

Pre-Workshop Materials: Approach, Data, and Focus Area Selection

Advancing Tidal Marsh Adaptation in the Chesapeake Workshop

Partnership-Building and Identification of
Collaborative Marsh Adaptation Projects

Friday January 19, 2024 | 9:30 AM - 2:00 PM

Technical Lead: Nicole Carlozo (Maryland DNR)
Climate Resiliency Workgroup Staff Lead: Julie Reichert-Nguyen (NOAA)
GIS Support: John Wolf and Coral Howe (CBP GIS Team/USGS)

Contractor: Skeo
Partner Support: The Nature Conservancy, Maryland Sea
Grant, and Virginia Institute of Marine Science



Marsh Adaptation



Working Definition:

Incorporating climate change information and resilience strategies when planning, designing, implementing, and managing marsh restoration and conservation projects to enhance longevity of marsh area and health

Climate Change Factors	Resilience Strategies
Sea Level Rise	<ul style="list-style-type: none">● Identify and conserve marsh migration corridors● Restore/preserve healthy marsh sediment dynamics and vegetation● Ensure habitat connectivity
Increase in storm events & precipitation	

Need For Collaborative Projects

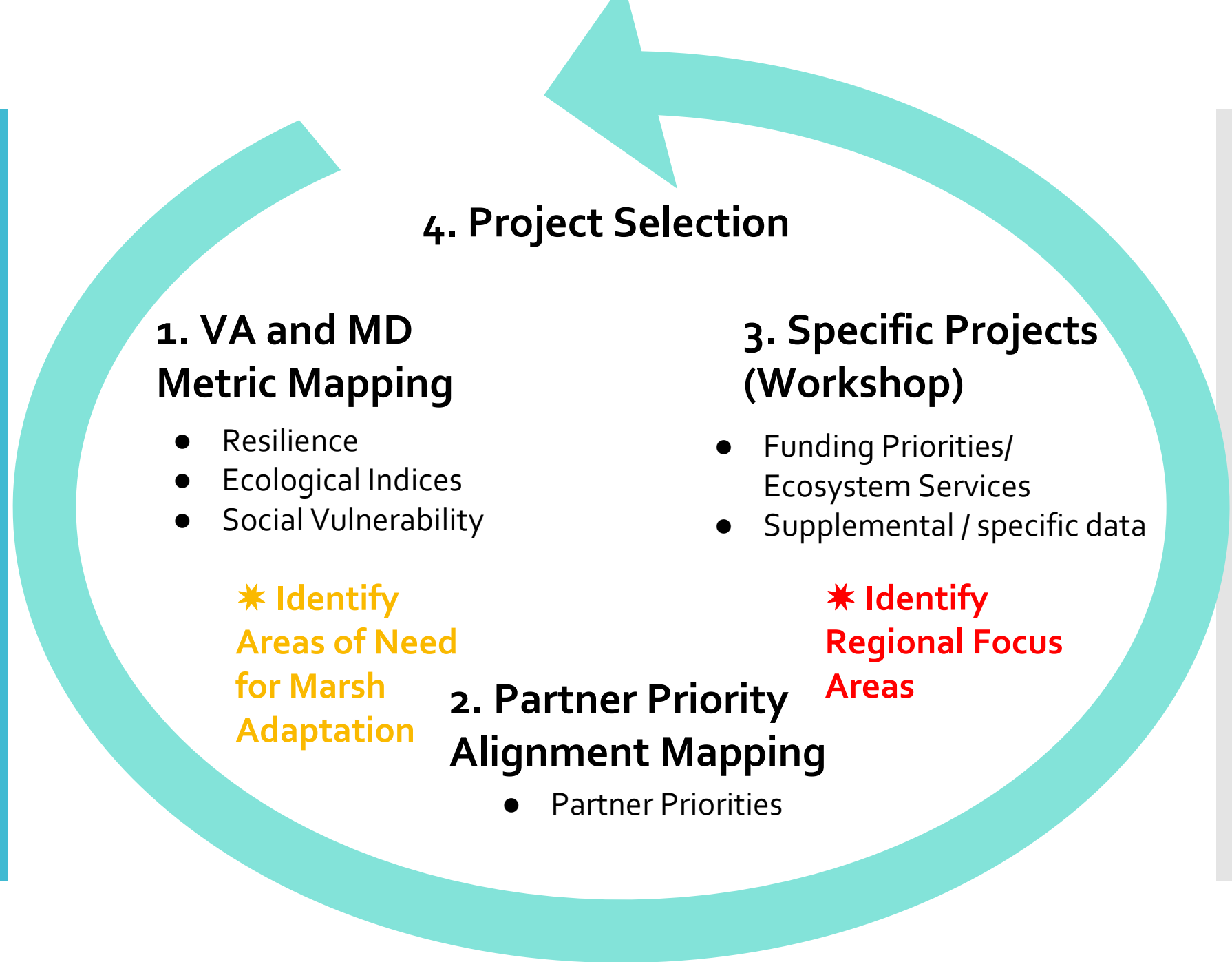
- Manage marshes to be resilient to sea level rise and other climate change impacts to preserve ecosystem services.
- Implement strategic large-scale restoration strategies with cross-goal benefits instead of opportunistic, disconnected projects.
- Increase understanding of geographical and organizational priorities to build partnerships to support large-scale implementation.
- Align marsh resilience research opportunities with implementation to increase data and information on the success of strategies.



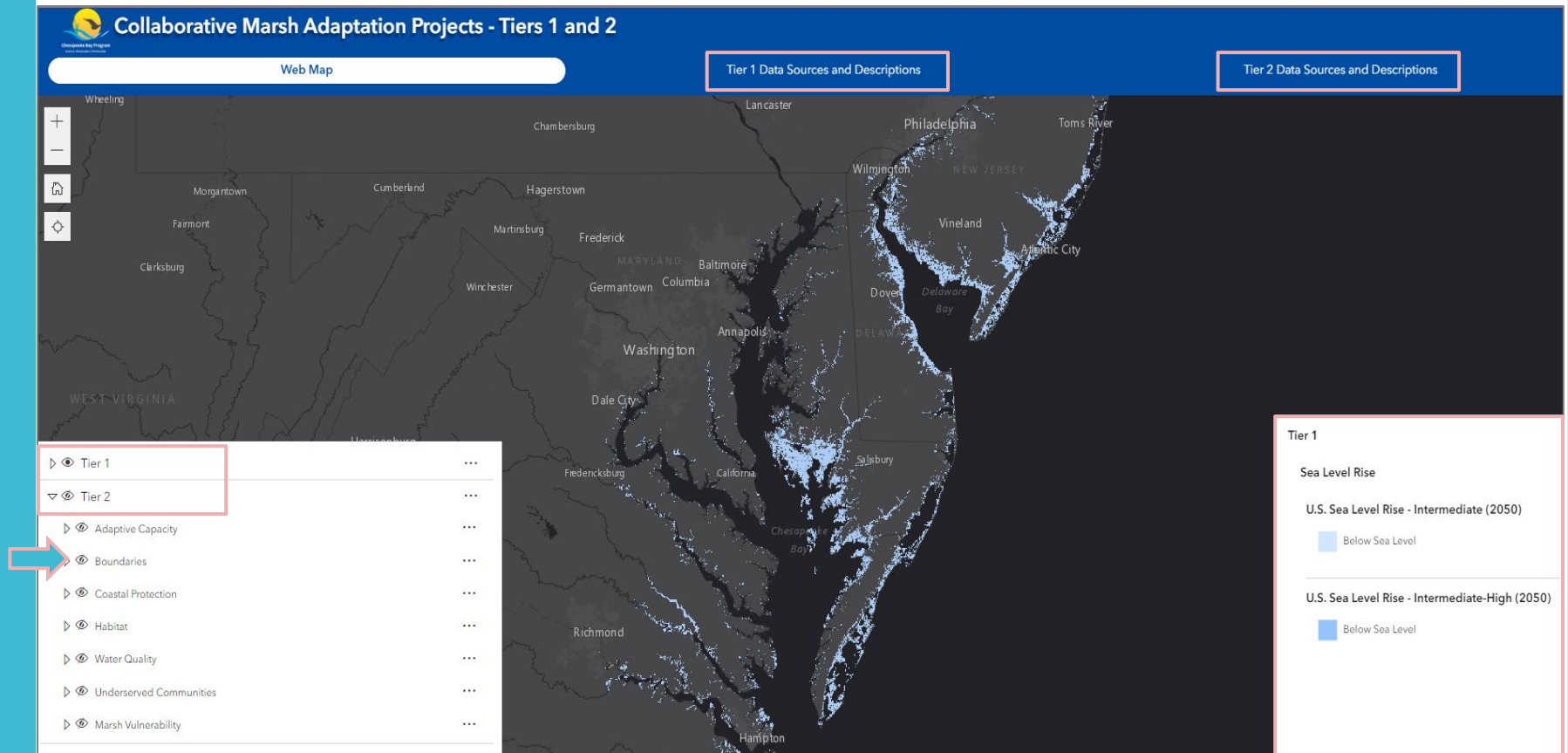
Project Goals and Outcomes

- Identify **common criteria** for targeting tidal marsh projects by compiling resilience and social vulnerability metrics, geographic priorities, and organizational goals across stakeholder groups.
- Identify **partners and projects** within two focus areas (MD, VA, or tribal lands) that could support large-scale tidal marsh restoration using criteria as a guide.
- Identify **data gaps and research needs** to inform on-the-ground tidal marsh management and adaptation at regional scales.
- Identify potential **research opportunities** that could coincide with tidal marsh restoration efforts to increase understanding of the success of climate resilience strategies.
- Identify **short and long-term funding opportunities** for proposed collaborative tidal marsh restoration and research projects.

Framework for Targeting Projects



Tidal Marsh Adaptation Mapper



<https://gis.chesapeakebay.net/climate/marshadaptation/tiers1-2/>

Tiered Data Analysis Approach

The approach integrates additional datasets and information as the analysis advances to targeting project opportunities.

- Tier 1 – VA and MD
 - Identify areas of need based on resilience, ecological indices, and social vulnerability criteria.
 - Identify alignment between Tier 1 areas and partner interest/activity locations.
 - Select two areas for potential projects.
- Tier 2 – Supplemental regional datasets
 - Integrate additional datasets (i.e., detailed site conditions, habitat features, land attributes) to support partnership building and potential project identification.
 - Integrate additional datasets to identify projects aligned with specific opportunities, such as habitat priorities and funding tools.

Where is the need?

Where are the opportunities?

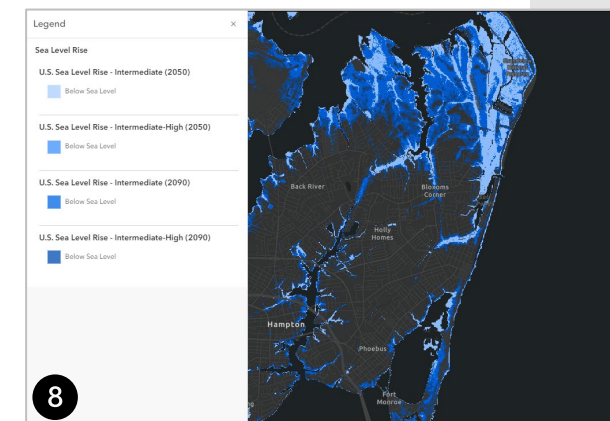
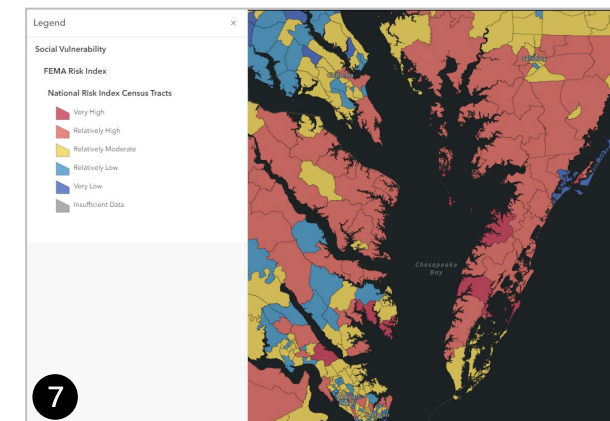
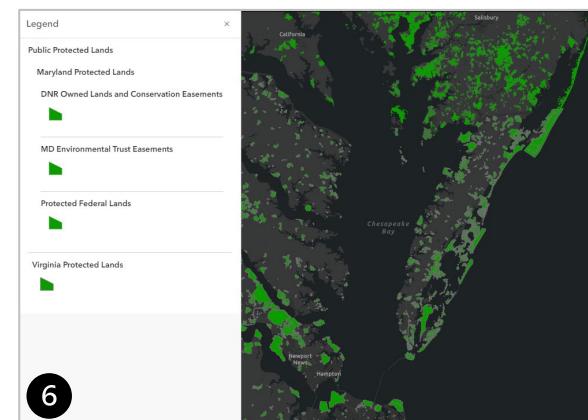
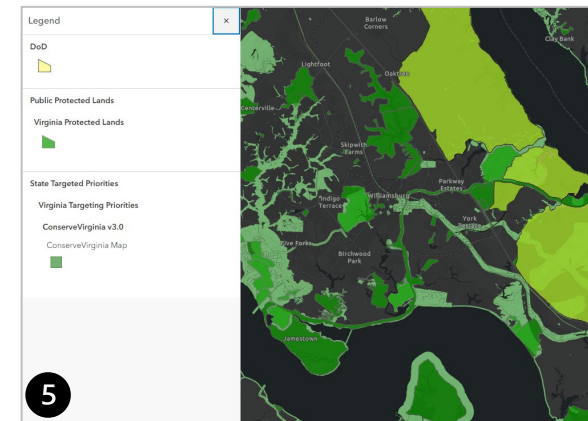
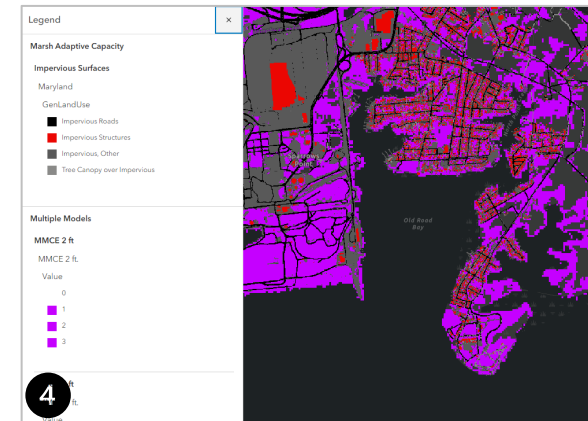
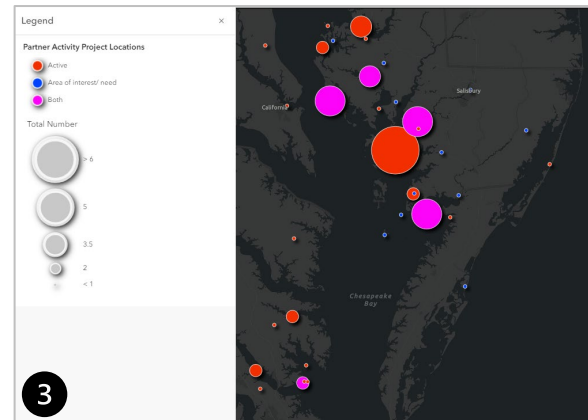
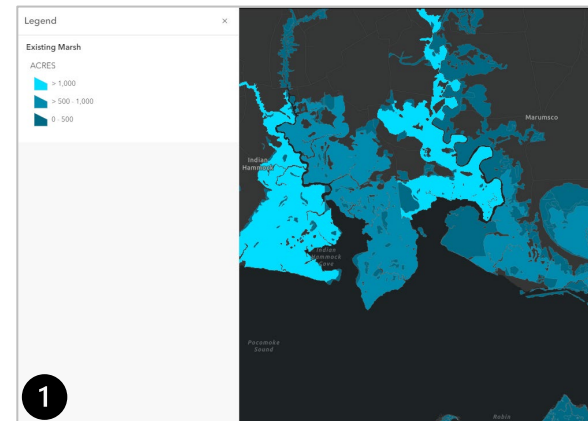
Tier 1 Data

	Data Layers	Source
Existing Tidal Marsh	<ul style="list-style-type: none"> • Maryland Wetlands- estuarine and marine • Virginia Wetlands 	<ul style="list-style-type: none"> • MD Wetland Inventory • VA Tidal Marsh Inventory
Marsh Health	UVVR	USGS Chesapeake Bay Coastal Wetlands Synthesis Datasets
Marsh Adaptive Capacity	<ul style="list-style-type: none"> • 2 and 4 ft Marsh Migration Corridor Envelope • Developed lands/ Impervious Surfaces 	<ul style="list-style-type: none"> • Marsh Migration Data Synthesis Report- SLAMM, InVest, NOAA SLR • CBP Land Use
Climate change Vulnerability	U.S. Sea Level Rise – <ul style="list-style-type: none"> • Intermediate (2050) • Intermediate High (2050) • Intermediate (2090) • High (2090) 	NOAA
Protected Lands	MD and VA State Protected Lands	<ul style="list-style-type: none"> • MD Greenprint • VA Natural Heritage tool
Social Vulnerability	National Risk Index	FEMA
Partners	Areas of activity (currently engaged) Areas of interest/priority	Questionnaire, small group discussions

Tier 1 Visual Analysis

The team looked at scale and relationships between Tier 1 criteria to identify potential focus areas. Criteria:

1. Existing Marshes, Marsh Size
2. Marsh Stability (UVVR)
3. Partner Activity
4. Marsh Adaptive Capacity
5. Protected Lands
6. State Targeted Priority Areas
7. Risk and Vulnerability
8. SLR Projections

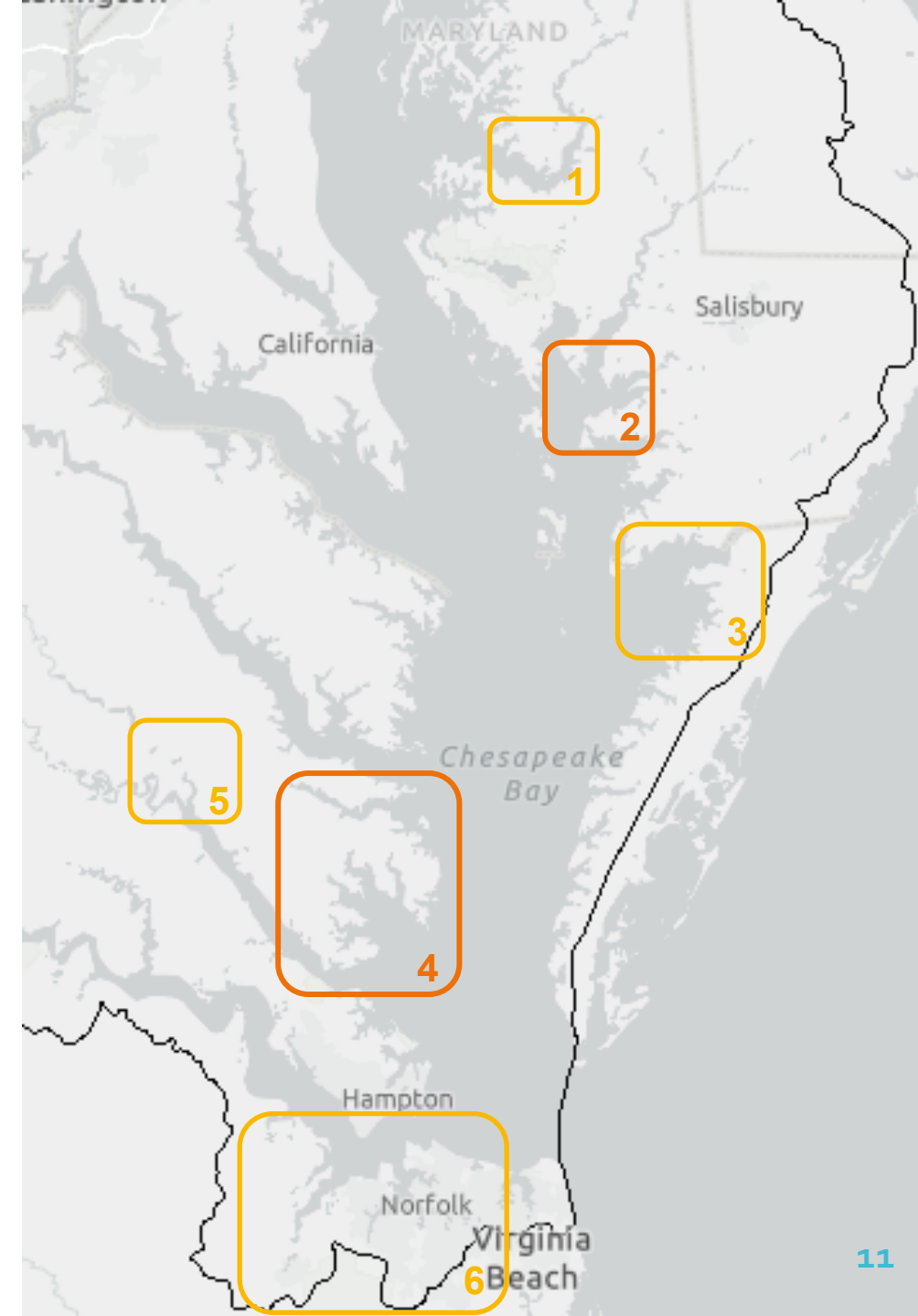


Focus Area Selection

- Conducted questionnaire with partners and collected GIS data
- Narrowed selection criteria with steering committee
- Selected focus areas based on visual analysis of data
 1. Existing Marshes, Marsh Size
 2. Marsh Stability (UVVR)
 3. Partner Activity
 4. Marsh Adaptive Capacity
 5. Protected Lands
 6. State Targeted Priority Areas
 7. Risk and Vulnerability
 8. SLR Projections

Focus Areas for Consideration

1. Choptank River, MD
2. **Wicomico River (Monie Bay to Deal Island, MD)**
3. Pocomoke Sound Area (Crisfield, MD to Saxis, VA)
4. **Middle Peninsula, VA**
5. Middle Peninsula Tribal Lands (Mattaponi, Pamunkey)
6. Elizabeth River Watershed (Norfolk, Portsmouth, Chesapeake, Suffolk), VA



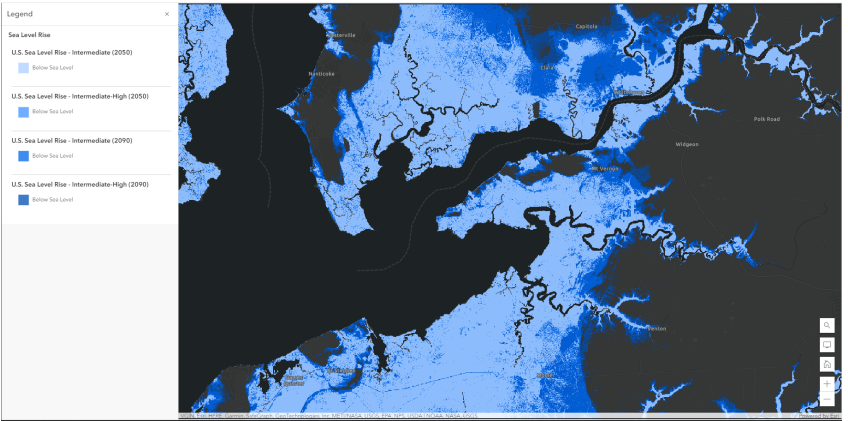
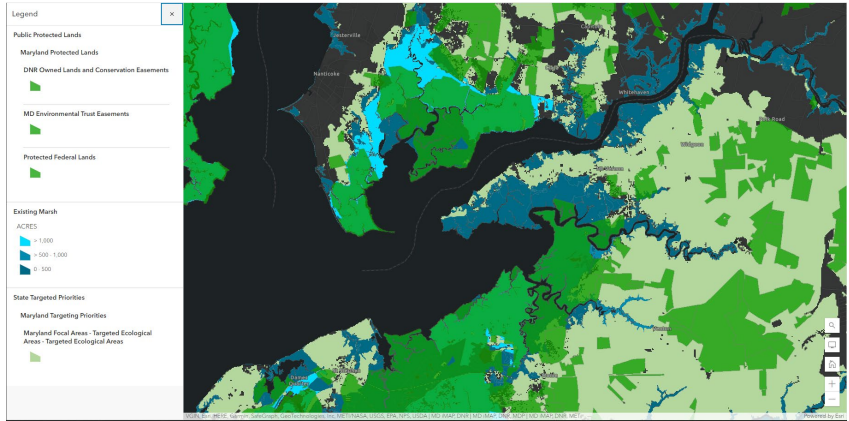
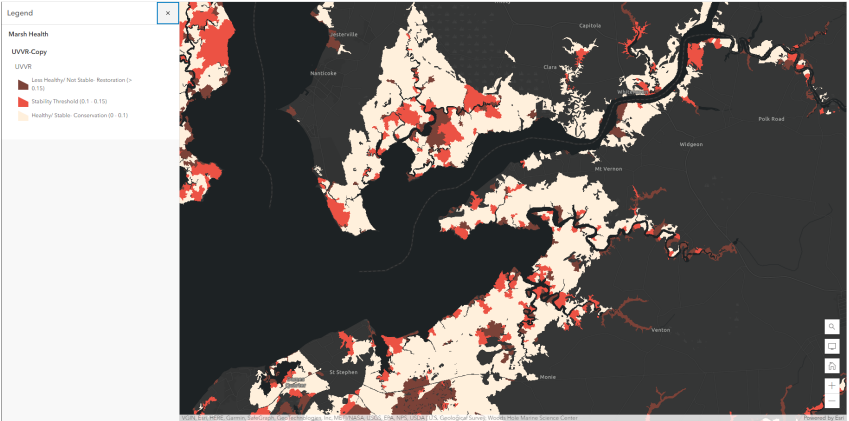
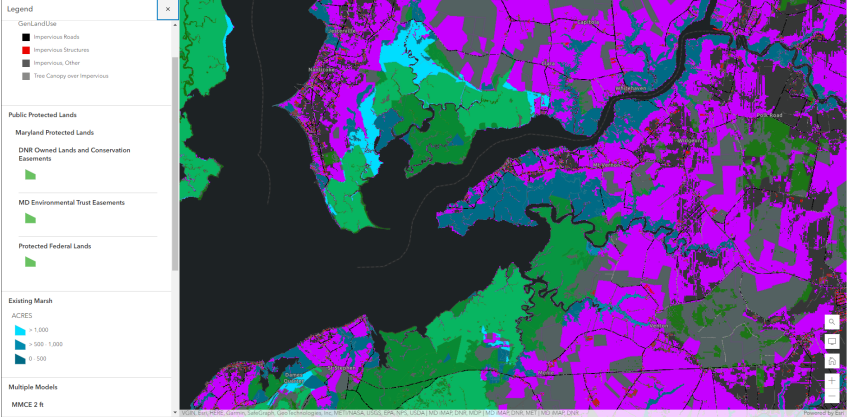
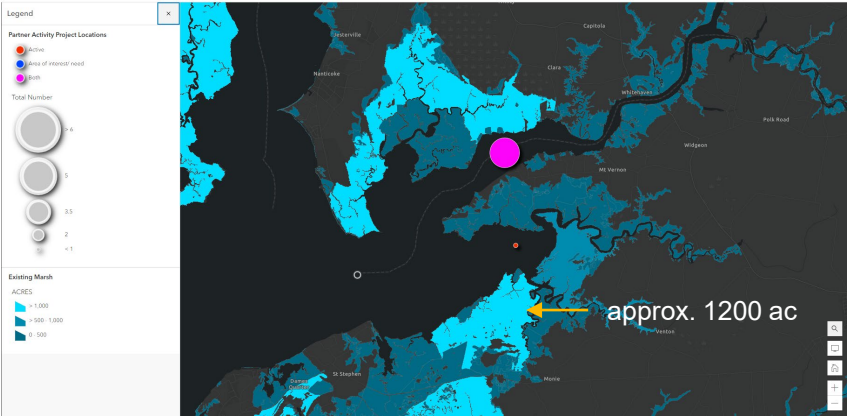
Wicomico River-Monie Bay, MD Considerations



- High level of existing partner activity (dredging Lower Wicomico and beneficial placement for wetland restoration at Deal Island)
- Extensive protected lands adjacent to potential marsh migration areas
- Significant SLR projections indicate value of marsh migration inland toward population centers

Wicomico River-Monie Bay, MD

Tier 1 attributes



Middle Peninsula, VA Considerations



- High level of partner activity; wetland action plan recently released
- Small to medium scale marshes
- Extensive protected lands and state targeted conservation areas
- Includes extensive DOD land, active REPI projects focused on protection

Middle Peninsula, VA

Tier 1 attributes

