Sea-Level Rise and Tax-Base Vulnerability for New Jersey and Maryland Coastal Municipalities

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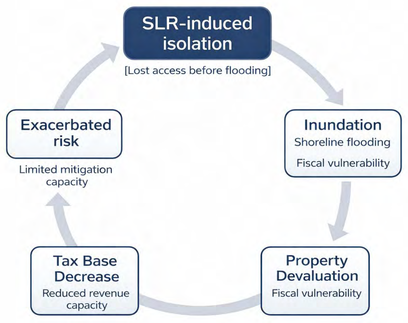
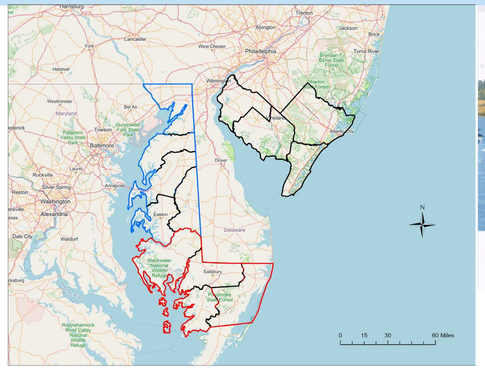
Introduction

Sea-level rise and coastal flooding are increasing risks for coastal communities in New Jersey and Maryland, threatening not only physical assets but also local fiscal stability. As flooding expands, parcels may experience direct inundation, repeated access disruption, declining property values, and increasing recovery needs. These impacts can weaken municipal tax bases over time, especially where residential, commercial, public, and conservation lands become exposed under future sea-level-rise scenarios. This project links parcel-scale sea level rise exposure with property-value data across coastal counties in New Jersey and Maryland to identify where fiscal and planning challenges may emerge first.



SLR can accelerate property devaluation, threats the tax base that funds mitigation and reinforces fiscal vulnerability over time. Before a house is flooded, disruption of road access can create isolation when road segments are overtopped and parcels are cut off from critical services, leading to earlier tax base risk. This study measures the spatial and temporal pattern of this risk.

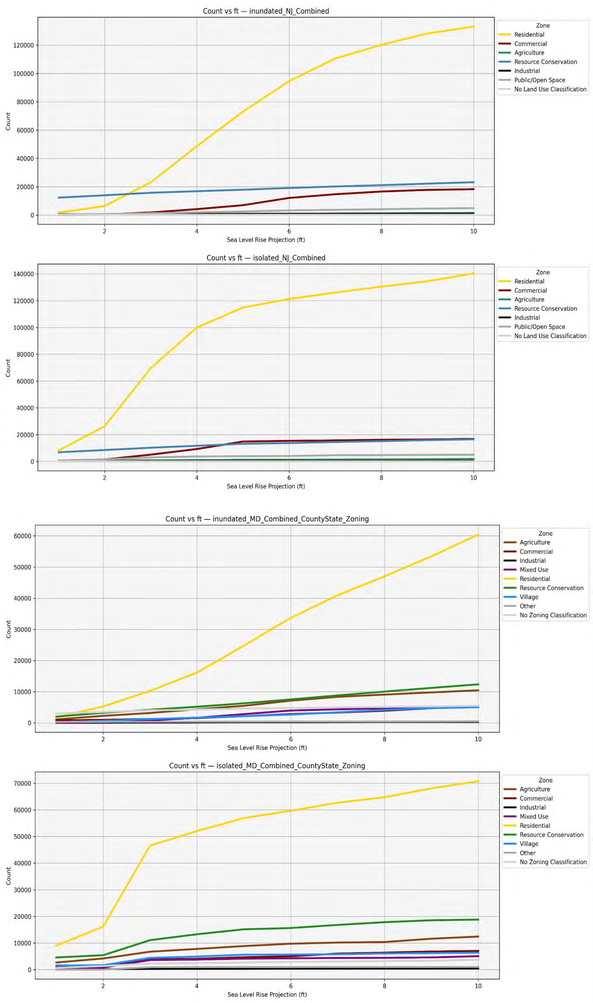


Study area: South Jersey and Maryland Eastern Shore coastal counties.

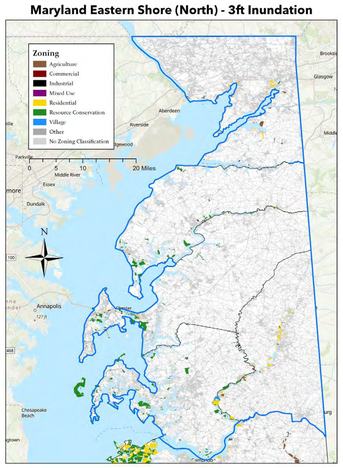
Sunny day flooding threatens New Jersey communities. Photo Credit: New Jersey Department of Environmental Protection (NJDEP)

Data Sources

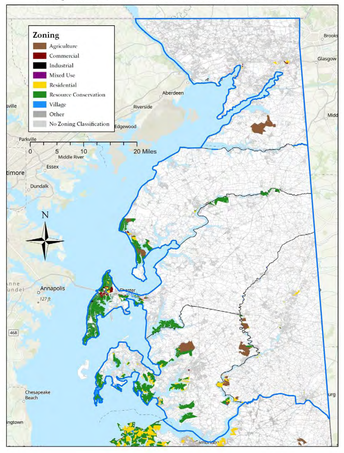
- National Oceanic and Atmospheric Administration (NOAA) Mean Higher High Water (MHHW) Sea-Level Rise Scenarios, 1-10 ft projections
- Land use / zoning: NJ 2020 LU/LC from NJGIN; MD county zoning from individual county GIS sources and statewide generalized zoning from Maryland Department of Planning
- Parcels / assessments: NJGIN and ParcelAtlas
- Road networks: NJGIN and MDOT road centerlines



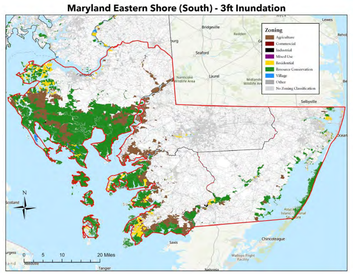
Maryland Eastern Shore (North) - 3ft Inundation



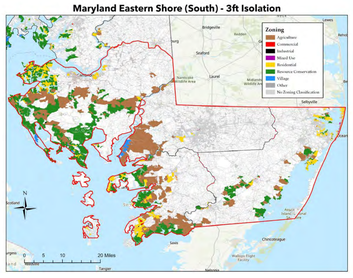
Maryland Eastern Shore (North) - 3ft Isolation



Maryland Eastern Shore (South) - 3ft Inundation

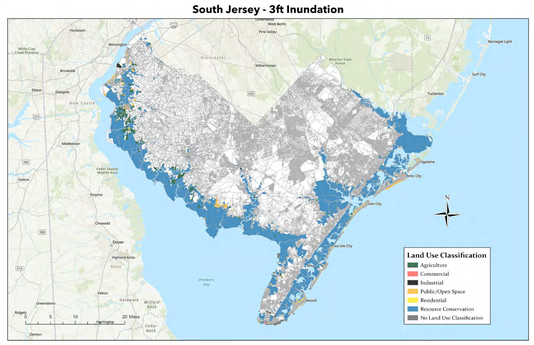


Maryland Eastern Shore (South) - 3ft Isolation

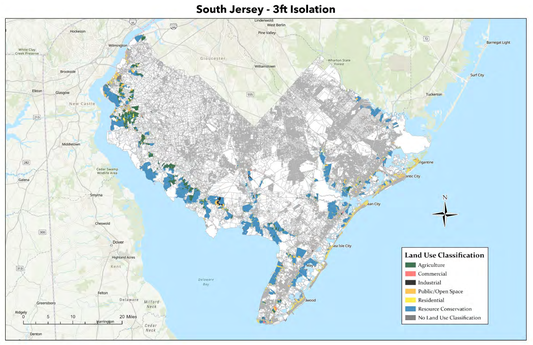


***Maps above** show Maryland Eastern Shore parcel risk exposure at 3 ft SLR, separated into northern and southern county groups. **Left-side** maps show parcels directly exposed to inundation, while **right-side** maps show parcels that remain dry but become isolated due to disrupted road access under the same SLR scenario.*

South Jersey - 3ft Inundation



South Jersey - 3ft Isolation



***Maps above** show South Jersey parcel risk exposure at 3 ft SLR; **Figures on right** indicate isolation affect residential land use sooner and with greater magnitude than inundation risk across SLRs for both South Jersey and Maryland Eastern Shore Counties.*

Methods

- Study Area: Four coastal counties in South Jersey and nine counties on Maryland's Eastern Shore
- LU/LC and Zoning classifications: NJ 2020 LU/LC and MD zoning layers were aggregated into broad exposure categories
- Parcel Base: parcel polygons with flooding scenario exposure assigned using parcel centroids for all spatial joins
  - *Inundation Exposure*: Centroid intersects SLR inundation footprint (by scenario)
  - *Isolation Exposure:* Centroid remains dry but loses functional road-based access due to roadway disruption under the same SLR scenario (Logan et al., 2023)

Key Findings & Applications

- Isolation identifies dry parcels that lose road access, expanding exposure beyond inundation.
- Major exposure shifts occur at low-to-mid SLR, especially around ~2–4 ft.
- In South Jersey LU/LC, residential parcels show the greatest change across SLR scenarios, while Maryland zoning exposure is more distributed across multiple classes.
- Combining inundation and isolation gives a fuller view of physical and functional vulnerability.
- Parcel-level results can inform property, access, infrastructure, and fiscal-risk decisions.

Ongoing outreach: a recent survey of NJ, MD, and DE coastal resilience and planning professionals to document what strategies are working, what is not, and where implementation gaps remain. Planning for focus group events and in-depth interviews during Summer to Fall 2026.

Key References

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