

ONLINE RESILIENCE TOOLS

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You and Tools

- Do you know what future conditions are you planning for?
- Have you used online tools in your work or personal life?
 - Which tools have you used?
 - What specific variables did you visualize (storm surge, habitat, precipitation, etc.)?
- What sources of confusion do you have about coastal resilience tools and putting them to use for your locality?

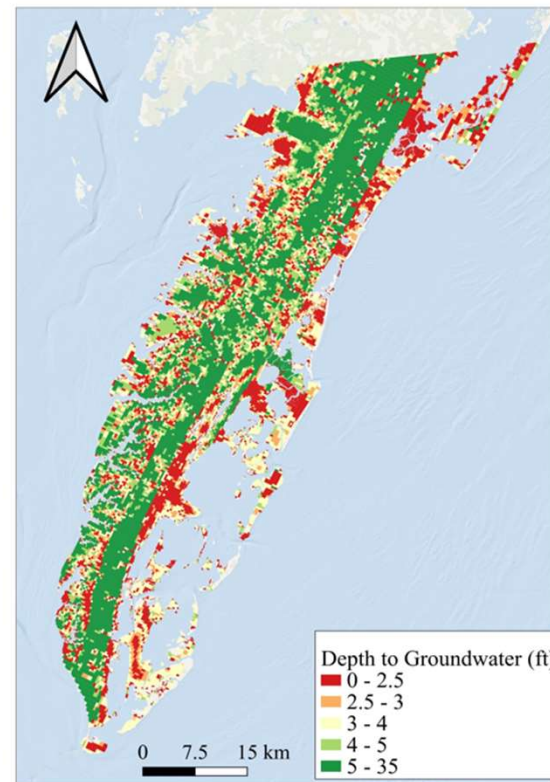
Tools Designed for the Eastern Shore of Virginia

TNC's Coastal Resilience Tool
(CR Tool)

1. Sea Level Rise
2. Living Shorelines
3. Future Habitat
4. Coastline Change
5. Regional Planning



Climate Equity Atlas
UVA and ODU

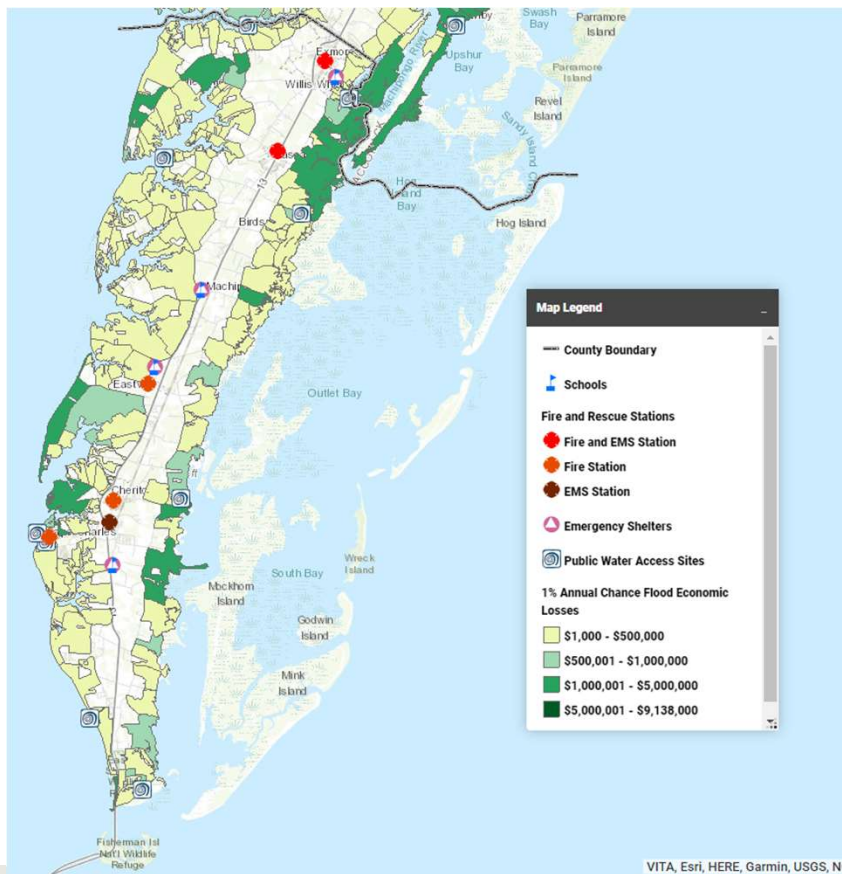


1. Social information and infrastructure vulnerabilities
2. Coastal and inland flooding scenarios
3. Groundwater modeling for septic systems and water access

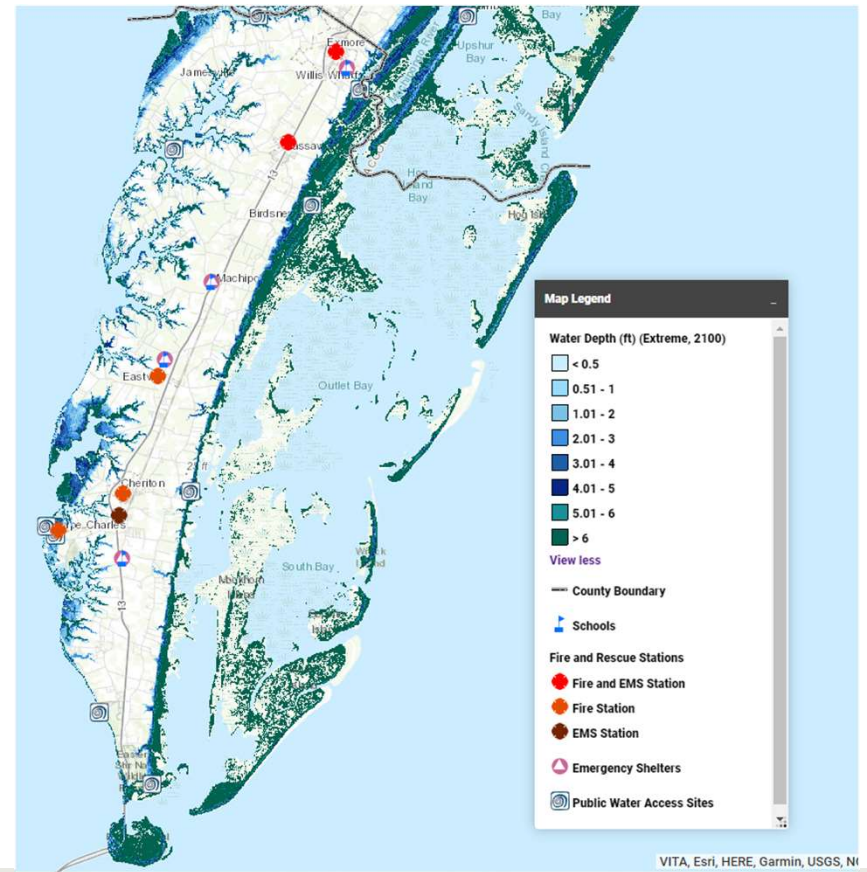
Coastal Resilience Tool

Stormwater Study Proposal

Coastal Flood Economic Loss



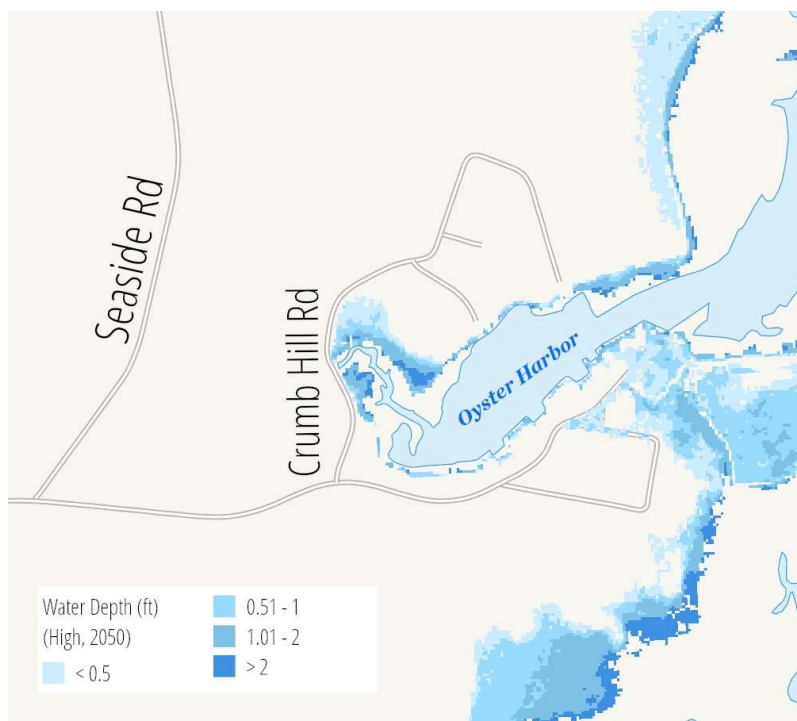
Projected 2100 Water Depth



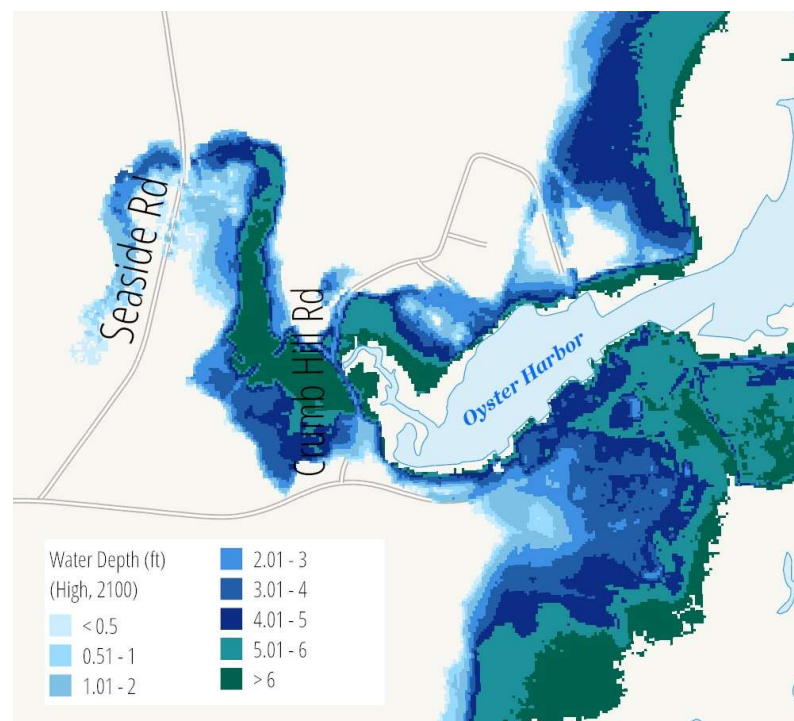
Coastal Resilience Tool – Sea Level Rise App

Oyster Plan Proposal

Projected Water Depth (2050)

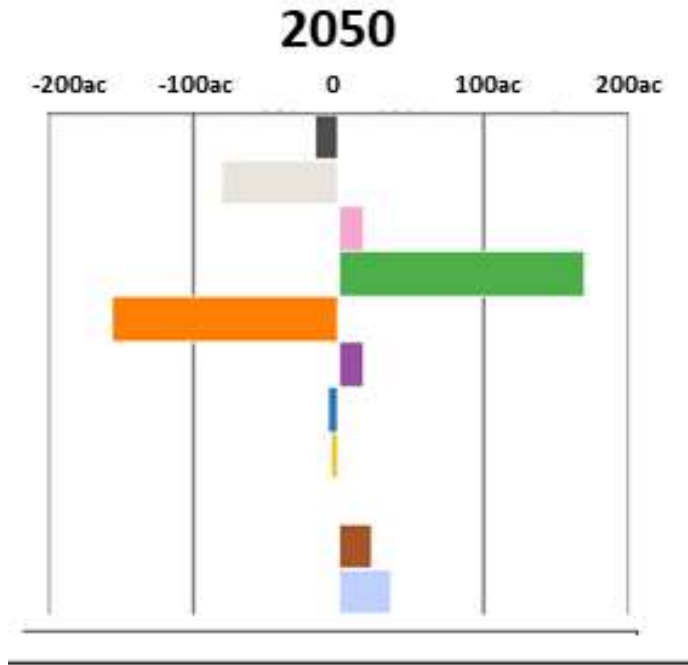
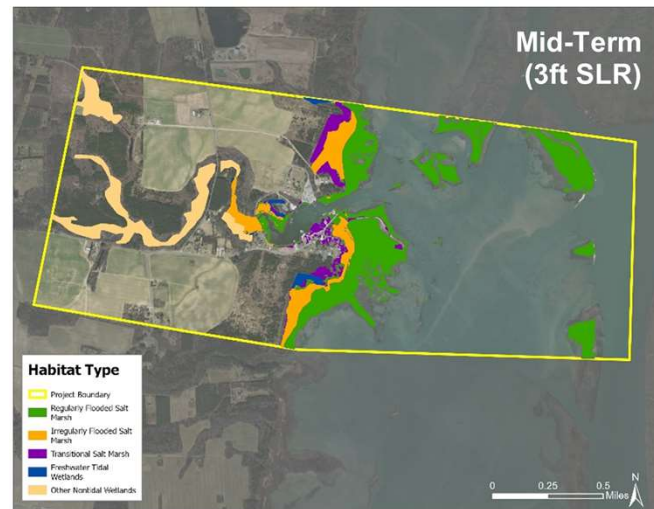
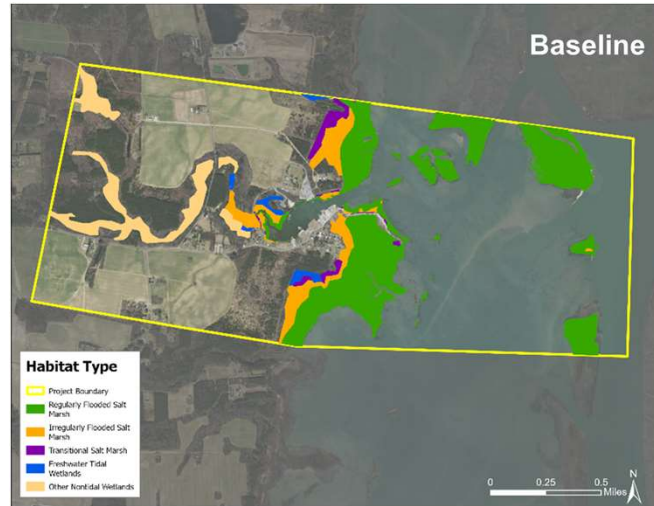


Projected Water Depth (2100)



Habitat Change Oyster (left) and Saxis (right)

Coastal Resilience Tool



Statements Using Tool Information

- (CR Tool) The entire area of Oyster Village is categorized as Outstanding or Very High on the Virginia Ecological Value Assessment.
- (CR Tool) The Marsh Vulnerability Index for the majority of the marsh along the coast in Oyster is categorized as High or Very High. The marsh vulnerability index (MVI) shows the vulnerability of tidal salt marshes to erosion and inundation.
- (CREST-NFWF) The majority Northampton County, except for the barrier and marsh islands, is made up of soil that is easily eroded by water, characterized as medium-high (along the spine and to the seaside) to high (from the spine to the bayside) erodibility. This information is found using the Coastal Resilience Evaluation and Siting Tool (CREST, resilientcoasts.org)

Social Vulnerability Index

Centers for Disease Control (CDC)

| Selected Variables | Value | State Avg. | %ile in State | USA Avg. | %ile in USA |
|--|-------|------------|---------------|----------|-------------|
| Pollution and Sources | | | | | |
| Particulate Matter 2.5 ($\mu\text{g}/\text{m}^3$) | 6.18 | 7.51 | 0 | 8.67 | 5 |
| Ozone (ppb) | 41.7 | 40.1 | 80 | 42.5 | 44 |
| Diesel Particulate Matter* ($\mu\text{g}/\text{m}^3$) | 0.118 | 0.237 | 19 | 0.294 | <50th |
| Air Toxics Cancer Risk* (lifetime risk per million) | 20 | 31 | 0 | 28 | <50th |
| Air Toxics Respiratory HI* | 0.2 | 0.36 | 0 | 0.36 | <50th |
| Traffic Proximity (daily traffic count/distance to road) | 40 | 740 | 22 | 760 | 21 |
| Socioeconomic Indicators | | | | | |
| Demographic Index | 47% | 31% | 80 | 35% | 72 |
| Supplemental Demographic Index | 12% | 12% | 52 | 15% | 43 |
| People of Color | 58% | 39% | 77 | 40% | 72 |
| Low Income | 36% | 24% | 73 | 30% | 63 |
| Unemployment Rate | 3% | 5% | 45 | 5% | 40 |
| Limited English Speaking Households | 0% | 3% | 0 | 5% | 0 |
| Less Than High School Education | 6% | 10% | 43 | 12% | 41 |
| Under Age 5 | 5% | 6% | 53 | 6% | 52 |

High Vulnerability due to:

- minority status and language;
- all categories ranked above the 55th percentile including socioeconomic, household composition and disability, and housing type and transportation.

Examples of Online Tools

1. Coastal Resilience Tool (TNC and partners) – maps.coastalresilience.org/virginia
2. NOAA's Sea Level Rise Viewer - <https://coast.noaa.gov/slr/#/layer/slr>
3. NASA's Sea Level Projection Tool - <https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool>
4. National Fish and Wildlife (NFWF) Coastal Resilience Evaluation and Siting Tool (CREST) - <https://resilientcoasts.org/#AnalyzeProjectSites>
5. AdaptVA - https://cmap22.vims.edu/AdaptVA/AdaptVA_viewer.html
6. EPA's EJScreen - <https://ejscreen.epa.gov/mapper/>
7. Social Vulnerability Index – Center for Disease Control - <https://svi.cdc.gov/map.html>
8. Risk Factor – First Street - <https://firststreet.org/?from=riskfactor.com>
9. ESVA Climate Equity Atlas – <https://www.facebook.com/ESVAClimateEquity>