WETLANDS WATCH

We work where land, communities, and water meet to conserve nature in a changing climate
Mean sea level trend = 4.42 millimeters/year
1.45 feet/century = highest rate of relative SLR on Atlantic Coast
FUTURE SEA LEVEL RISE: NORFOLK VA

Projected Relative Sea Level Change at Sewell’s Point, Virginia - 2000-2100

- Low (Historic)
- Intermediate-Low
- Intermediate
- Intermediate-High
- High
- Extreme
- Observed MMSL

NOAA 2017

1.5’ SLR
3’ SLR
4.5’ SLR

Wetlands Watch

EESI: National Security Climate Adaptation Nexus
April 2, 2024
RAINFALL INCREASING: ~18% SINCE 2006

Source: MARISA
PROJECTED IMPACTS
Tidal Wetland Habitat Loss
Relative to habitat in 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Acres Projected to Become Open Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>2040</td>
<td>36K</td>
</tr>
<tr>
<td>2060</td>
<td>93K</td>
</tr>
<tr>
<td>2080</td>
<td>171K</td>
</tr>
</tbody>
</table>

89% loss in 2080

Source: VA Coastal Resilience Master Plan
Upland Habitat Loss
Relative to habitat in 2020

- 2040: 21K
- 2060: 51K
- 2080: 101K

51% loss in 2080

Source: VA Coastal Resilience Master Plan
PROJECTED IMPACTS: 2080

- Number of buildings exposed to an extreme coastal flood: 140,000 → 340,000 (150% increase)

- Residents exposed to major flooding: Nearly 1 Million

- Annualized flood damages: increase by from $0.4 B → $5.1 B (1,300% increase)

Source: VA Coastal Resilience Master Plan
Miles of roadways exposed to chronic coastal flooding will increase from 500 miles to nearly 2,800 miles → 460% increase

Source: VA Coastal Resilience Master Plan
## NATIONAL SECURITY IMPACTS

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Defense Spending (billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Virginia</td>
<td>$62.7</td>
</tr>
<tr>
<td>2</td>
<td>Texas</td>
<td>$58.0</td>
</tr>
<tr>
<td>3</td>
<td>California</td>
<td>$56.2</td>
</tr>
<tr>
<td>4</td>
<td>Florida</td>
<td>$30.2</td>
</tr>
<tr>
<td>5</td>
<td>New York</td>
<td>$28.1</td>
</tr>
<tr>
<td>6</td>
<td>Maryland</td>
<td>$26.4</td>
</tr>
<tr>
<td>7</td>
<td>Connecticut</td>
<td>$22.3</td>
</tr>
<tr>
<td>8</td>
<td>Pennsylvania</td>
<td>$17.9</td>
</tr>
<tr>
<td>9</td>
<td>Massachusetts</td>
<td>$15.2</td>
</tr>
<tr>
<td>10</td>
<td>Arizona</td>
<td>$15.0</td>
</tr>
</tbody>
</table>

Source: DOD, 2022 spending

10% of VA’s GDP!
HAMPTON ROADS: 16+ BASES
INCREASING DOD SPENDING

40% of Hampton Roads spending

Source: ODU State of Region, 2023
WHAT HAPPENS OFF BASE?

• Every military branch represented

• 2\textsuperscript{nd} most active-duty personnel in country (100,000+)

• Over 40,000 civilian personnel

\textbf{Bases rely on off base utilities}

\textbf{How do people get on and off base? Where do people live? Go to school?}

Source: Repi.mil
AVAILABLE / SAFE HOUSING IMAPCTS
EDUCATION SYSTEM IMPACTS

Source: The Virginian-Pilot
WHAT ARE WE DOING ABOUT IT? (STATE)

Assess the risk
• Coastal Resilience Master Plan (2021)

Plan for the risk
• Standard state-wide sea level rise planning scenario (NOAA intermediate high curve)

Protect against the impacts
• Freeboard requirements for state buildings in both flood and sea level rise inundation zones
• Climate change engineering design standards for roads and bridges
• Sea level rise included in shoreline & septic regulations

Reduce AND pay for the impacts
• Regional Greenhouse Gas Initiative (RGGI): 45% of each auction into new Community Flood Preparedness Fund → $150M in local government pre-disaster grants → 6:1 benefit
WHAT ARE WE DOING ABOUT IT? (REGION)

![Projected Relative Sea Level Change at Sewell's Point, Virginia - 2000-2100](chart.png)

**HAMPTON ROADS PDC**

**FIGHT THE FLOOD**

**MIDDLE PENINSULA**

**NOAA 2017**
WHAT ARE WE DOING ABOUT IT? (LOCAL)

Assess the risk
• NOAA’s Atlas 14 data too old, VA Beach paid for new study → 20% increase rainfall

Plan for the risk
• All Hampton Roads comprehensive plans must include strategies for sea level rise adaptation → plan updates currently underway
• Long term planning (Norfolk Vision 2100)
• Locality resilience planning underway to get state funding

Protect against the impacts
• “Higher standards” in land use, zoning, and regulation (ex: freeboard requirements)
• Home elevations, buyouts, special district zoning, restrictive development

Pay for the impacts
• VA Beach passed $567M resilience bond for sea level rise adaptation projects
MILITARY + LOCAL PARTNERSHIPS

Joint Land Use Studies

Portsmouth-Chesapeake (2021)
Norfolk-VA Beach (2019)
Fort Eustis (NN, JCC, YC) (2018)
Accomack (2015)
SENTINEL LANDSCAPES - VA SECURITY CORRIDOR
SAFEGUARDING NATIONAL SECURITY

Localities are on the front lines and weary – they need support

• Support state planning efforts and adaptation standards

• Coordinate off base planning AND investments

• Align federal standards with local/regional standards, if higher

• Help localities and community groups access money – simplify grants
THANK YOU