Maryland's Plan to Adapt to Saltwater Intrusion and Salinization

Florida Water & Climate Alliance

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Climate Change and Salinization

- Long-term and episodic events
  - Sea level rise
  - Tides and storms
  - Heavier precipitation or drought
- Anthropogenic factors

Credit: Maryland Sea Grant

Legislative Requirements

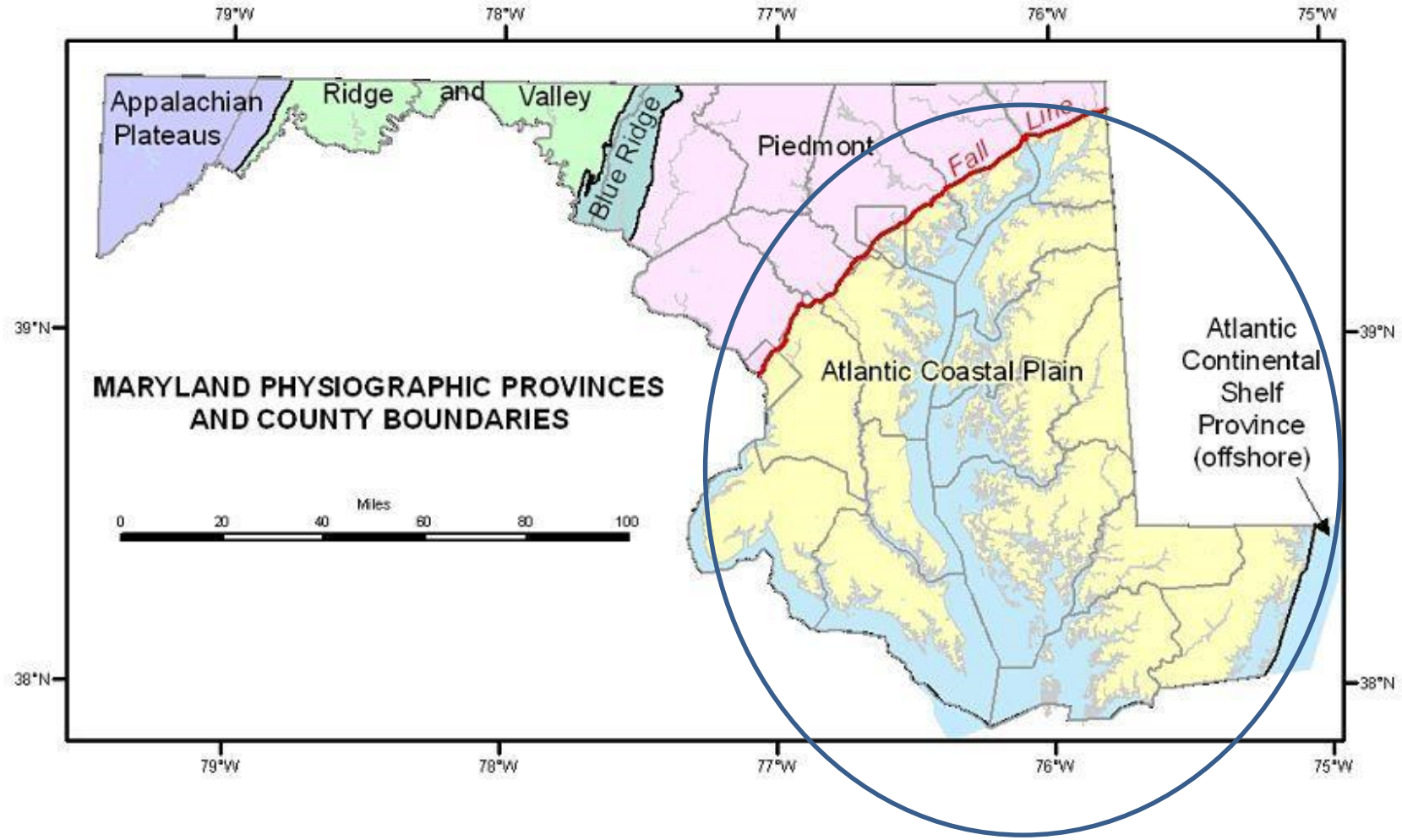
- HB1350 (2018 session) directed Planning to “establish a plan to adapt to saltwater intrusion”

- HB514 (2015 session) directs the Maryland Commission on Climate Change to
  - prioritize working group actions, including assessing climate change impacts and recommending adaptation strategies

DEFINITION

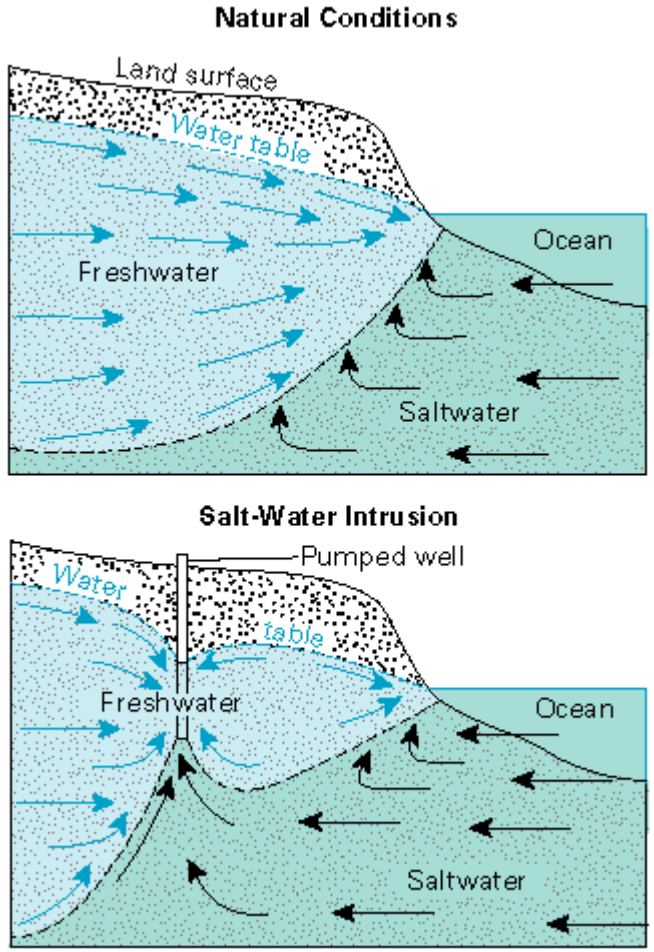
- In the plan “saltwater intrusion” is used to describe the movement of saltwater into aquifers (groundwater), while the term “salinization” is used to describe the process by which water-soluble salts accumulate in fresh surface waters or in soils within agricultural land, wetlands, and coastal forests.

WHERE IN MARYLAND?



What is Impacted?

- Groundwater aquifers
- Surface waters
- Agriculture
- Wetlands
- Coastal forests
- Infrastructure



Plan Organization

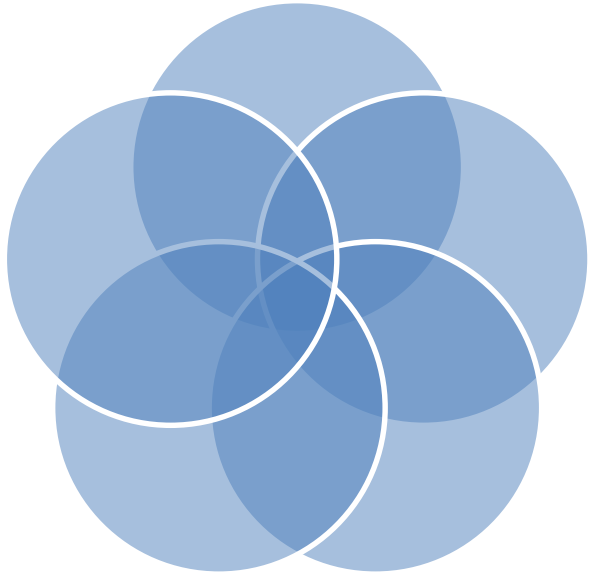
For each impacted resource or land type:

- How is saltwater moving in the physical environment?
- How is climate change affecting saltwater movement?
- What are the impacts, threats and concerns?
- What are the knowledge gaps?

PLAN DEVELOPMENT PROCESS

State Agency Workgroup

Stakeholder Review



Research & Interviews

Climate Change Commission Review

Technical Review

CONCERNS

- Loss of productivity in some coastal farmland
- Altered ecological landscape for wetlands and coastal forests
- Loss of coastal forests (ghost forests)

Photo credit: The Nature Conservancy

CONCERNS

- Need for vigilance regarding groundwater and surface water use
- Need to understand impact on Chesapeake Bay restoration and greenhouse gas mitigation

Example from Wetlands Section

- Drivers of Salinization
- Threats, Concerns and Impacts
- Research Recommendations
- Adaptation Recommendations

Unanswered Questions

- How will sea level rise affect the extent of brackish water currently in the Chesapeake Bay and Maryland's Coastal Bays?
- How will the salinization of surface waters affect the rate and extent of saltwater intrusion within Maryland's groundwater aquifers?

Unanswered Questions

- How will the extensive ditch network within Maryland's Eastern Shore affect the movement of saltwater over time?
- Which particular water users in Maryland are at risk?

Credit: UMD

Unanswered Questions

- Where are the locations of agricultural land, wetlands, coastal forests, and infrastructure that are at risk?
- Do adjacent lands exist to allow for the migration of at-risk land types over time?

Credit: UMCES

Unanswered Questions

- How significant and/or extensive are the current and forecasted impacts (economic, social, environmental) of saltwater intrusion and salinization?

Research Recommendations

- For each impacted resource or land type.
- Near-term (0-2 years)
- Mid-term (3-4 years)
- Long-term (4-5 years)

Adaptation Recommendations

- Measures recommended now.
- Measures already available if needed.
- Measures to explore further to determine feasibility or utility in Maryland.

Long-Term Implementation

- Law requires updated plan by 2024
- Strategic approaches to fund research
- State agency workgroup takes the lead
- Continued information exchange with local, federal, university and NGO practitioners and researchers

Key Takeaways

- The plan provides a template for how Florida and other states can identify priority research and adaptation actions.
- University, private and government agencies can use the plan to support grant, research and policy initiatives.
- A workgroup is needed to track and facilitate implementation, one that can report to an existing government body.

QUESTIONS?

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