Towards a Maryland Wetland Adaptation Strategy

(a) December 2019 Maryland's Plan to Adapt to Saltwater Intrusion and Salinization recognized wetlands are one of the priority areas, and included a recommendation to develop a statewide wetland adaptation plan;

(b) State agency saltwater intrusion team has been meeting to facilitate plan implementation;

(c) 2022 work identified possible new or modified state programs and policies that could facilitate wetland migration;

(d) 2023 initiation of State Wetland Team, development of adaptation strategy outline. MDP, DNR, MDE, MDA, MDOT, MDEM are represented

Image Credit: Dylan Taille

Maryland's Wetland Adaptation Strategy

Purpose: consolidate wetland related projects, policies, programs and initiatives within the context of best available science. Use this information to

- Enumerate climate threats to wetlands and strategies to mitigate these
- Identify regions in Maryland to prioritize for wetland restoration/prioritization due to climate adaptation potential, or ecosystem service value
- Identify challenges for meeting wetland goals
- Develop technical feasibility estimates for wetland restoration/preservation and suggest wetland goals relevant to the Chesapeake Bay Agreement
- Suggest policies that would further wetland adaptation goals

Existing Wetland Plans, Programs, and Initiatives

Federal:

- 2014 Chesapeake Bay Agreement- “Create or re-establish 85,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025.
- Beyond 2025 Bay Program effort, CBP Tidal Wetlands Committee, will likely revise this goal
- USACE Bay Islands Creation Plan

Maryland:

- Next Generation Adaptation Plan (10 years)
- 2031/2045 GHG Mitigation Plan
- Maryland State Wetland Program 5 Year Plan (currently 2021-2025)

Partners

- Audubon Marshes for Tomorrow initiative
- The Nature Conservancy’s Resilient Landscapes initiative

Challenges for Meeting Wetland Goals

i. Hardened shorelines- wetlands less likely to migrate

ii. Climate Change

- Sea level rise
- Associated salinization (uncertainty as climate changes)
- Precipitation patterns threaten inland wetlands
- Invasive species exacerbated by climate change
- Thermal load to coldwater resources, certain BMPs increase water temp
- Erosion rate- worsening severity
- Changes in natural community composition

iii. Different goals for the existing land use/management/ownership

iv. Sustainable Funding - wetland creation/restoration/enhancement is often expensive relative to other BMPs to achieve water quality or carbon benefits

State of the Science

- Maryland Wetland Adaptation Area Update- where we think wetlands will be in 2050, 2070, 2100 and prioritized ranking based on 2100 wetlands
- USGS Coastal Change Data- marsh condition, hazards, lifespan, likelihood of change (regional)
- Marsh Protection Index Update (2024)- combines marsh protective capacity and characteristics of vulnerable populations
- USFS Ghost Forest Mapping Project- 44k acres of forest in MD already impacted, mostly on Eastern Shore
- Univ. of DE Saltwater Intrusion on Cropland mapping- 19,000 acres of cropland in MD impacted, $39 million-$70 million annual economic loss
- Chesapeake Conservancy AI wetland mapping- needs funding

These and other studies will be synthesized, used to identify regions with high climate vulnerability, and opportunities for restoration or migration

Most of the work has been done for coastal wetlands

New and Existing Policies Furthering Wetland Adaptation

Initial Recommendations

1. Use the Wetland Adaptation Strategy to inform Coastal Resilience Easements, Critical Area requirements/mapping, and living shoreline requirements.
2. State agencies shall create guidance for local governments on incorporating wetland migration areas into local green infrastructure plans, comprehensive plans, hazard plans, etc.
3. State agencies shall use the new SLAMM model results to map which coastal buildings, natural resources and infrastructure (roads, bridges, wells, septic systems,hardened shorelines, etc.) are threatened by wetland migration.
4. State agencies shall develop guidance for local practitioners (state agencies, consultants, scientists, etc. who are responsible for on-the-ground restoration and maintenance)
5. Determine government's responsibility to coastal property owners/dwellers whose property is and will be impacted by wetland migration
6. Create and provide guidance and outreach to property owners/dwellers, describe what to look out for on the property and adaptation options
    a. Pair guidance with a cost benefit tool to help evaluate when retreat is the best option
    b. Develop guidance conforming with best practices for communicating climate risk to the public

Next Steps for 2024

1) Develop the draft wetland adaptation strategy (first half of 2024)

2) Identify the body that will review and approve the plan by end of CY;

- ARWG as a reviewing body?
- Possibly Chesapeake Bay Program Wetlands WG
- Required agency level review

3) Identify a pathway to implementation as part of the draft plan with time-bound milestones