Dimensions Of Coastal Vulnerability:

Mapping Competing Conceptions In New Jersey

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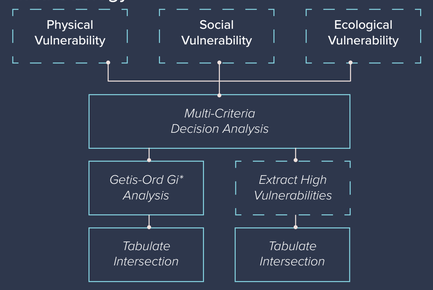
Introduction

This study aims to **compare competing definitions of vulnerability** in coastal New Jersey. By identifying separate methods to define vulnerability through **physical, social, and ecological lenses**, we will produce a tool against which we can compare existing and planned investments in resilience projects to understand how, and to what extent, current coastal resilience work addresses vulnerability of different types.

Research Questions

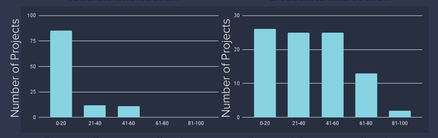
*How does the combination of competing definitions of vulnerability **(physical, social, and ecological)** compare against the government prioritization of resilience projects?*

Methodology



Findings & Analysis

Getis Ord Gi* & Tabulate Intersection



Range of Percentage Overlaps

64%

109/171 projects fall within a high combined vulnerability zone

86.5%

148/171 projects fall within a high ecological vulnerability zone

Extract High Vulnerabilities & Tabulate Intersection

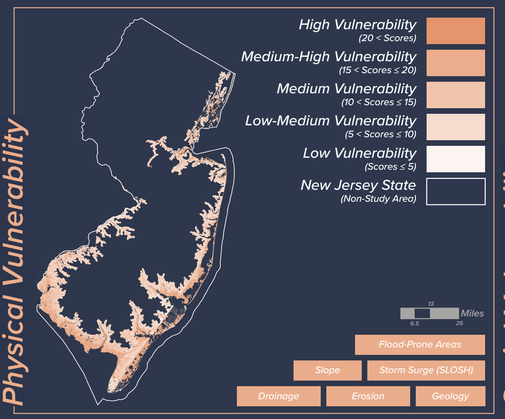
Range of Percentage Overlaps

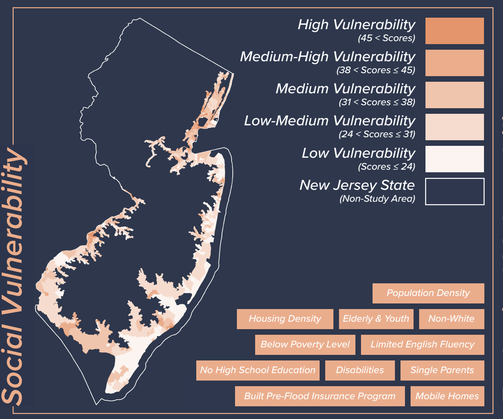
88%

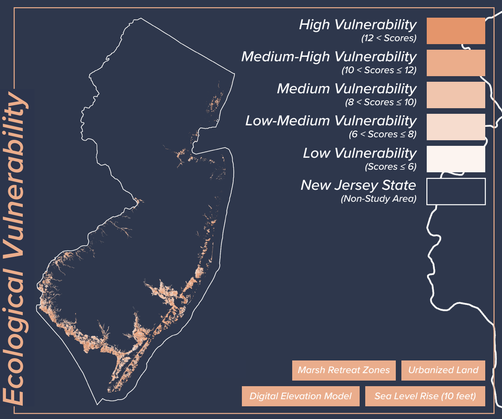
152/171 projects fall within a high physical vulnerability zone

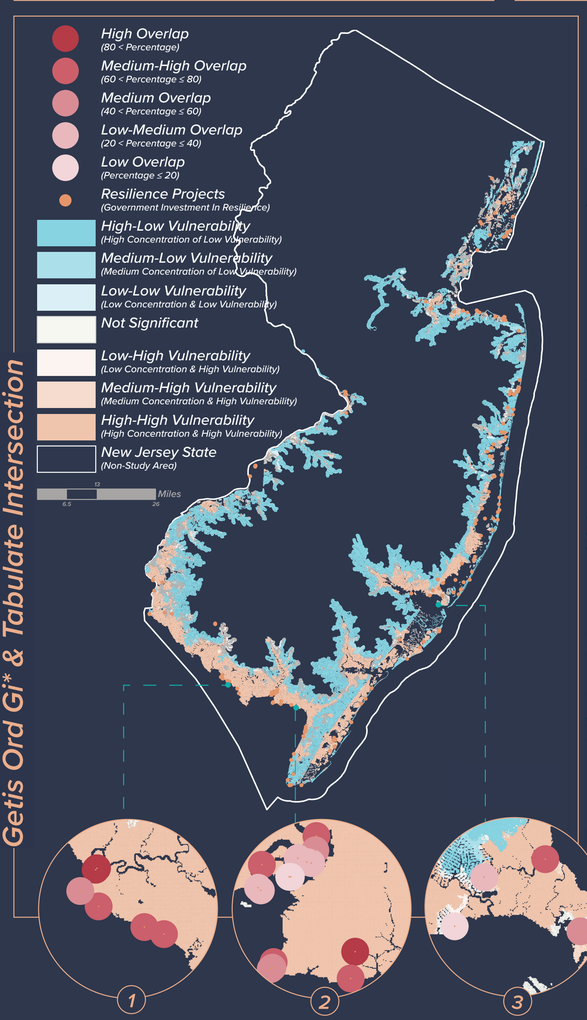
9.9%

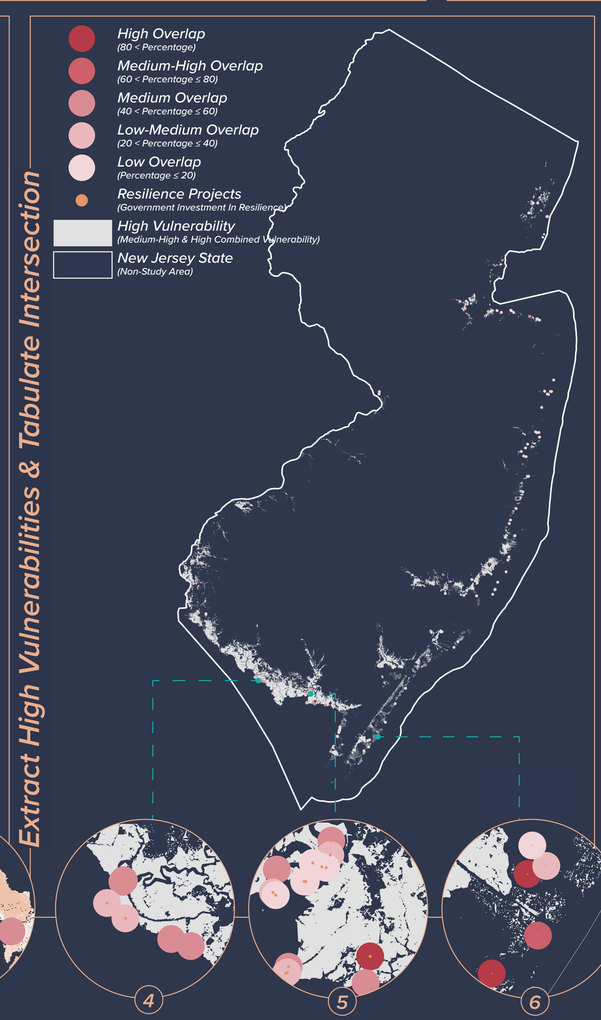
17/171 projects fall within a high social vulnerability zone











References

San Francisco Bay Area Planning and Urban Research Association, & San Francisco Estuary Institute (2019), Verhoeven et al. (2008), Rozum & Carr (2013), Claremunt et al. (2018), Hitt (2019), Aguilera et al. (2020), Kumar & Cushman (2022), Claremunt & Calvin (2015), Fraser et al. (2017), Rizeil et al. (2023), Michalak et al. (2018), Carroll et al. (2017), US Census Bureau (2018), NJ Office of Information Technology (2020), National Weather Service (2024), National Oceanic and Atmospheric Administration Office for Coastal Management (2023), FEMA (2024), NJ Office of Information Technology (2021), National Oceanic and Atmospheric Administration Office for Coastal Management (2016), U.S. Geological Survey (2023)