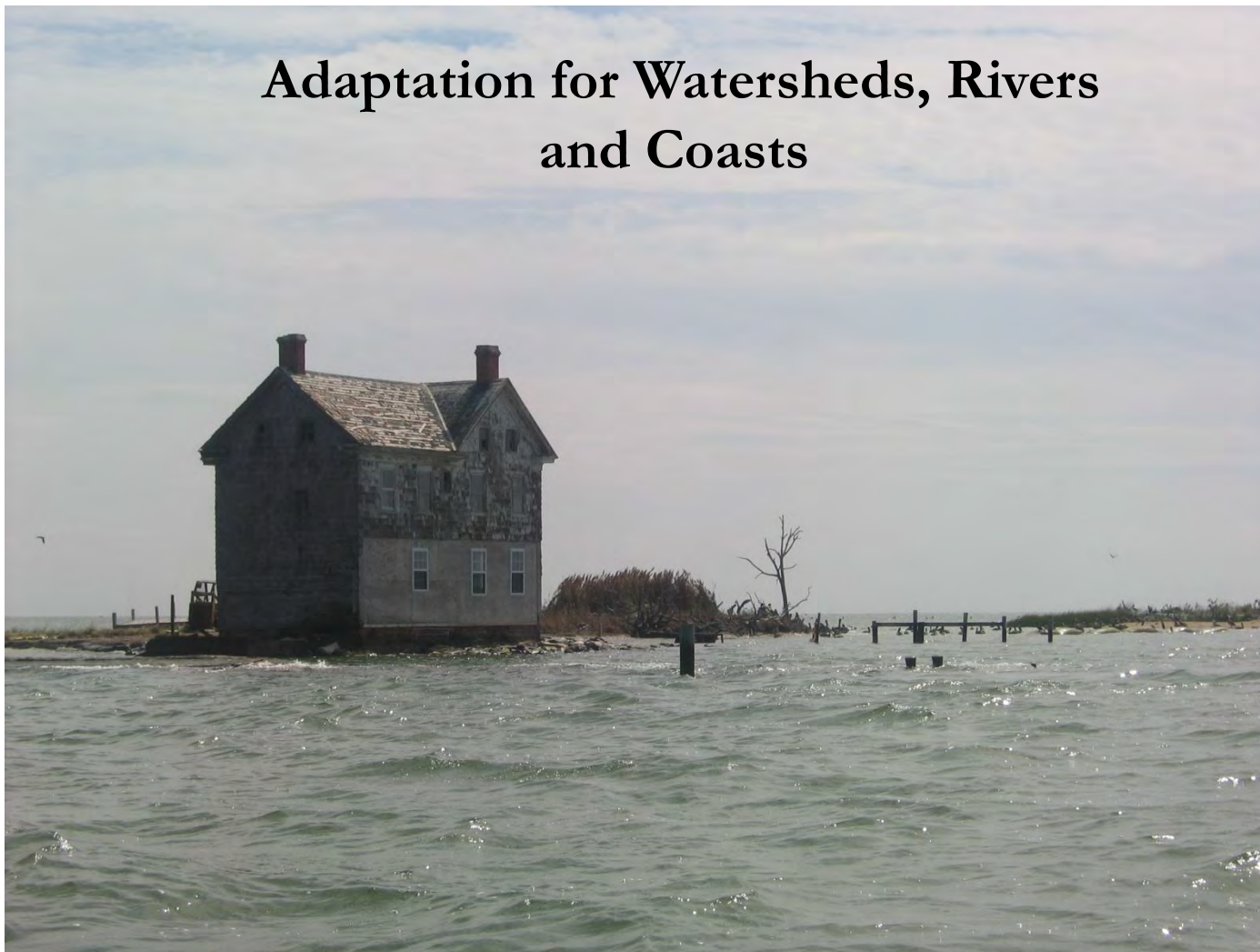


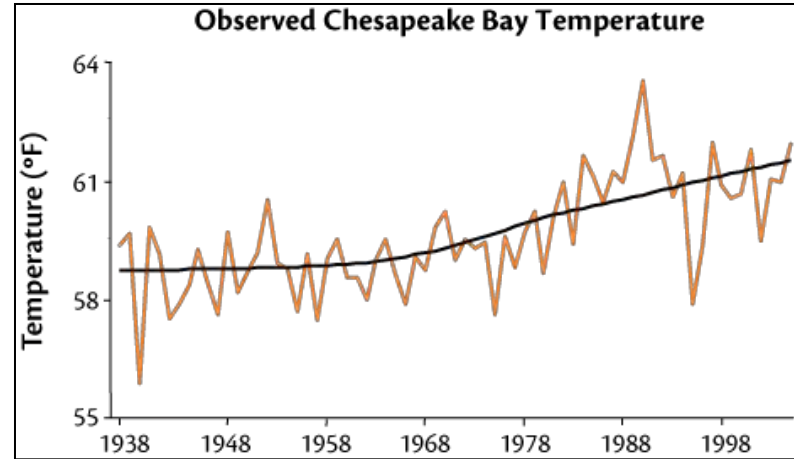
## Adaptation for Watersheds, Rivers and Coasts



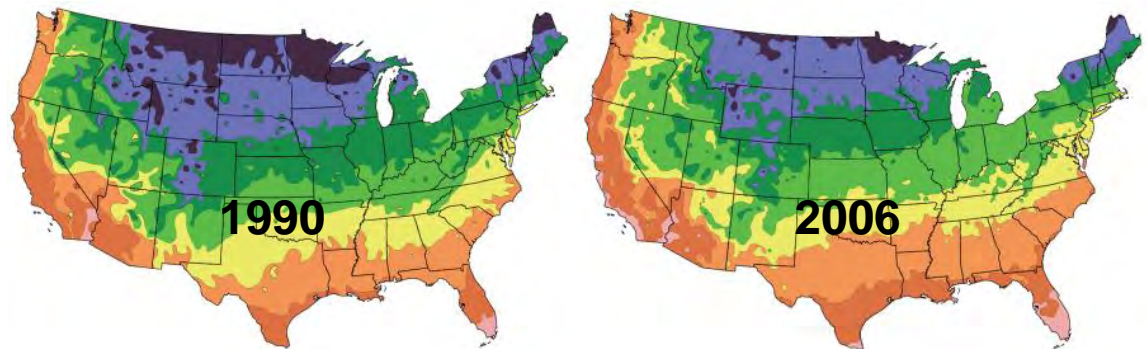
# Global Climate Change: Real Consequences



Sea level has risen approximately one-foot in the last century

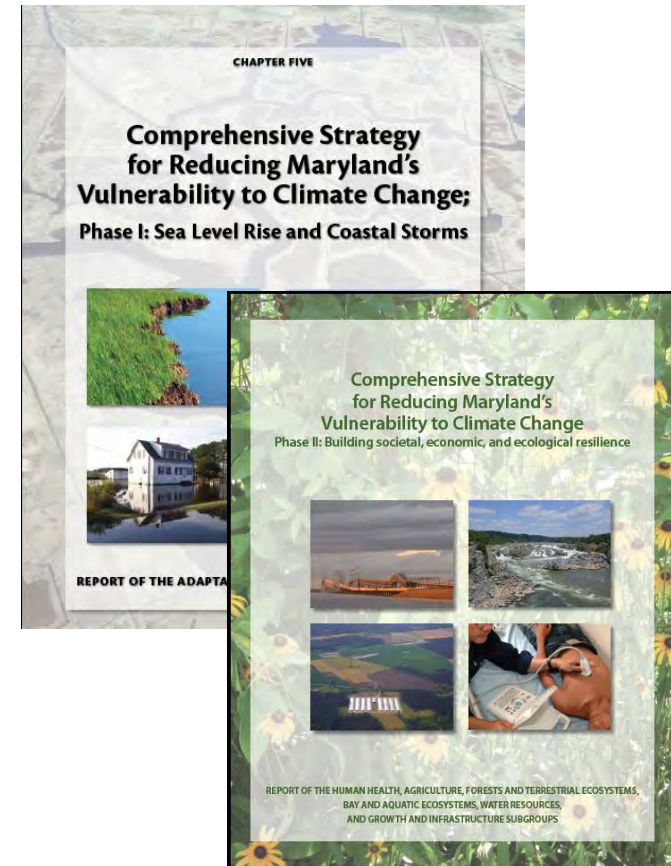
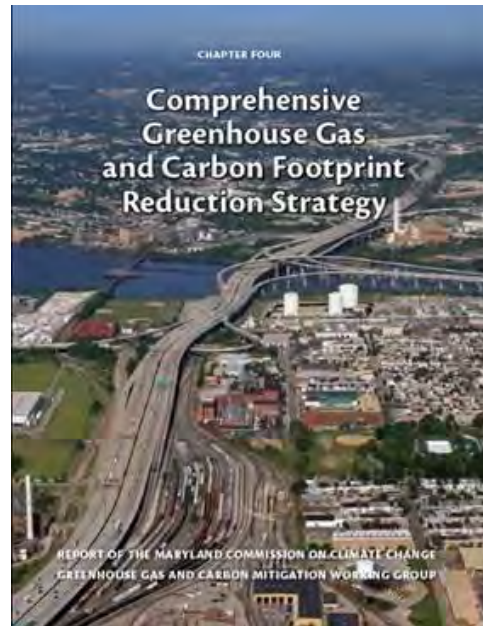
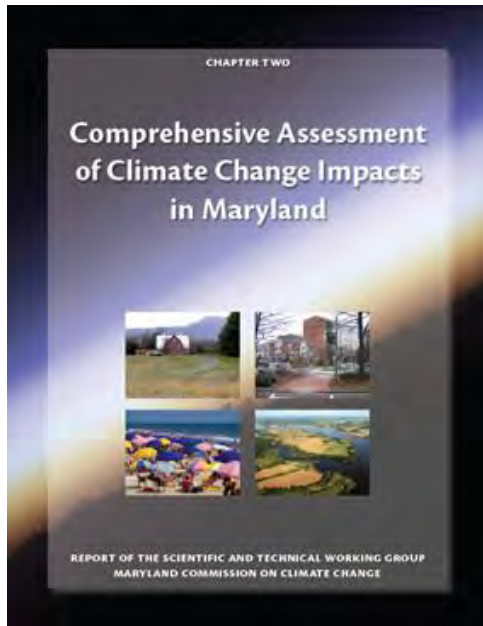


Chesapeake Bay has warmed by more than 2° F

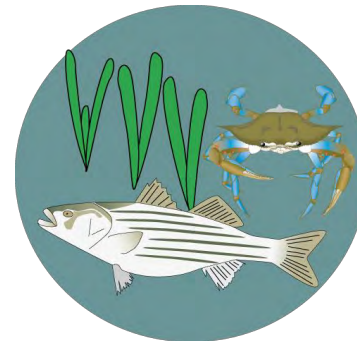


Shift in Plant Hardiness Zones  
National Arbor Day Foundation

# Maryland Climate Action Plan



# Sector-Based Adaptation Planning



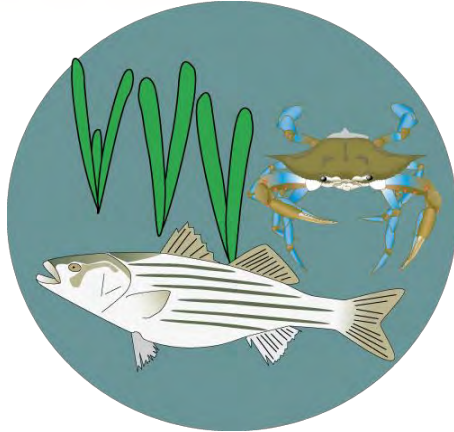
# Sea Level Rise & Coastal Storms

## *Key Recommendations*

- Promote programs and policies aimed at the avoidance and/or reduction of impact to the existing-built environment, as well as to future growth and development in vulnerable coastal areas.
- Shift to sustainable economies and investments; and, avoid assumption of the financial risk of development and redevelopment in highly hazardous coastal areas.
- Enhance preparedness and planning efforts to protect human health, safety and welfare.
- Protect and restore Maryland's natural shoreline and its resources, including its tidal wetlands and marshes, vegetated buffers, and Bay Islands, that inherently shield Maryland's shoreline and interior.



# Bay and Aquatic Ecosystems & Forest and Terrestrial

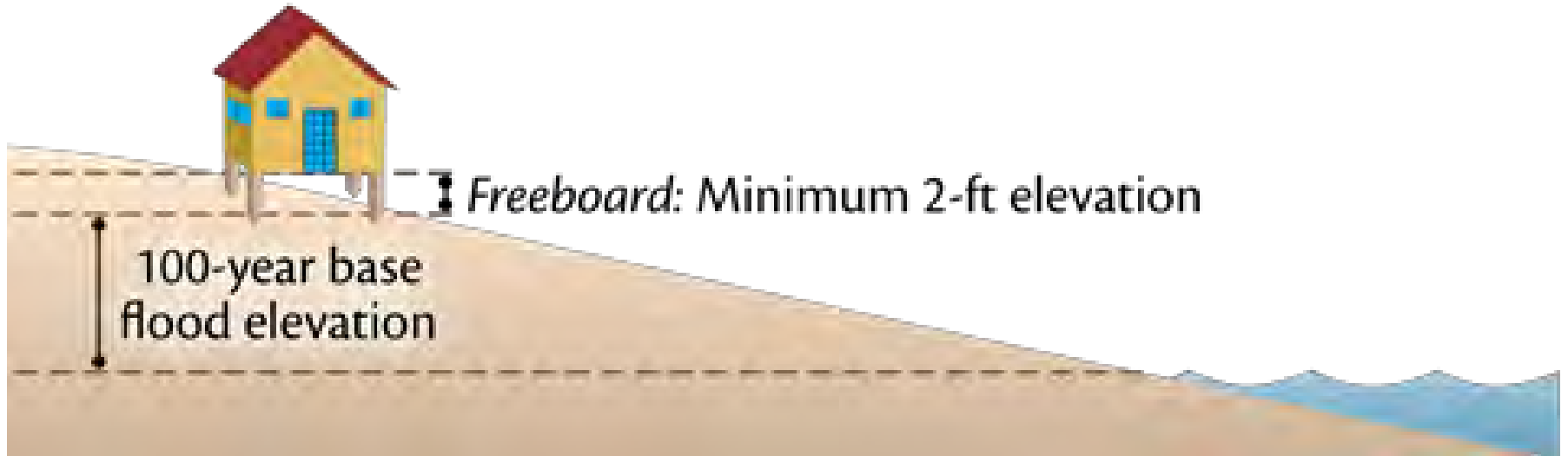


- Advance protection of at-risk species and habitats.
- Restore critical bay & aquatic habitats to enhance resilience.
- Reduce existing stressors.
- Foster a collective response to climate change.

- 
- Expand land protection and restoration and revise targeting priorities
  - Adjust management practices and reduce existing stressors.
  - Foster stewardship on private lands.



# Strategy: Enhanced Siting & Design for Coastal Infrastructure



Elevate new and/or replacement structures 2+ feet  
above the current 100-year base flood elevation

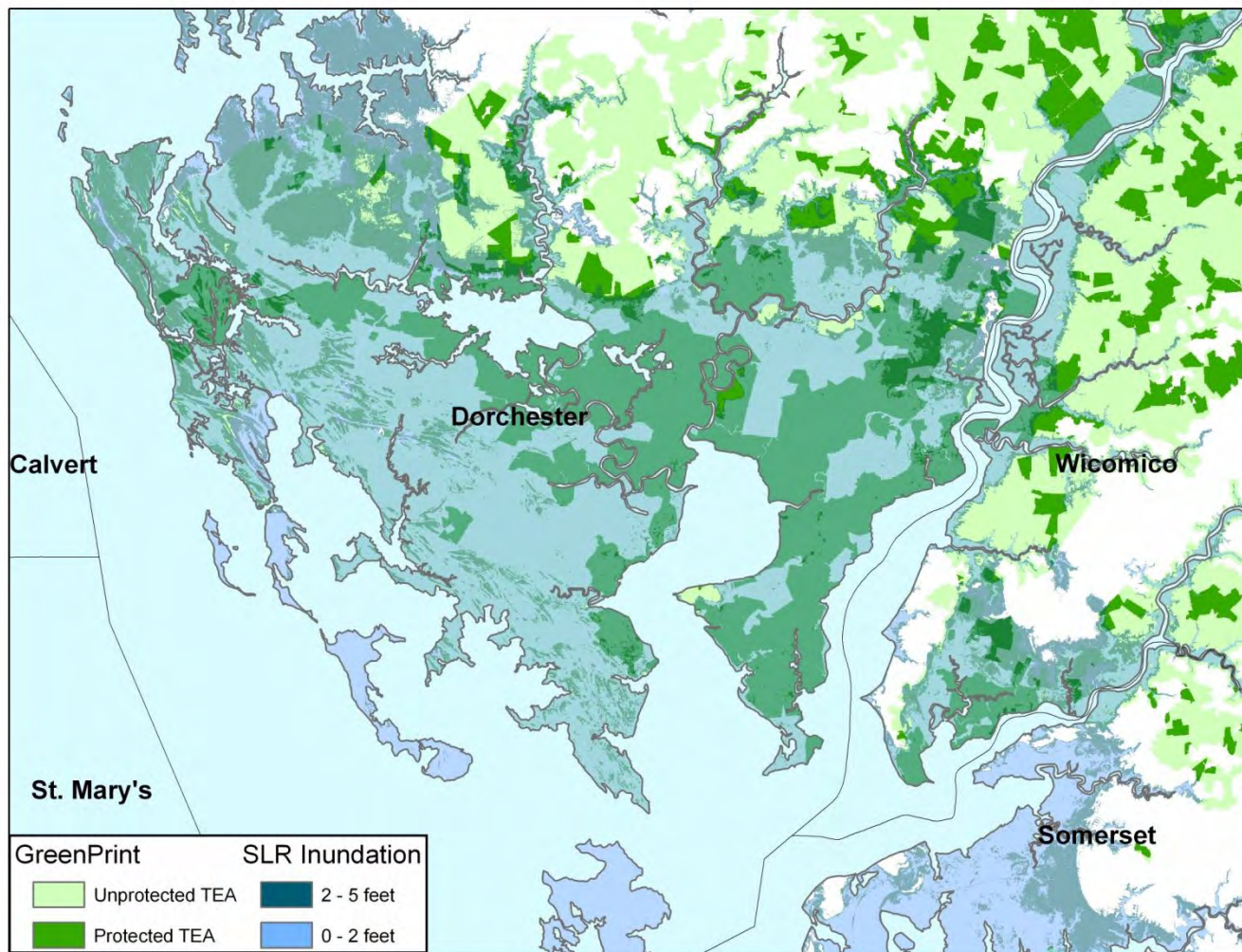
# Strategy: Promote Sustainable Shoreline & Buffer Area Management

- Living Shoreline Protection Act (2008)
  - Requires non-structural shore protection practices unless proven infeasible
- Chesapeake & Coastal Bays Critical Area Amendments (2008)
  - Increased vegetative buffers
  - Updated jurisdictional boundaries to account for sea level rise
  - Allows for consideration of coastal impacts during growth allocation decisions





# Strategy: Facilitate Movement of Coastal and Inland Ecosystems



# Strategy: Institutionalizing Consideration of Climate Change

## *Building Resilience to Climate Change*

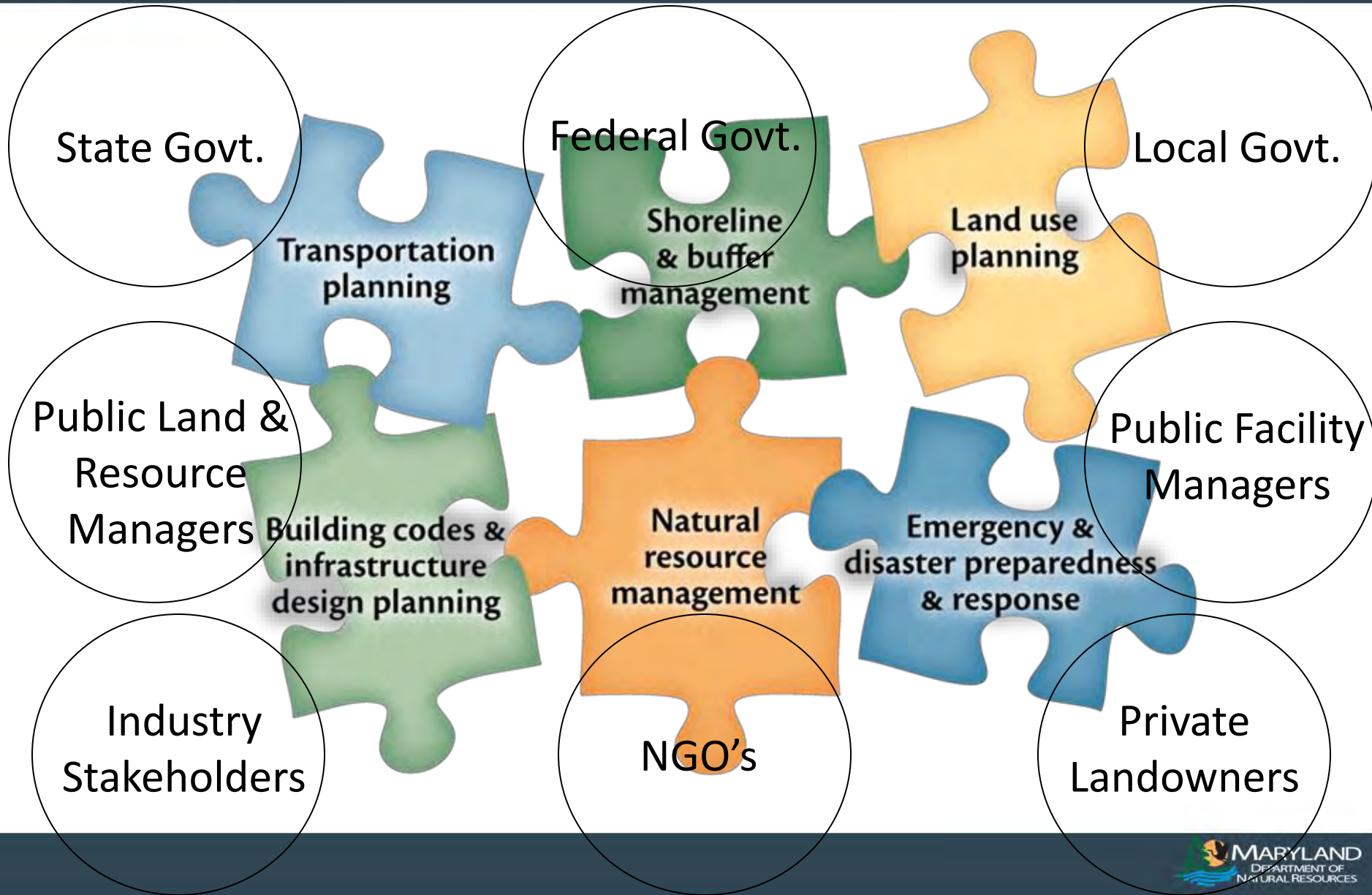
DNR policy to guide investments in and management of land, resources and assets so as to better understand, mitigate and adapt to climate change.

- New Land Investments
- Facility Infrastructure  
Siting & Design
- Habitat Restoration
- Research & Monitoring
- Resource Planning
- Government Operations
- Advocacy

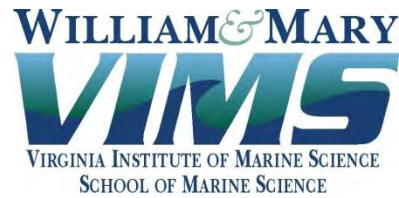
# MD Adaptation 2011 - 2012

- Critical Area Jurisdiction Mapping Update (Lead: DNR)
- Living Shoreline Protection Act-Regulation Development (Lead: MDE)
- DNR “Lead by Example” Policy
  - Land Conservation Assessment & Revised Targeting Criteria (GreenPrint)
  - Infrastructure Siting & Design Criteria
- Maryland State Hazard Mitigation Plan – Climate Change Risk Analysis (Lead: MEMA)
- SHA Transportation Vulnerability Assessment and Risk Policy (Lead: MDOT)
- Maryland Port Administration Vulnerability Assessment (Lead: MDOT)
- Historical, Archaeological, and Cultural Resources Vulnerability Study (Lead: MDP)
- Climate Change Insurance Advisory Committee (Lead: MIA)
- Wildlife Action Plan – Climate Change Element (Lead: DNR)
- State Development Plan: PlanMaryland – Criteria for “Lands Subject to the Impacts of Climate Change” (Lead: MDP)
- Local Government Technical & Financial Assistance: *Building Coast-Smart Communities*: (Lead: DNR)
- Adaptation Toolbox: *The Coastal Atlas* (Lead: DNR)

# Climate Change Adaptation: A Complex Planning Puzzle



# Acknowledgements: It takes a collective effort





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