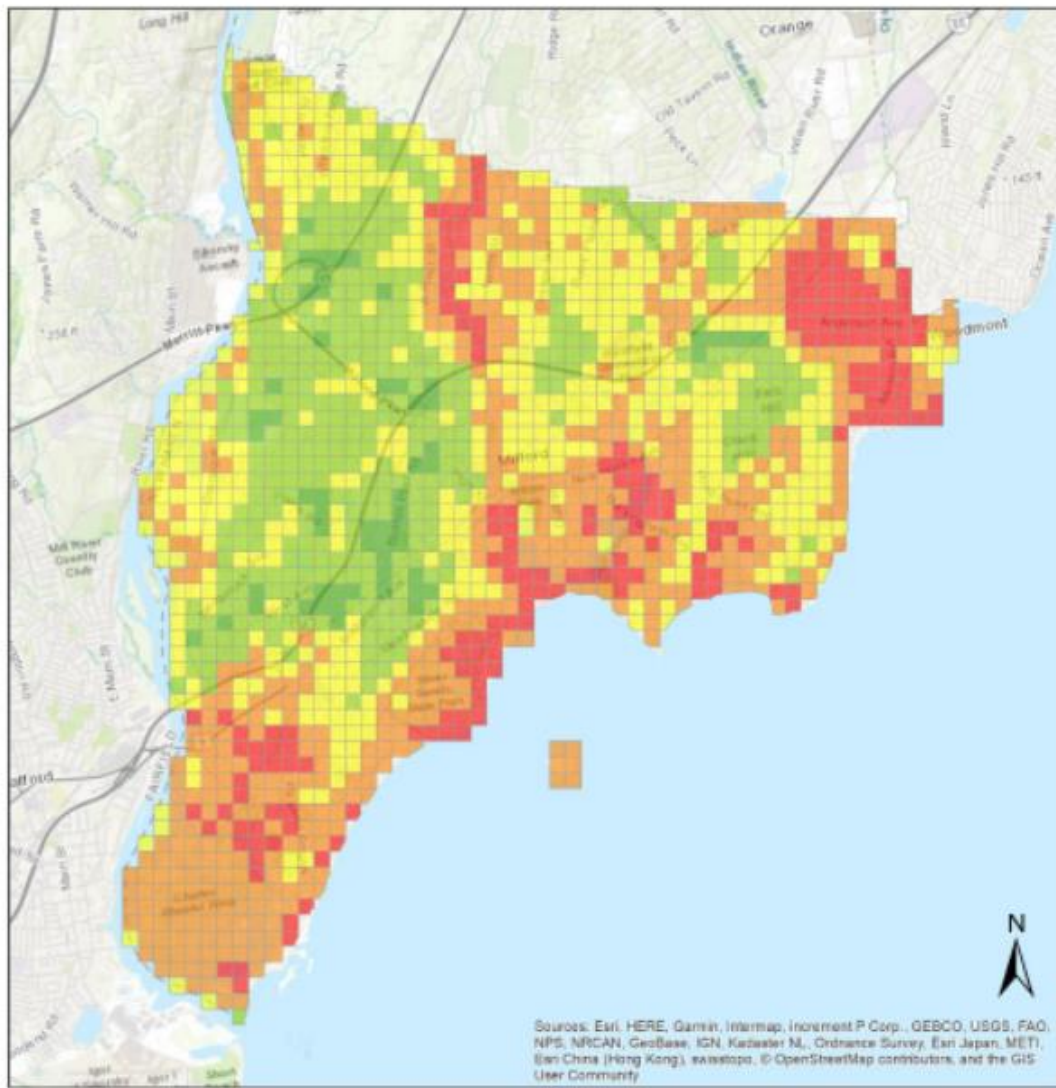
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This map presents the equal weight coastal vulnerability to sea-level rise and flooding using exposure, sensitivity and adaptive capacity of the region. The index values represents high to low vulnerability of the town.



Exposure, Sensitivity and Adaptive Capacity





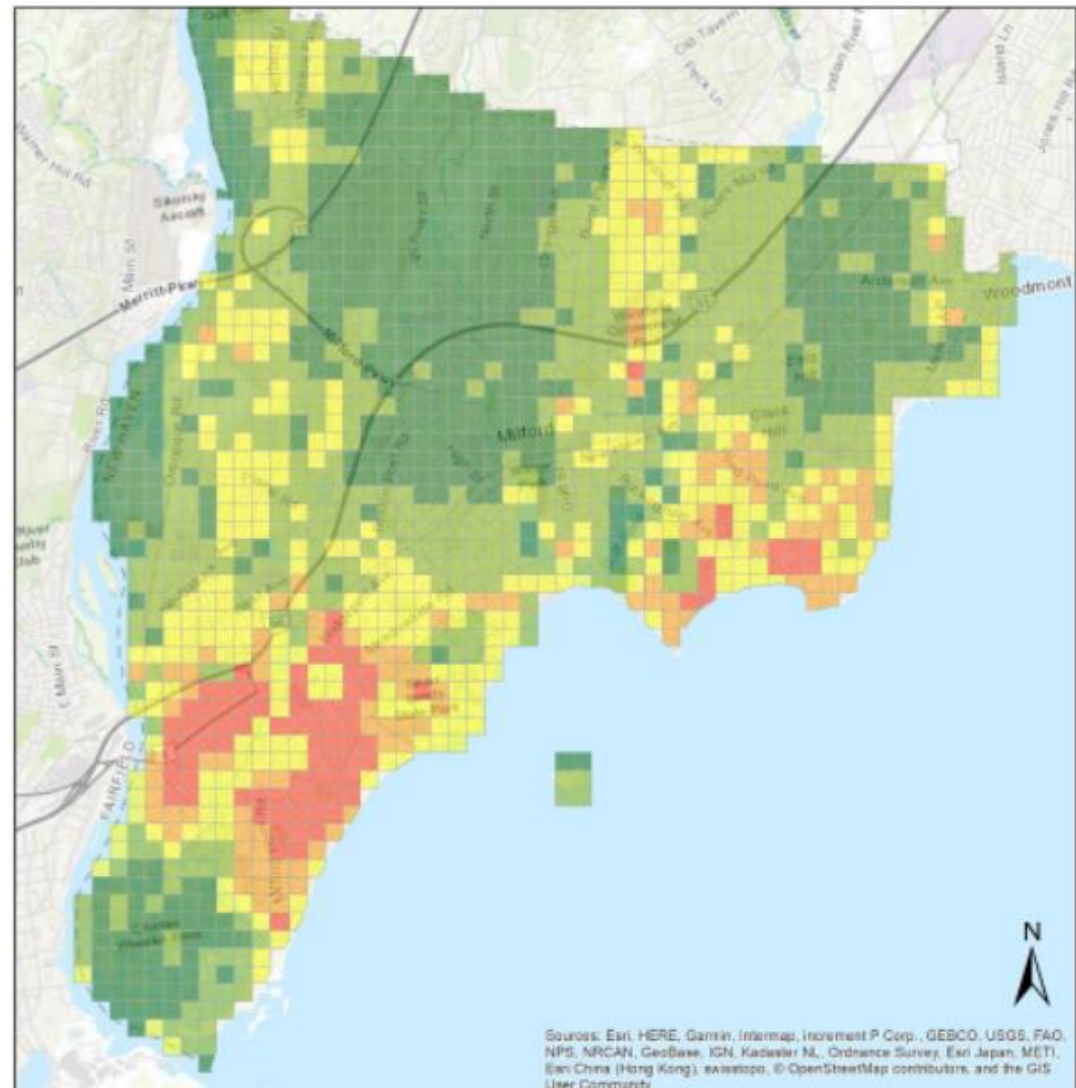
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CVI

- Very-Low
- Low
- Moderate
- High
- Very-High

0 0.4 0.8 1.6 2.4 3.2 Miles



MILFORD COASTAL VULNERABILITY

This map presents the equal weight coastal vulnerability to sea-level rise and flooding using exposure, sensitivity and adaptive capacity of the region. The index values represent high to low vulnerability of the town.

CVI

- Very-Low
- Low
- Moderate
- High
- Very-High

0 0.375 0.75 1.5 2.25 3 Miles




Next Steps

- Assessment Report
- Overlay with zones of shared risk
- Climate Vulnerability





Will you be interested in a training webinar/workshop on
vulnerability index assessment?

 Start presenting to display the poll results on this slide.



Thank you!

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