

Virginia Eastern Shore Coastal Resilience Mapping Tool

Presentation to Virginia Coastal Zone Management Partners Workshop

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November 14, 2016



coastalresilience.org

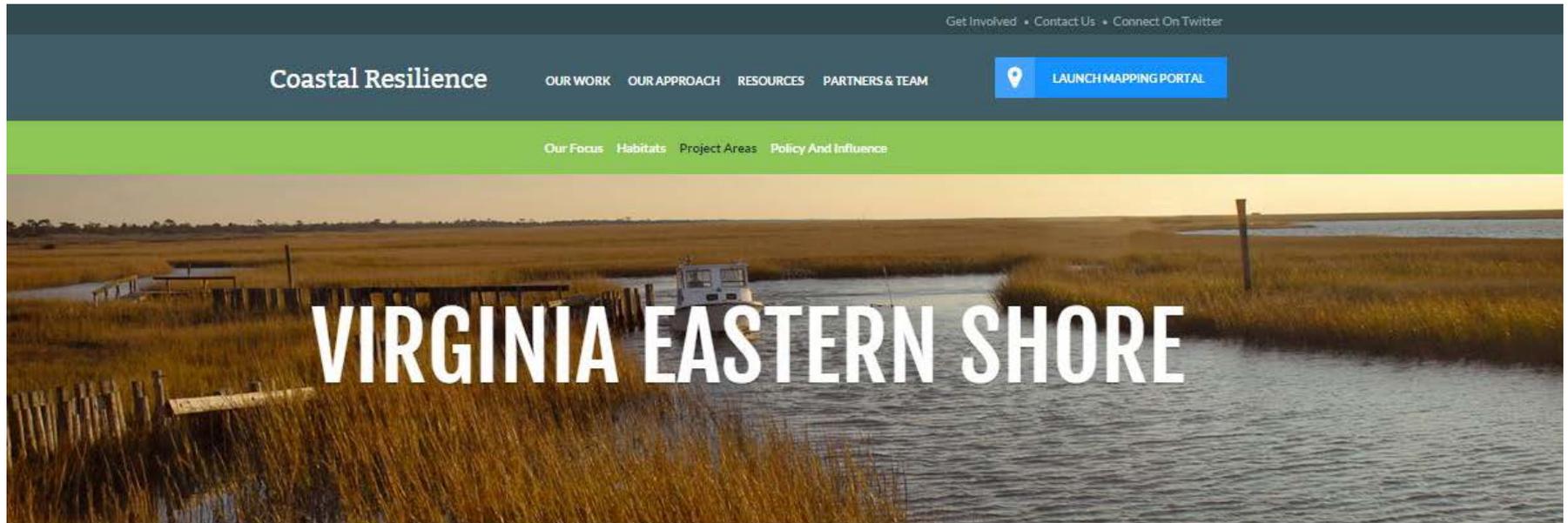
Today's Topics

- Overview of Eastern Shore Coastal Resilience project, approach and tool
- Demonstration of tool and apps



Enhancing Coastal Resilience on Virginia's Eastern Shore

A NFWF HURRICANE SANDY COASTAL RESILIENCE PROJECT



INTRODUCTION

CHALLENGES

SOLUTIONS

Introduction

On Virginia's Eastern Shore—a narrow peninsula that separates the Chesapeake Bay from the Atlantic Ocean—lies the longest coastal wilderness peninsula on the U.S. Atlantic Coast and some 20 miles of undeveloped beaches.

A Community Partnership-Driven Initiative





COASTAL RESILIENCE

APPROACH

Coastal Resilience addresses four critical areas of climate adaptation planning:

(1) Assess Risk and vulnerability to coastal hazards including current and future storms and sea level rise scenarios, **(2) Identify Solutions** for reducing risk across social-ecological systems,

(3) Take Action to help communities develop and implement nature-based solutions where appropriate and **(4) Measure Effectiveness** to ensure that our efforts to reduce risk through restoration and adaptation are successful.



www.coastalresilience.org



Engage communities



Demonstrate natural infrastructure projects



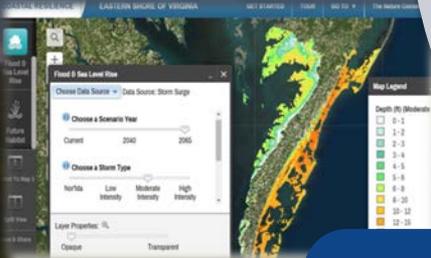
Research efficacy of natural infrastructure; use results to parameterize models

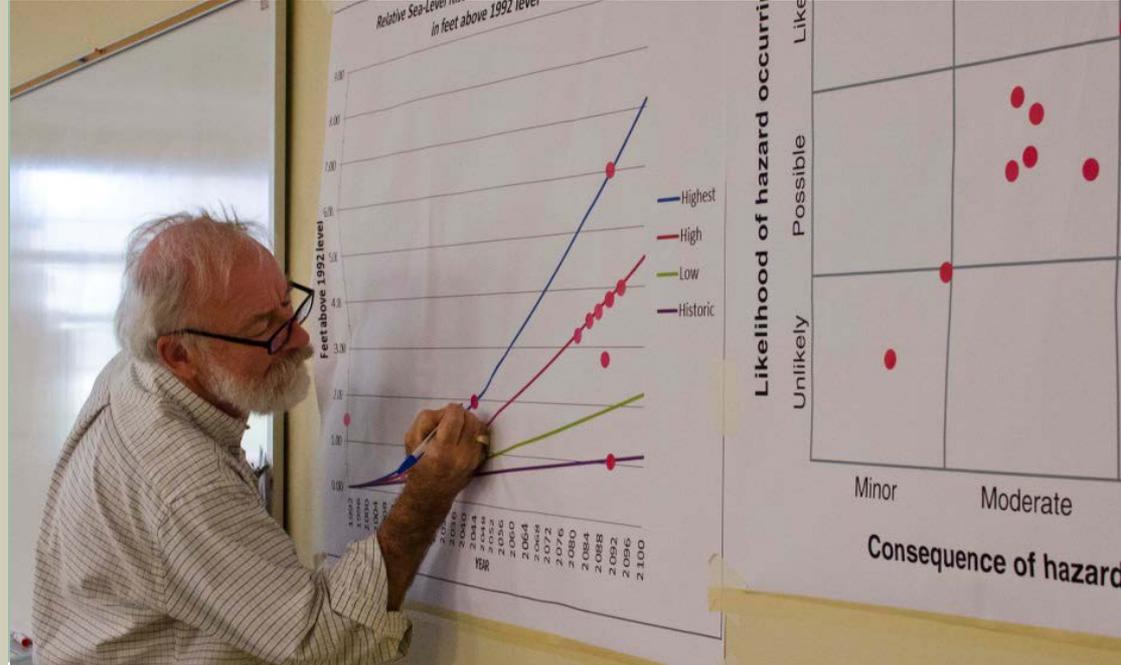
PROJECT GOAL
Provide science-based tools and demonstrations to develop locally-relevant climate-hazard mitigation actions that include nature-based solutions for E. Shore coastal communities



Promote nature based solutions

Create decision-support tool to deliver model outputs





Community Leaders Workshop November 2014



Community Leader Workshop Summary Report

*Enhancing Coastal Resilience on
Virginia's Eastern Shore*

November 12 and 13, 2014
A project funded by the Department of Interior Hurricane Sandy Coastal Resilience Fund

Prepared By:
Accomack-Northampton Planning District Commission
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Coastal Resilience Training Workshops

February 2016



Virginia Eastern Shore Coastal Resilience Mapping & Decision Support Tool
Introductory Workshop & Training Manual



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February 11 & 12, 2016
Eastern Shore Community College,
Melfa, VA

A project funded by the
Department of Interior
Hurricane Sandy
Coastal Resilience Fund



Map Layers

Flood & Sea Level Rise

Future Habitat

1

Switch To Map 2

Split View

Save & Share

Export Page

Flood & Sea Level Rise

Choose Data Source ▾ Data Source: Storm Surge

Choose a Scenario Year

Current 2040 2065

Choose a Storm Type

Nor'lda Low Intensity Moderate Intensity High Intensity

Depth or Difference:

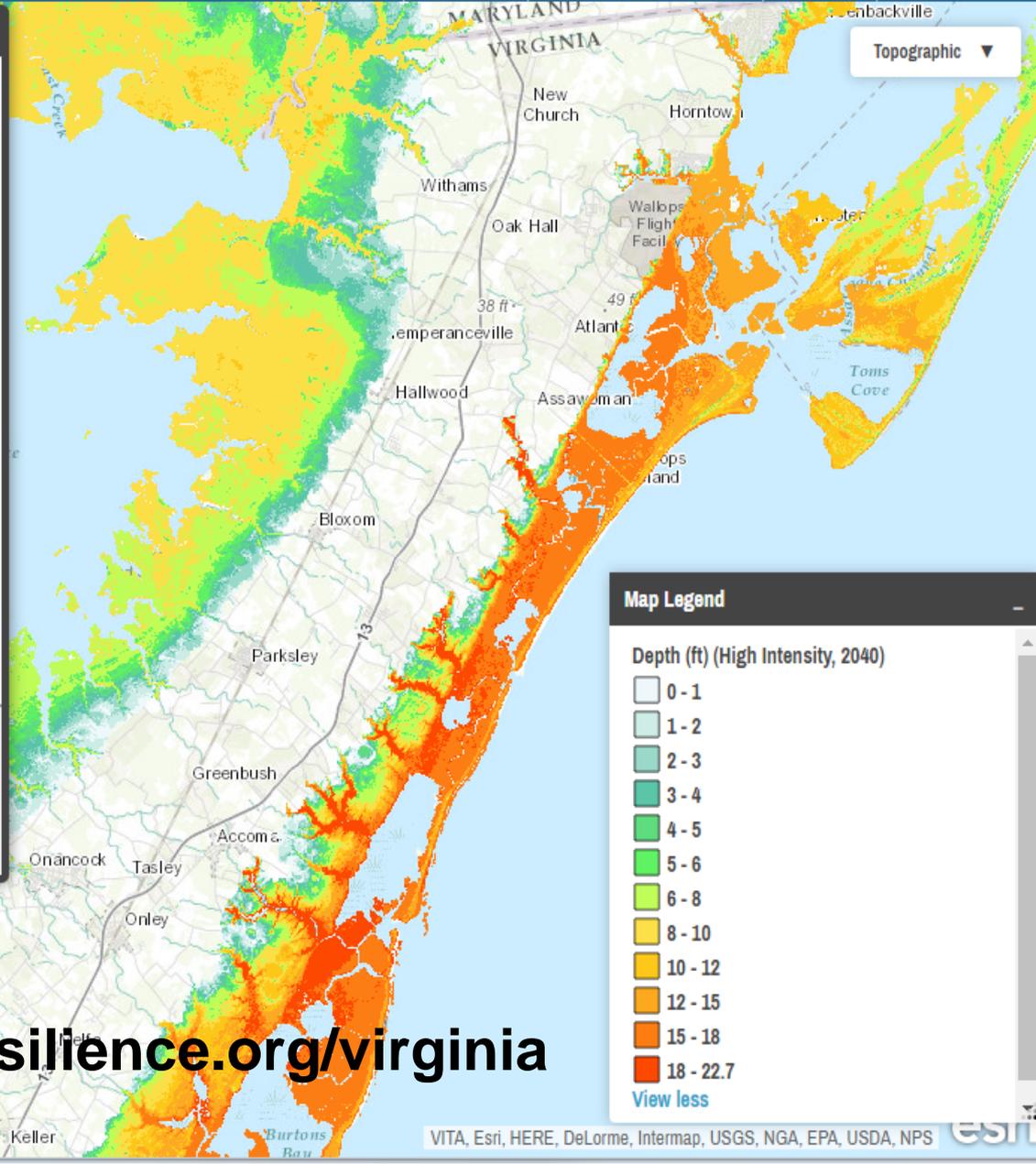
- Water Depth (ft)
- Absolute Difference
- Percent Difference

Additional Layers:

- Show storm tracks
- Show tidal range undefined

Layer Properties: 🔍

Opaque Transparent



Map Legend

Depth (ft) (High Intensity, 2040)

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12 - 15
- 15 - 18
- 18 - 22.7

[View less](#)

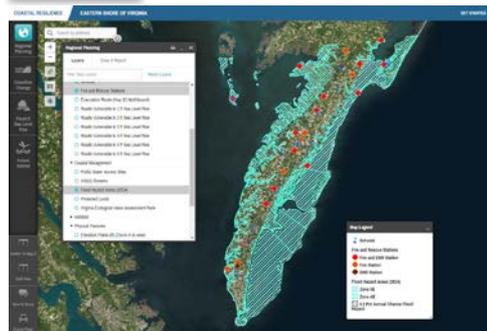
maps.coastalresilience.org/virginia



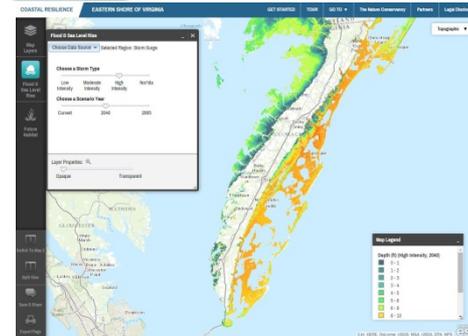
Plug-in web-based Apps



Regional Planning



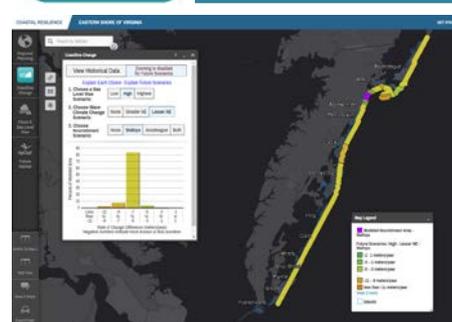
Flood & SLR



Future Habitat

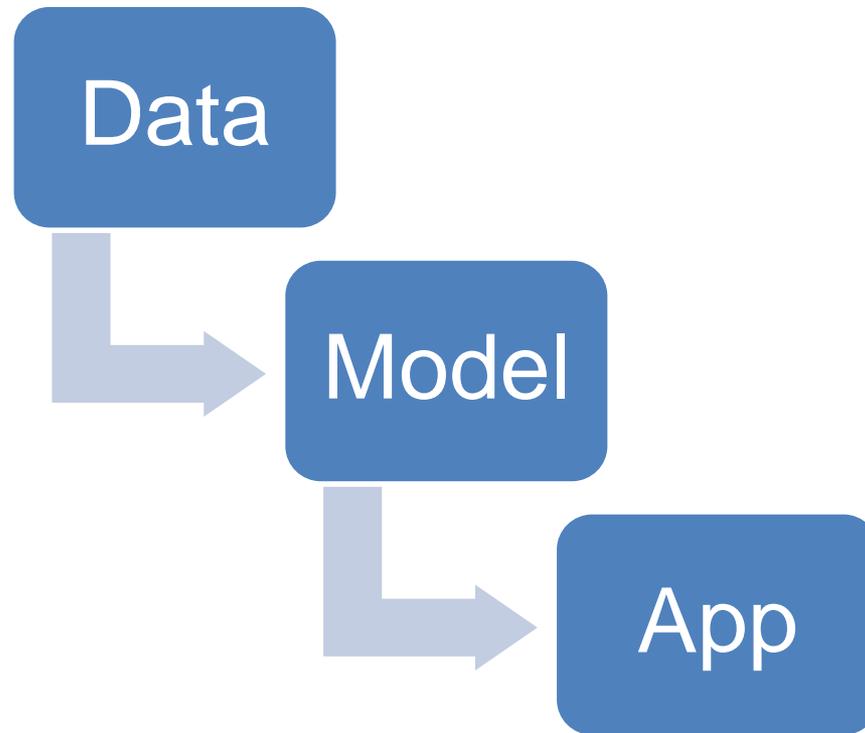


Coastline Change

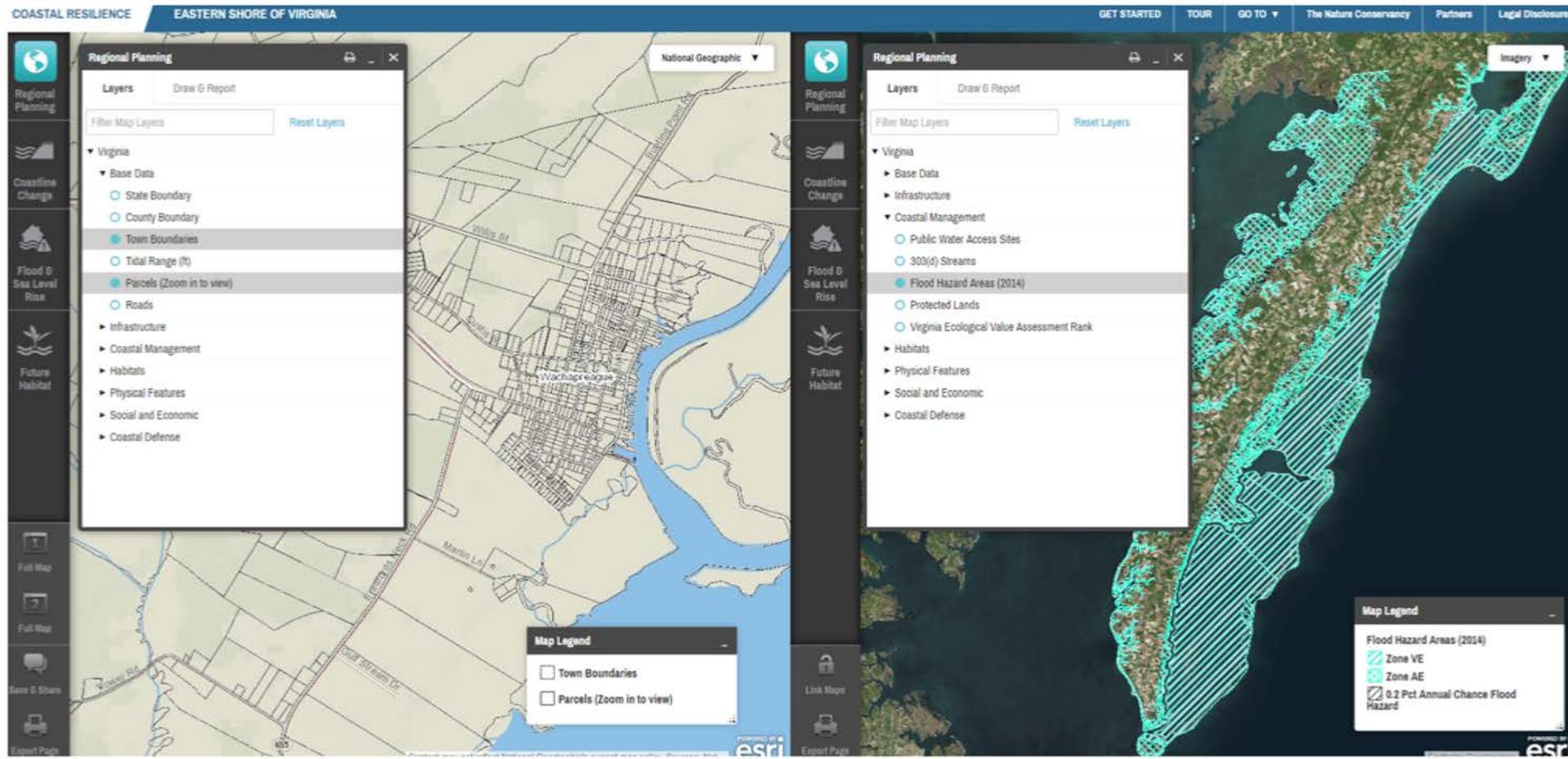


Coastal Resilience Apps

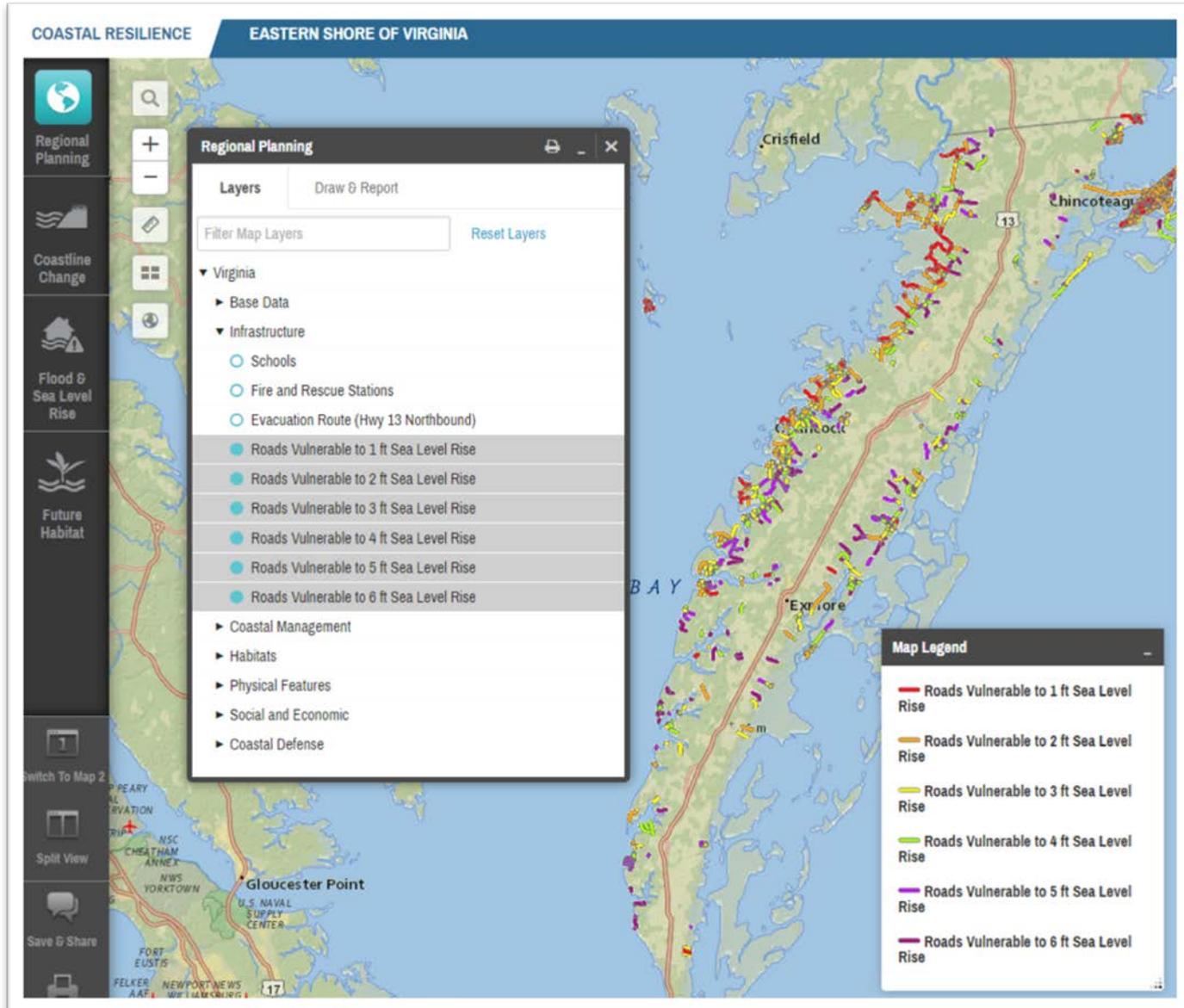
WORK FLOW



Regional Planning



Regional Planning

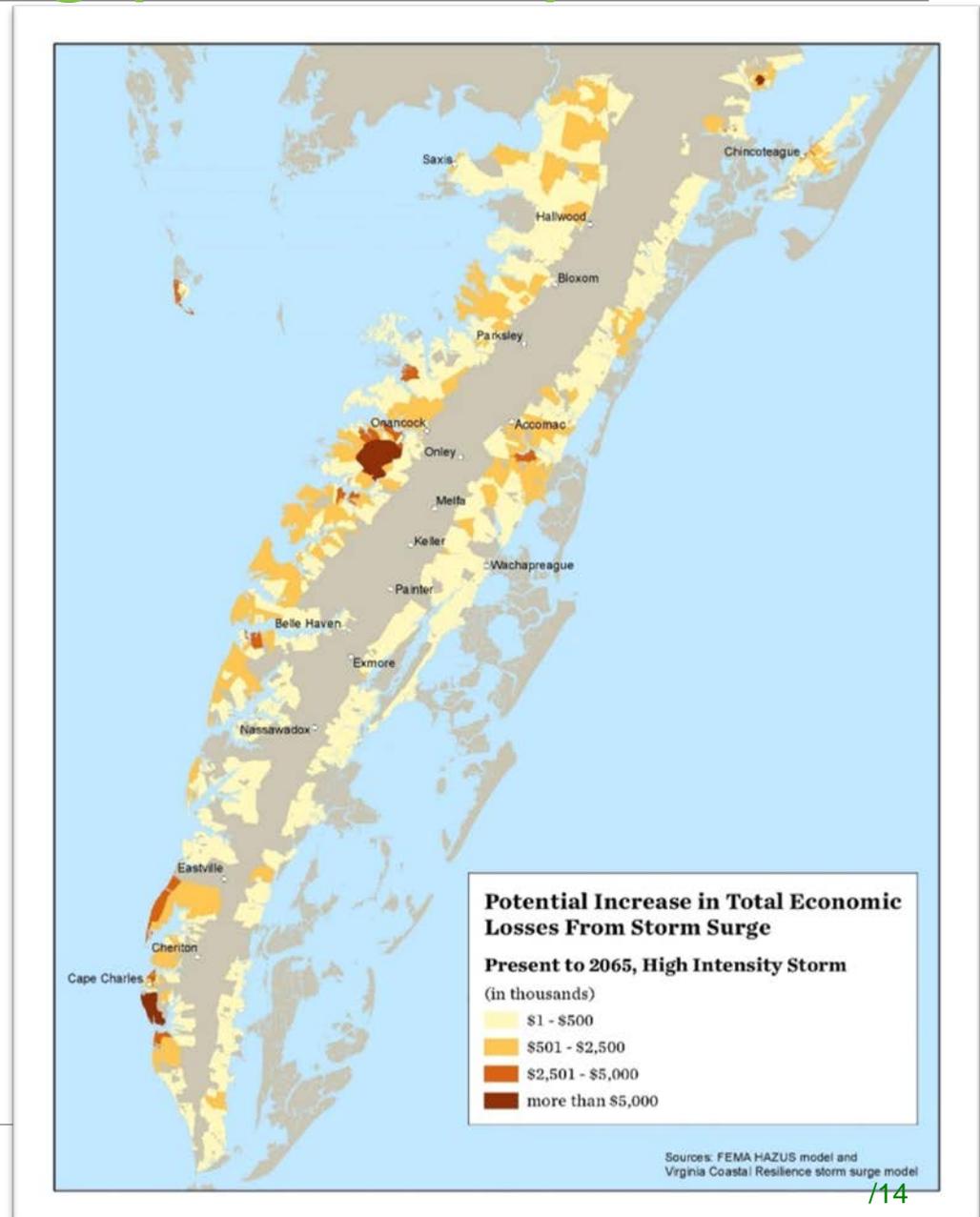


Regional Planning (Continued)

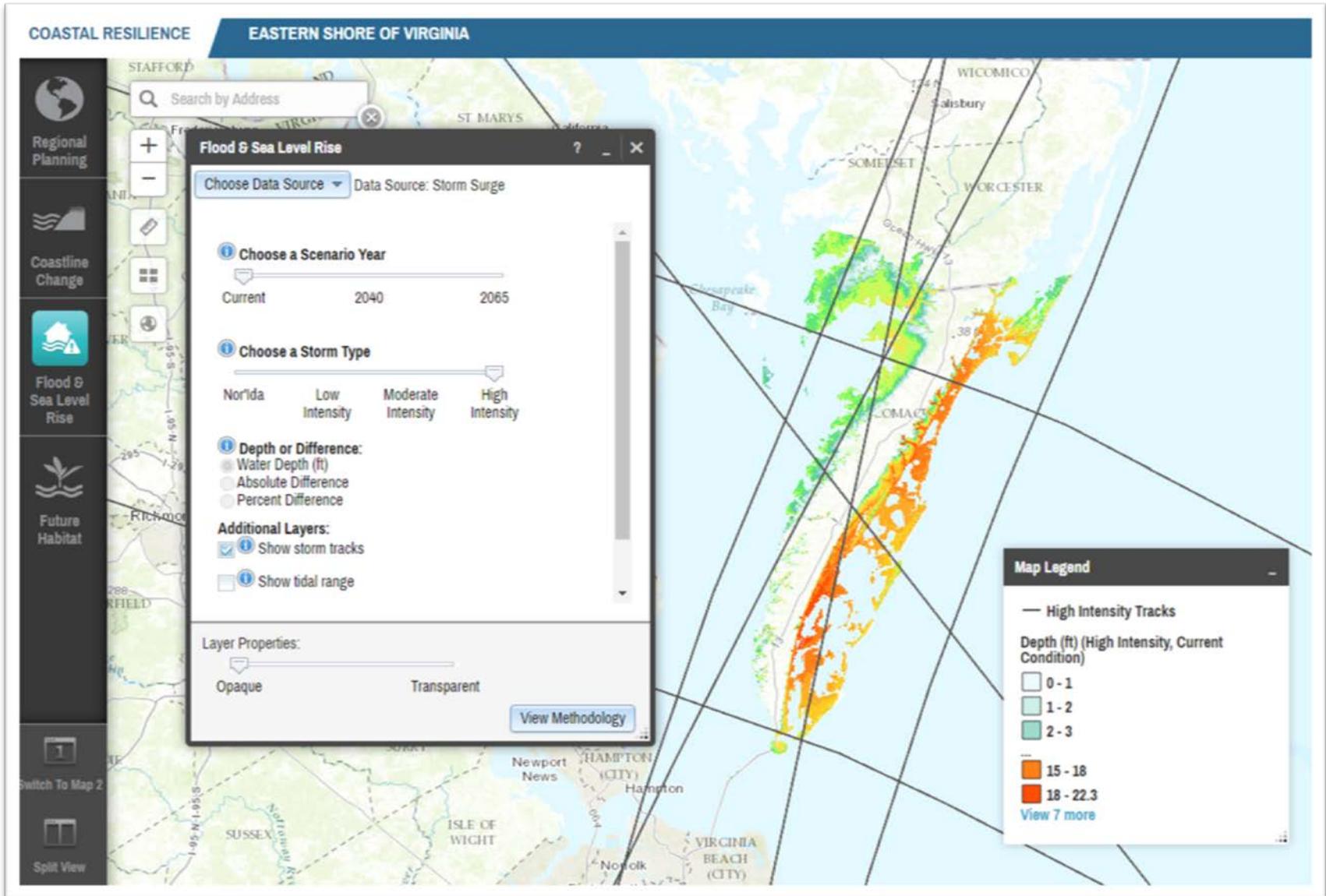
FEMA HAZUS Outputs

Potential Increase in Total Economic Losses From Storm Surge

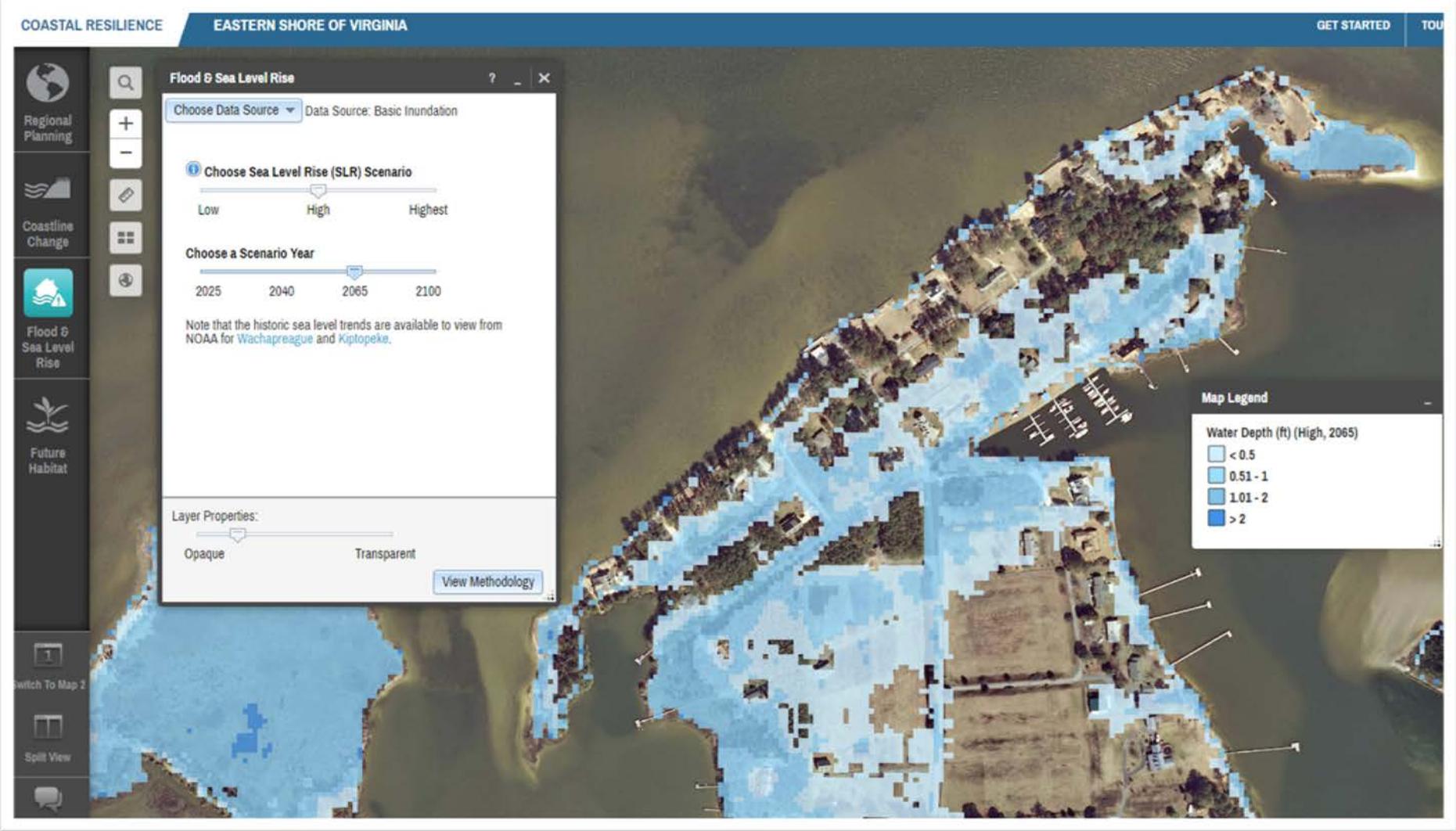
Present to 2065, High-Intensity Storm



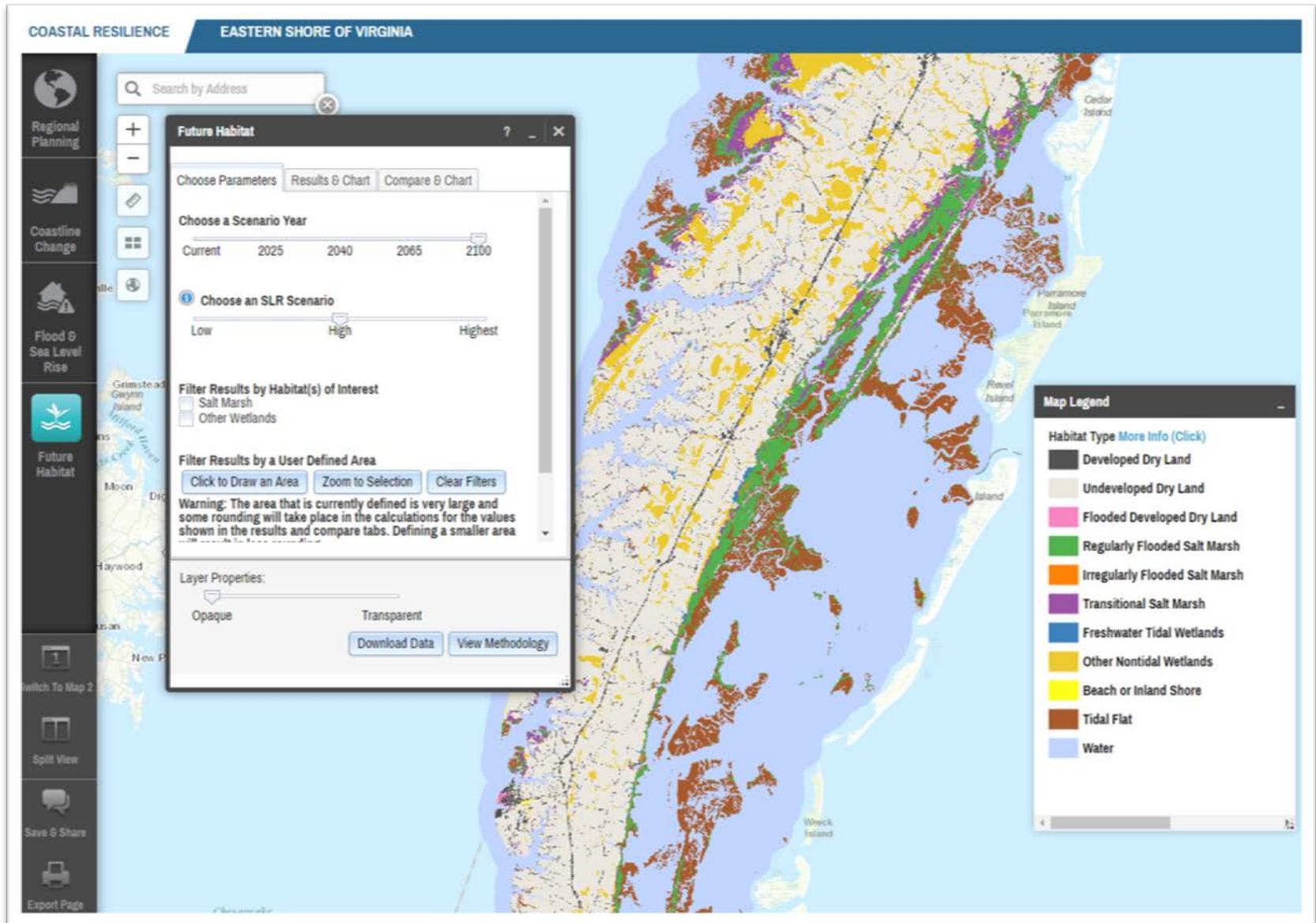
Flood & Sea-Level Rise



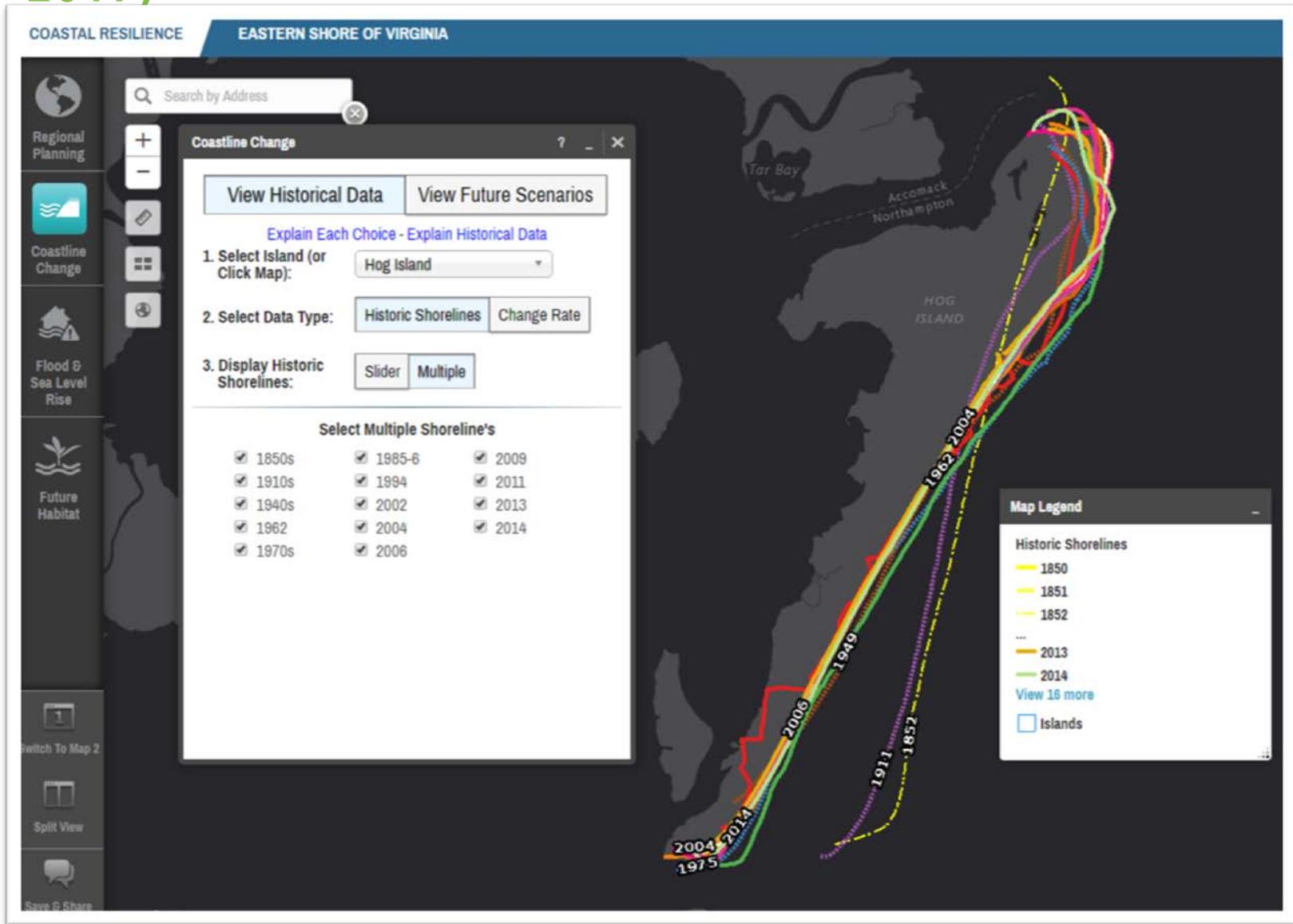
Flood & Sea-Level Rise (Continued)



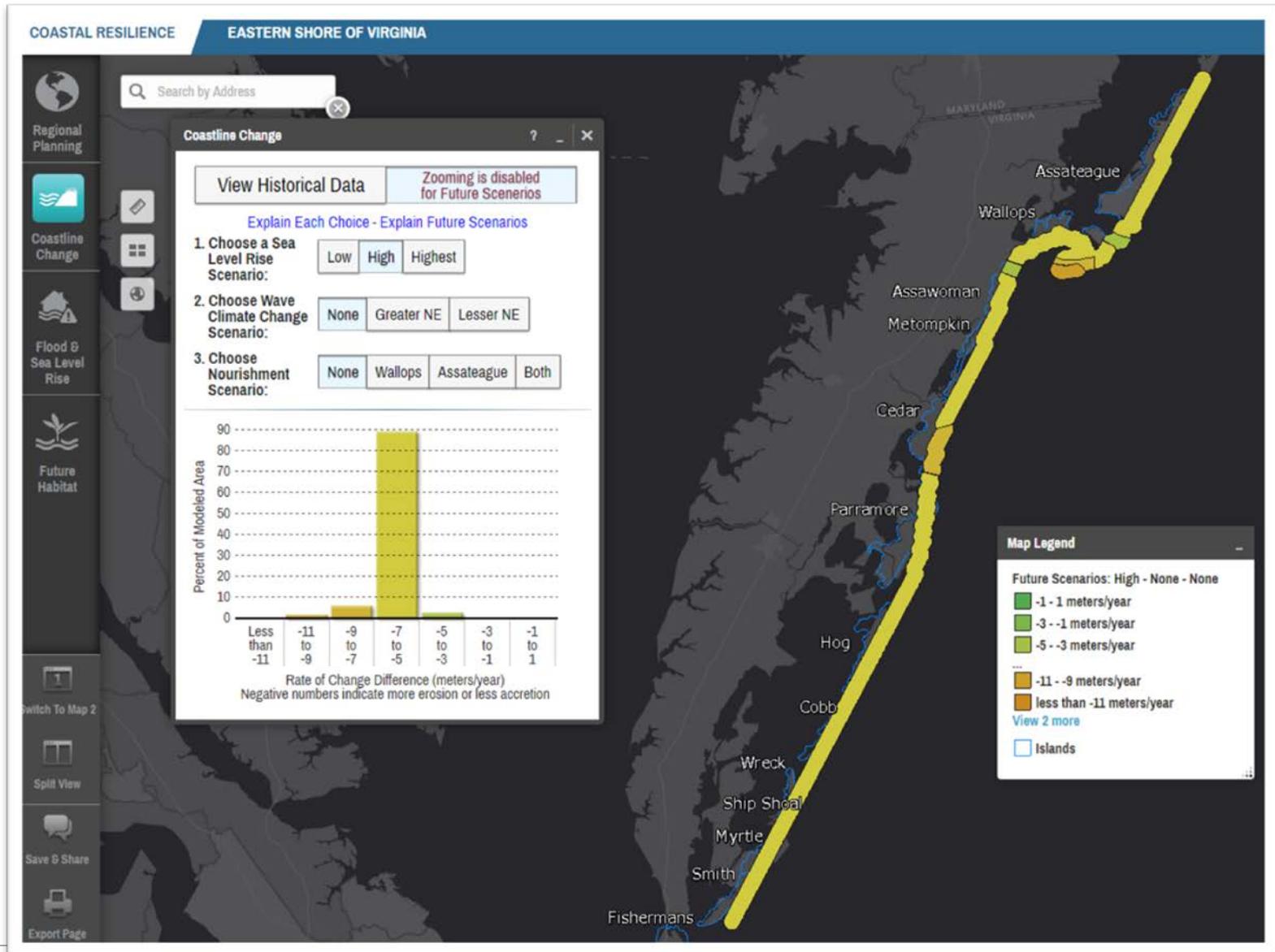
Future Habitat



Coastline Change (Available January 2017)



Coastline Change (Available January 2017)



Coastal Resilience tool is a springboard for ongoing inquiry, data development and research

NEXT PHASE OF PROJECT

- Update apps by incorporating most recent elevation data, bathymetry, and land cover data and utilizing the 2017 relative sea-level rise predictions from the National Climate Assessment
- Quantify uncertainty in models
- Additional research on bayside marsh accretion rates
- Additional research on antecedent geology of barrier islands
- Advance models of future scenarios for coastline change, including back barriers and lagoonal marshes
- Continue research on wave attenuation effects of coastal habitats in a variety of environmental settings and use to identify restoration sites with greatest risk reduction capacity

Further Information

Website:

Coastalresilience.org/Virginia

Mapping Portal:

Maps.coastalresilience.org/virginia

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