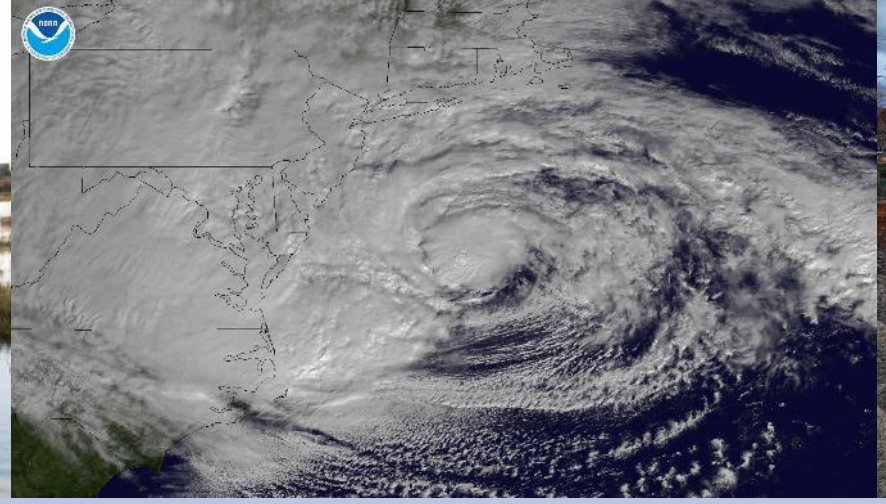


Maryland's Coastal Resiliency Priorities & Financing

Nicole Carlozo, Chesapeake & Coastal Service,
Maryland Department of Natural Resources

Climate Resiliency Workgroup
March 20, 2017

MARYLAND DEPARTMENT OF NATURAL RESOURCES

DNR's Building Resilience to Climate Change Policy

"It is the policy of the Maryland Department of Natural Resources to make sound investments in land and facilities and to manage its assets and natural resources so as to better understand, mitigate and adapt to climate change."

Coastal Resiliency Assessment

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Resiliency – The ability of a community to prepare for, respond to, and recover from a coastal hazard event.

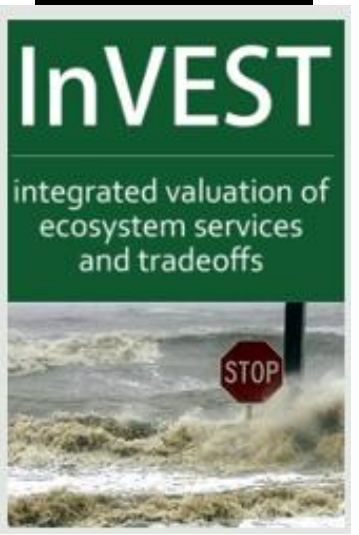
NOAA

The Nature Conservancy
Protecting nature. Preserving life.™

- **GOAL 1:** Evaluate the risk reduction benefits of existing natural features.
- **GOAL 2:** Establish priorities for conservation and restoration to enhance coastal community resiliency.
- **Objectives:** Identify flood-prone vulnerable communities; identify shorelines prone to coastal flooding and erosion; identify protective habitats; and develop Department priorities for natural solutions.

US Army Corps of Engineers
BUILDING STRONG®

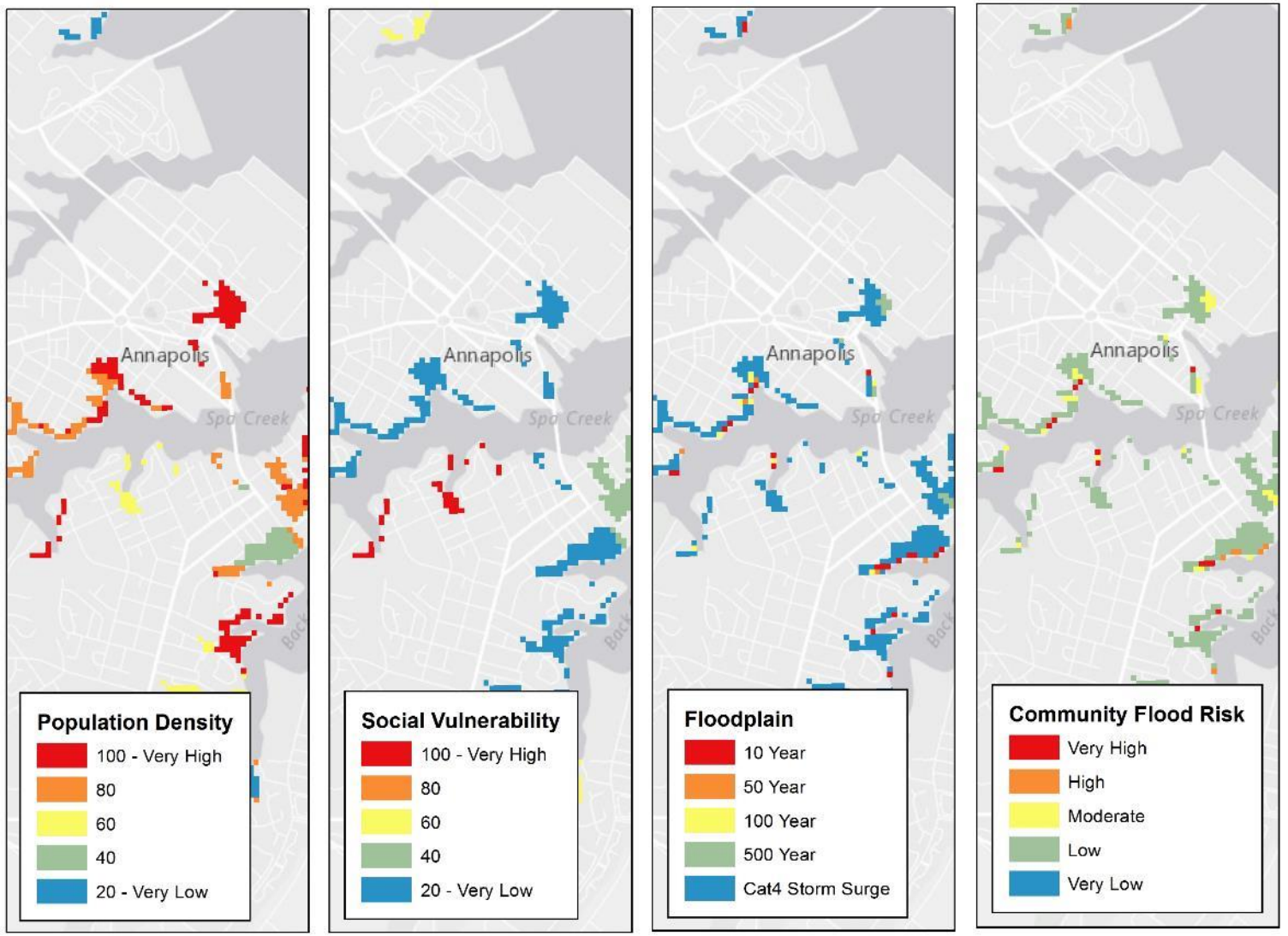
natural capital PROJECT



A Closer Look at Community Flood Risk: Annapolis

MARYLAND DEPARTMENT OF NATURAL RESOURCES

- Residential land use
- Demographics include population density and social vulnerability (age, income, language proficiency)
- Indices created with Census Bureau block group data (not weighted)
- Risk based on probability of exposure to coastal flooding now. (Sea Level Rise not integrated)



Resiliency Master Plan: Priority Areas

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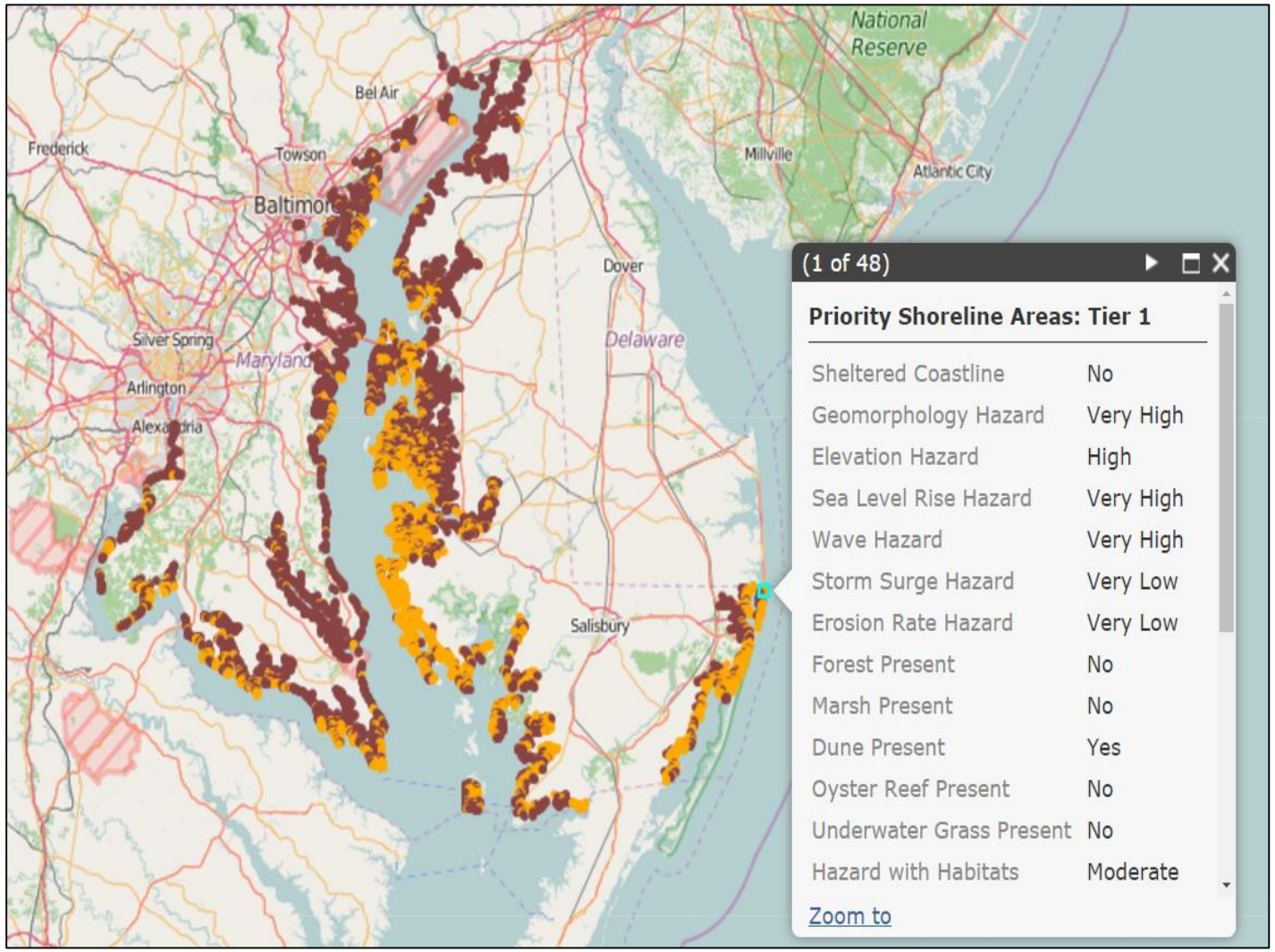
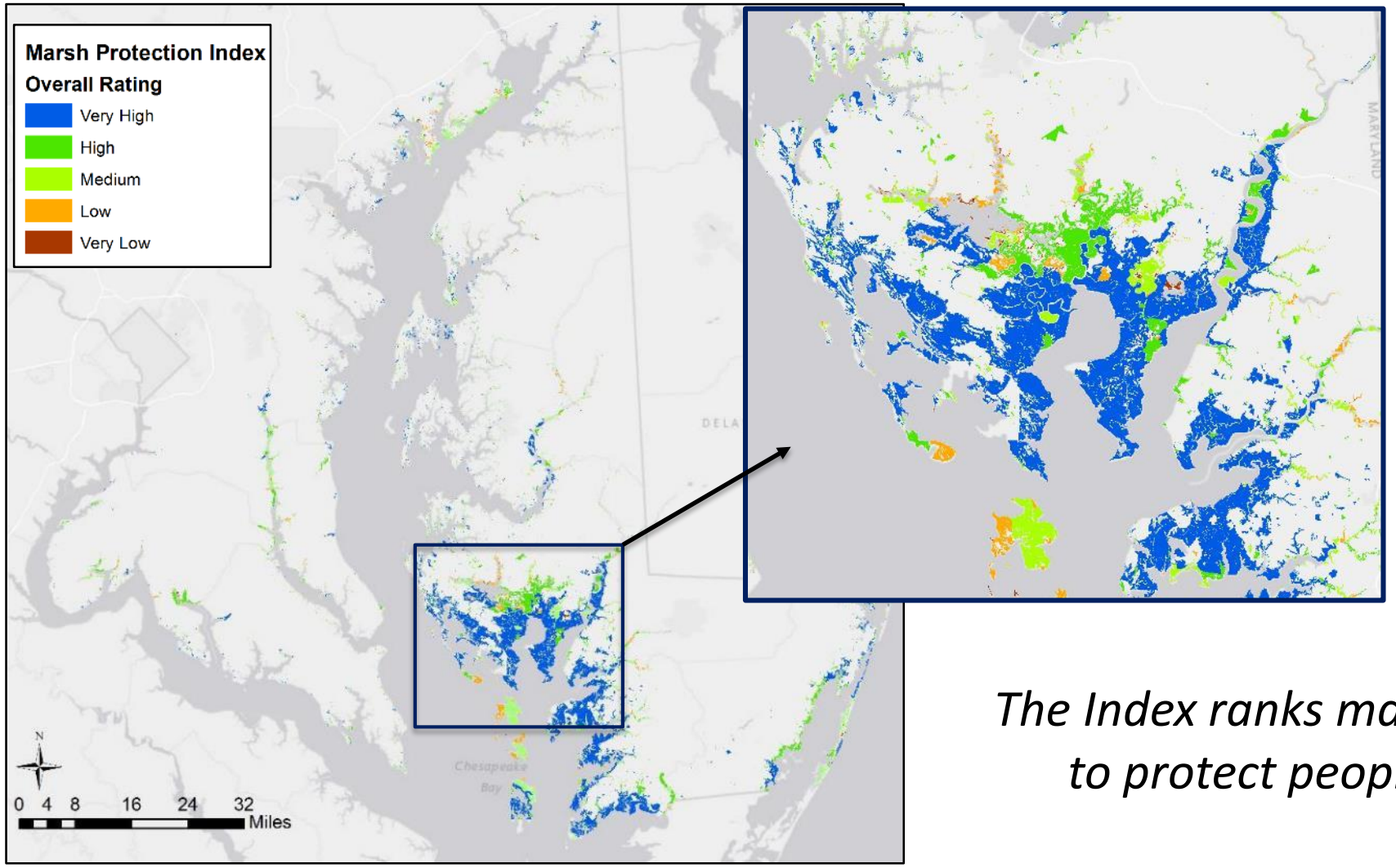
- **Tier 1 Shorelines**
  - High Habitat Role
  - Within 2km of Risk Area
  - 22% of shoreline
  - Conserve/Maintain/Enhance
- **Tier 2 Shorelines**
  - Moderate Habitat Role
  - Within 2km of Risk Area
  - 40% of shoreline
  - Restore



Marsh Protection Potential Index



- ❑ Marsh Size (Area)
- ❑ Proximity to Hazards (High, Moderate, Low, or Floodplain)
- ❑ Proximity to people (Residential Areas – High density / social vuln.)
- ❑ Persistence (SLR and Migration)
- ❑ Proximity to Other Protective Habitats

The Index ranks marshes based on their ability to protect people from coastal hazards.

Maryland's Coastal Atlas

dnr.maryland.gov/ccs/coastalatlas/

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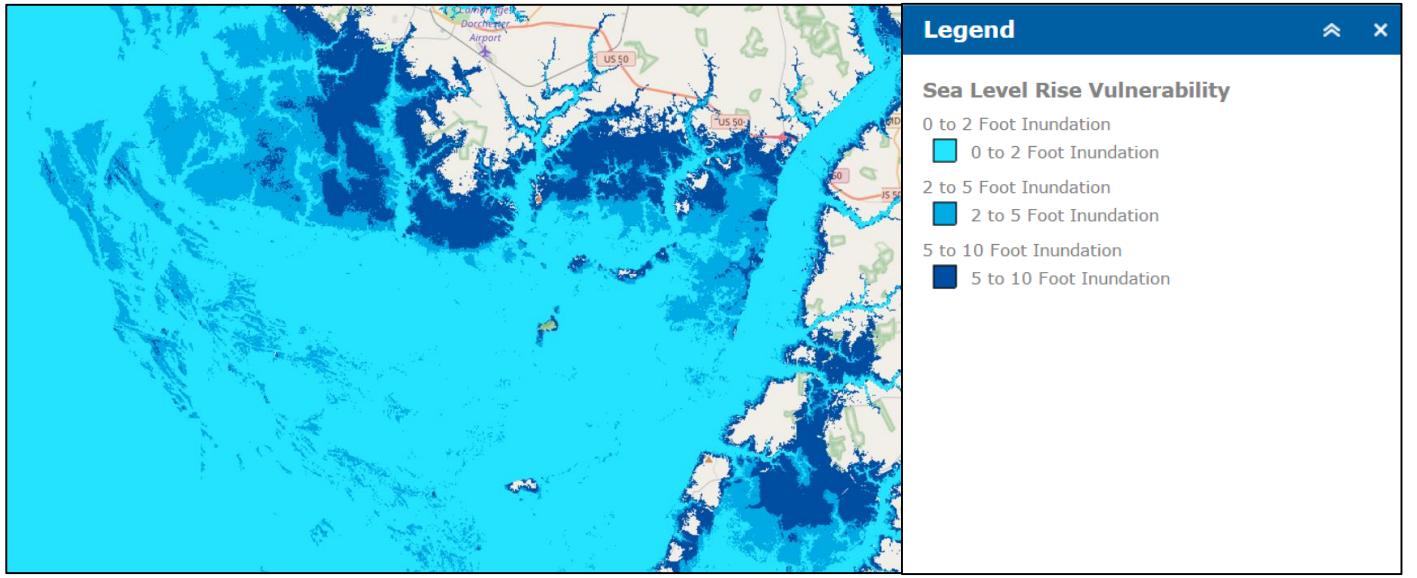
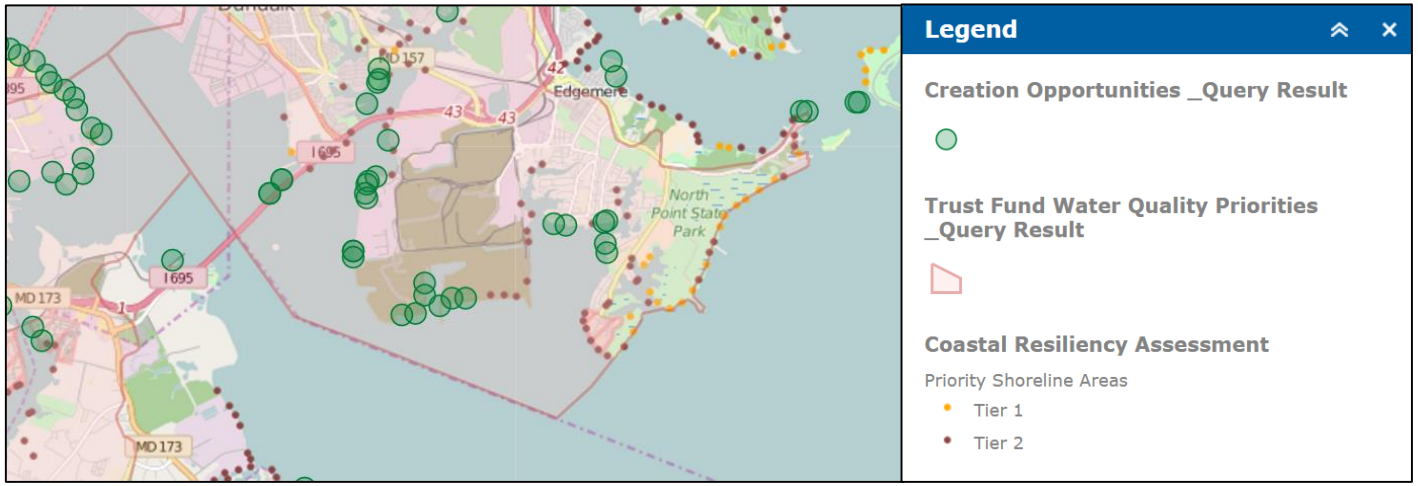
Climate Change Data Layers:

- **Sea Level Rise Vulnerability**
- **Storm Surge Areas**
- **Wetland Adaptation Areas**
- **Shoreline Inventory**
- **Historical Shorelines/Shoreline Rates of Change**
- **100 & 500 Year Floodplains**



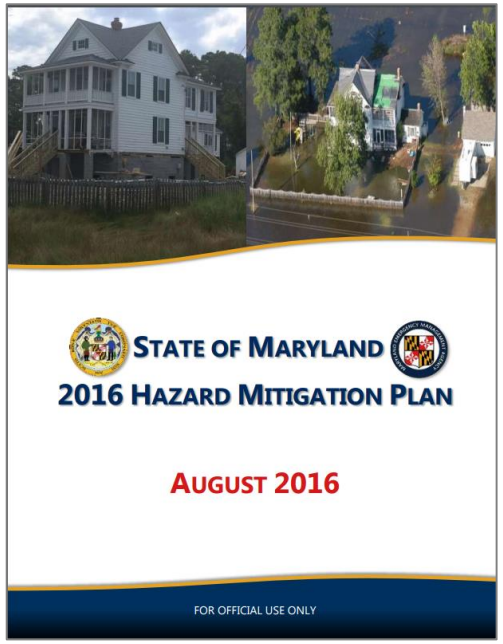
Coastal Resiliency Data Layers:

- **Priority Shoreline Areas**
- **Shoreline Hazard Index**
- **Hazard Reduction by Habitat**
- **Marsh Protection Potential Index**
- **Community Flood Risk Areas**



State Implementation - Coastal

- **DNR Land Acquisition Program**
  - Program Open Space GreenPrint Ecological Scorecard (2017)
  - Pursue Resilience Easements in areas important for marsh migration and coastal resiliency (Ongoing)
- **State Resiliency Partnership**
  - MEMA, MDE, MES, MTA, SHA, MHT, DOIT, DNR
  - Inclusion as priority in State Hazard Mitigation Plan
- **DNR Restoration Projects**
  - Prioritize restoration projects adjacent to Risk Areas and explore opportunities along priority shorelines (Ongoing)
  - Assess marsh health, resiliency, and flood protection benefits at priority marsh sites and develop management strategies to preserve protective benefits (Proposed 2017-2020)



Want to Learn More?

MARYLAND DEPARTMENT OF NATURAL RESOURCES

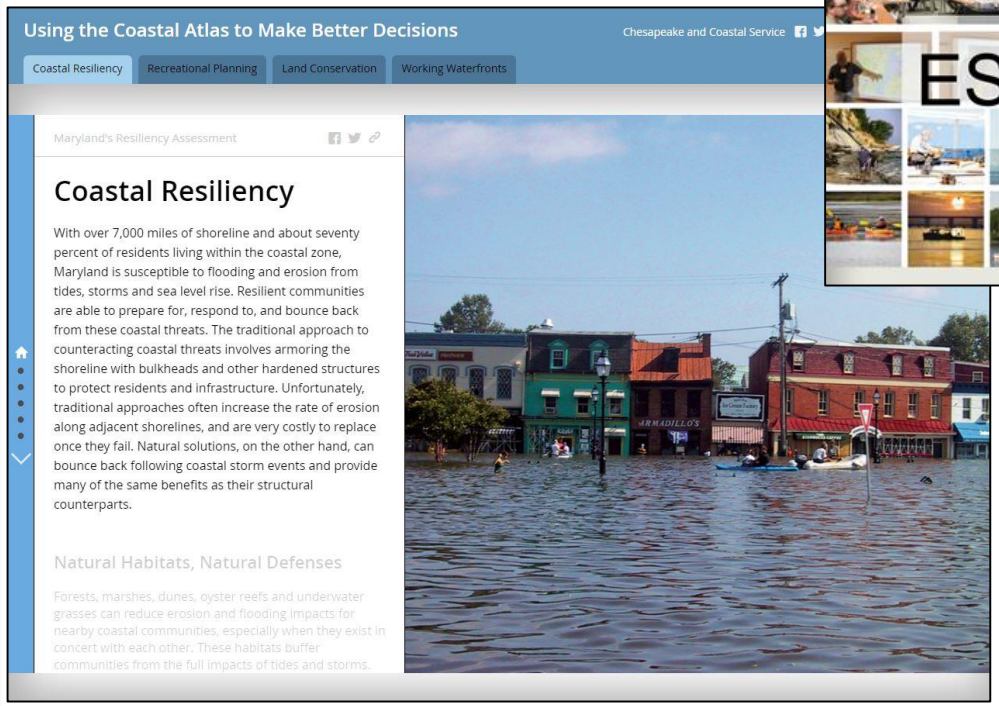
Coastal Resiliency Assessment
Training Manual

June 2016

Chesapeake & Coastal Service

NOAA

MARYLAND DEPARTMENT OF NATURAL RESOURCES

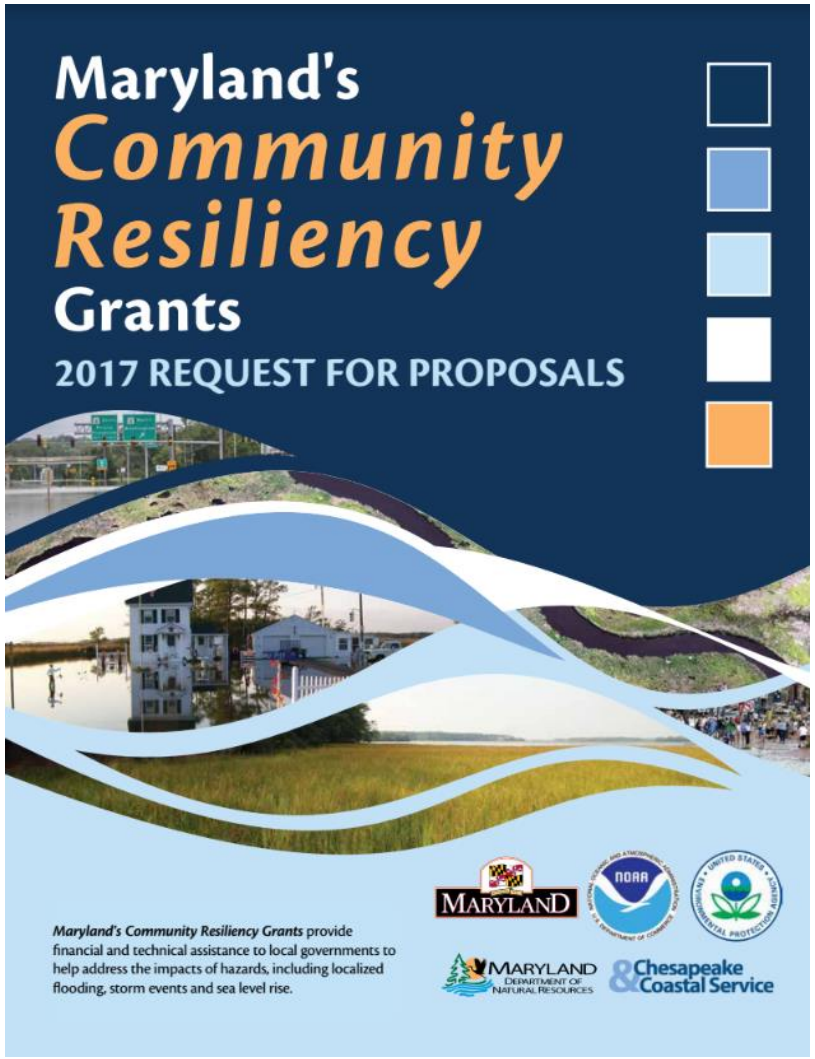


For more information, visit:
http://dnr.maryland.gov/ccs/coastalatlas/Pages/CoastalResiliencyAssessment.aspx

Or email nicole.carlozo@maryland.gov

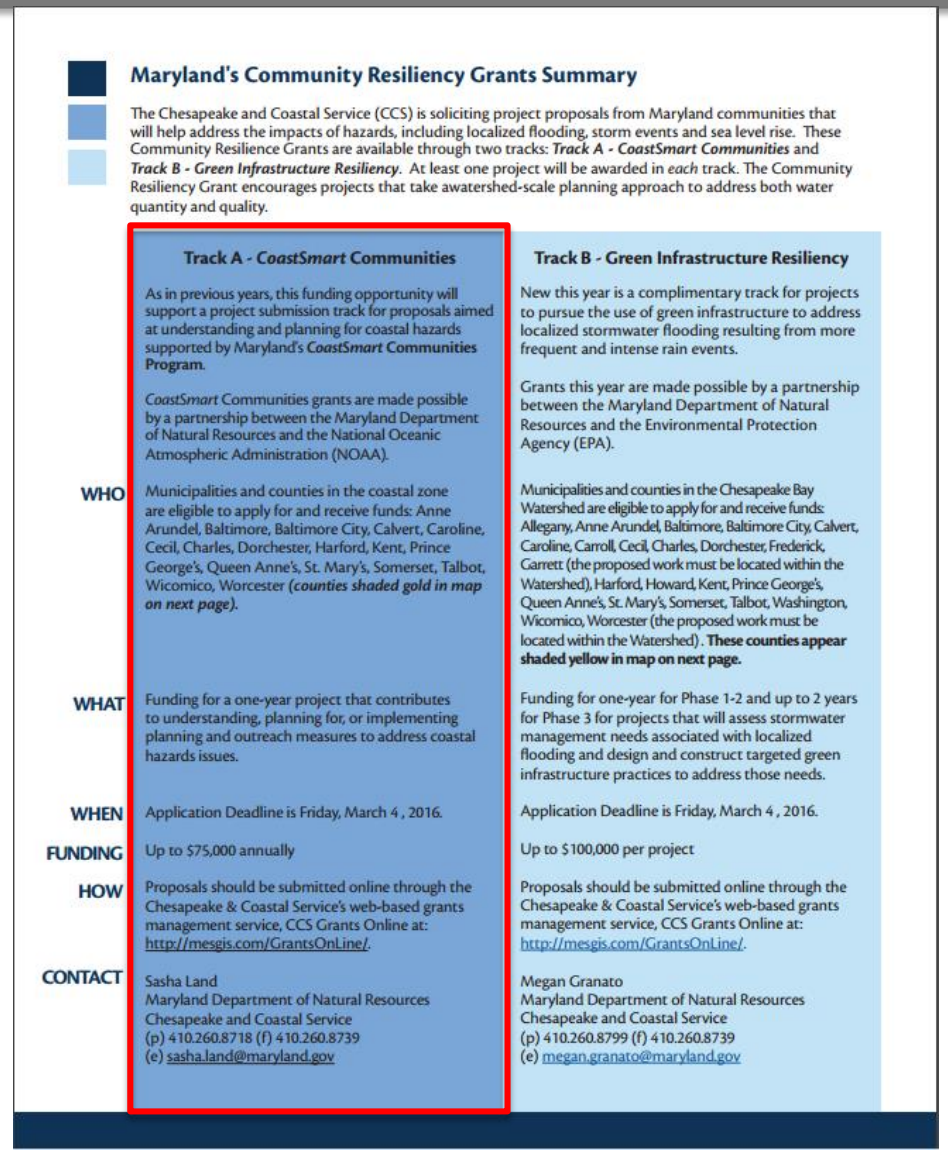
State Coastal Resiliency Financing

- **Community Resiliency Grant – Track A (2008 – Present)**
  - Coastal Zone County/Municipality planning for coastal hazards
- **Community Resiliency Grant – Track B (2015 – Present)**
  - County/Municipality planning/implementing green infrastructure practices to address stormwater and localized flooding in the Bay Watershed
- **Coastal Resiliency Grant Program (Planned Launch 2018-2022)**
  - Design and construction of coastal resiliency restoration projects (currently shoreline focus)



Community Resiliency Grant: CoastSmart Communities

1. Technical and Financial Assistance to coastal counties/municipalities to understand, plan for and reduce the risk of nuisance flooding, storm surge and sea level rise.
2. Encourages communities to incorporate activities that lower flood risk and exposure to coastal hazard impacts within required planning activities.
3. Helps increase the resilience of a community and reduce the long-term vulnerability to coastal hazards.
4. Awarded over $600,000 by the MD Coastal Zone Management Program to support projects in over 20 of its 114 coastal communities since CoastSmart's launch in 2008.
5. Competitive RFP (Up to $75K per project).



Maryland's Community Resiliency Grants Summary

The Chesapeake and Coastal Service (CCS) is soliciting project proposals from Maryland communities that will help address the impacts of hazards, including localized flooding, storm events and sea level rise. These Community Resilience Grants are available through two tracks: ***Track A - CoastSmart Communities*** and ***Track B - Green Infrastructure Resiliency***. At least one project will be awarded in *each* track. The Community Resiliency Grant encourages projects that take awatershed-scale planning approach to address both water quantity and quality.

	Track A - *CoastSmart* Communities	Track B - Green Infrastructure Resiliency
	As in previous years, this funding opportunity will support a project submission track for proposals aimed at understanding and planning for coastal hazards supported by Maryland's ***CoastSmart* Communities Program.**	New this year is a complimentary track for projects to pursue the use of green infrastructure to address localized stormwater flooding resulting from more frequent and intense rain events.
	CoastSmart Communities grants are made possible by a partnership between the Maryland Department of Natural Resources and the National Oceanic Atmospheric Administration (NOAA).	Grants this year are made possible by a partnership between the Maryland Department of Natural Resources and the Environmental Protection Agency (EPA).
WHO	Municipalities and counties in the coastal zone are eligible to apply for and receive funds: Anne Arundel, Baltimore, Baltimore City, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, St. Mary's, Somerset, Talbot, Wicomico, Worcester ***(counties shaded gold in map on next page).***	Municipalities and counties in the Chesapeake Bay Watershed are eligible to apply for and receive funds: Allegany, Anne Arundel, Baltimore, Baltimore City, Calvert, Caroline, Carroll, Cecil, Charles, Dorchester, Frederick, Garrett (the proposed work must be located within the Watershed), Harford, Howard, Kent, Prince George's, Queen Anne's, St. Mary's, Somerset, Talbot, Washington, Wicomico, Worcester (the proposed work must be located within the Watershed) . **These counties appear shaded yellow in map on next page.**
WHAT	Funding for a one-year project that contributes to understanding, planning for, or implementing planning and outreach measures to address coastal hazards issues.	Funding for one-year for Phase 1-2 and up to 2 years for Phase 3 for projects that will assess stormwater management needs associated with localized flooding and design and construct targeted green infrastructure practices to address those needs.
WHEN	Application Deadline is Friday, March 4 , 2016.	Application Deadline is Friday, March 4 , 2016.
FUNDING	Up to $75,000 annually	Up to $100,000 per project
HOW	Proposals should be submitted online through the Chesapeake & Coastal Service's web-based grants management service, CCS Grants Online at: http://mesgis.com/GrantsOnLine/.	Proposals should be submitted online through the Chesapeake & Coastal Service's web-based grants management service, CCS Grants Online at: http://mesgis.com/GrantsOnLine/.
CONTACT	Sasha Land Maryland Department of Natural Resources Chesapeake and Coastal Service (p) 410.260.8718 (f) 410.260.8739 (e) sasha.land@maryland.gov	Megan Granato Maryland Department of Natural Resources Chesapeake and Coastal Service (p) 410.260.8799 (f) 410.260.8739 (e) megan.granato@maryland.gov

http://dnr.maryland.gov/ccs/coastsmart/Pages/default.aspx

Community Resiliency Grant: CoastSmart Communities

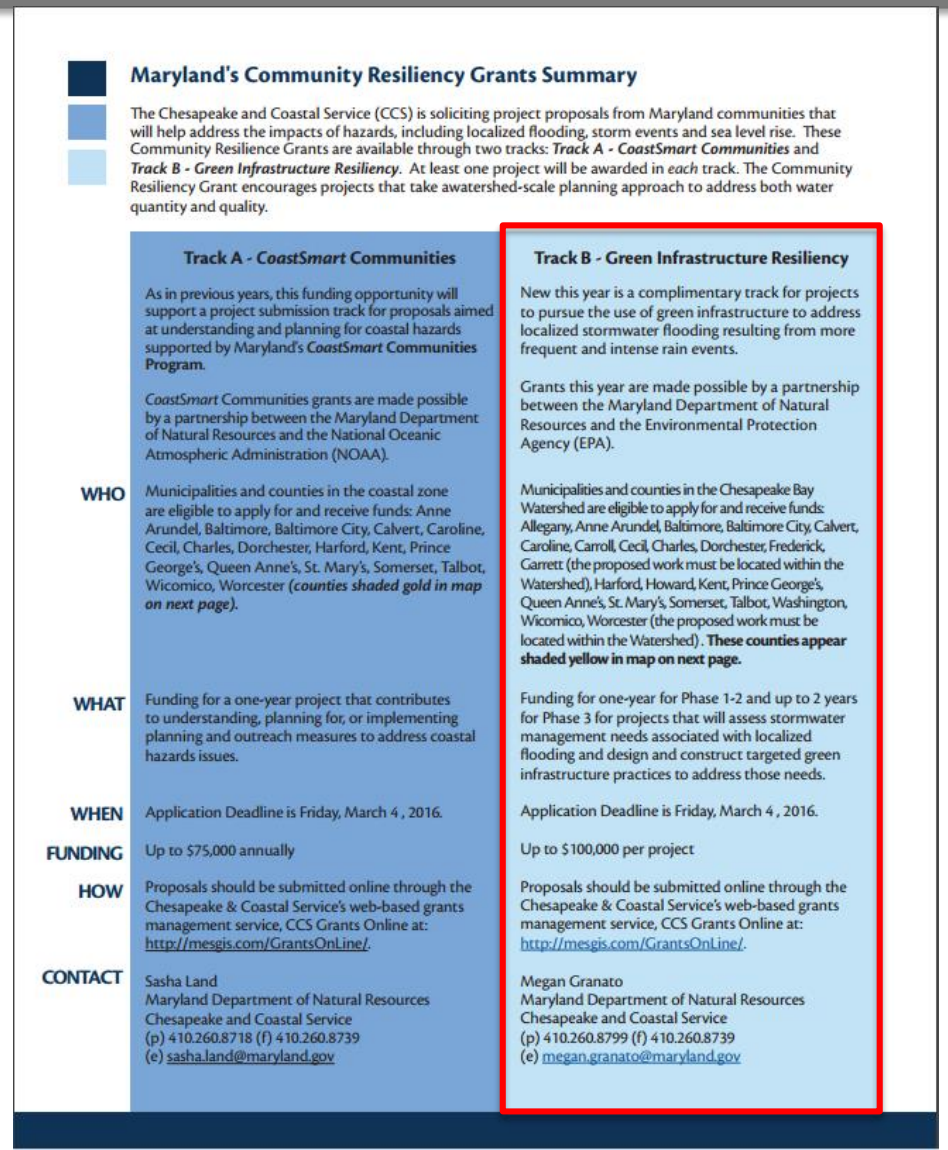
Potential projects:

- Update floodplain and zoning ordinances
- Update hazard mitigation, comprehensive plans & Critical Areas
- Update Capital Improvement Project plans
- Application to Community Rating System
- Quantify vulnerability and incorporate in planning process
- Develop a public outreach campaign on hazard risk

Community Resiliency Grant: Green Infrastructure Financing

1. Focus on non-coastal impacts of climate change (stormwater and floodplain management; water quantity and quality) and how Chesapeake Bay Watershed communities/municipalities can use green infrastructure (GI) to manage floods, replenish groundwater, reduce heat island effect, etc.
2. Model flooding/flow; assess vulnerability to flood risk; determine how GI practices can reduce risk.
3. Develop GI plan(s) or design(s).
4. Implement/Construct GI practices.
5. Competitive RFP (Up to $100K per project).

http://dnr.maryland.gov/ccs/coastsmart/Pages/default.aspx



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2016-2017 Green Infrastructure Financing Projects

- **Somerset County / Smith Island Open Ditch Drainage Assessment**
  - Map existing ditches;
  - Identify deficiencies in drainage system;
  - Recommend GI practices to improve system; and
  - Develop implementation plan for improvements.

- **Howard County / Historic Ellicott City Flood and GI Assessments**
  - Case Study of July 30, 2016 Flood (Describe flood impacts; identify contributors; and create a flood timeline).
  - Green Infrastructure Assessment to assess how GI practices could help reduce flooding risks.

New Program in 2018: Coastal Resiliency Grant

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Enhance coastal community resiliency to the effects of climate change and extreme weather through natural and nature-based solutions.

- **Fund Design and Construction of living shorelines**. Activities include shoreline and tidal marsh restoration, beneficial use of dredged materials, and the protection of dunal habitats to shelter coastal communities. Proposed $540K Design Funds available July 1, 2018. Construction Funds planned FY19-22.
- Future Funding and scope depends on demonstrated successes.