

MARYLAND SALTWATER INTRUSION PLAN

Adaptation and Resiliency
Workgroup
August 5, 2019

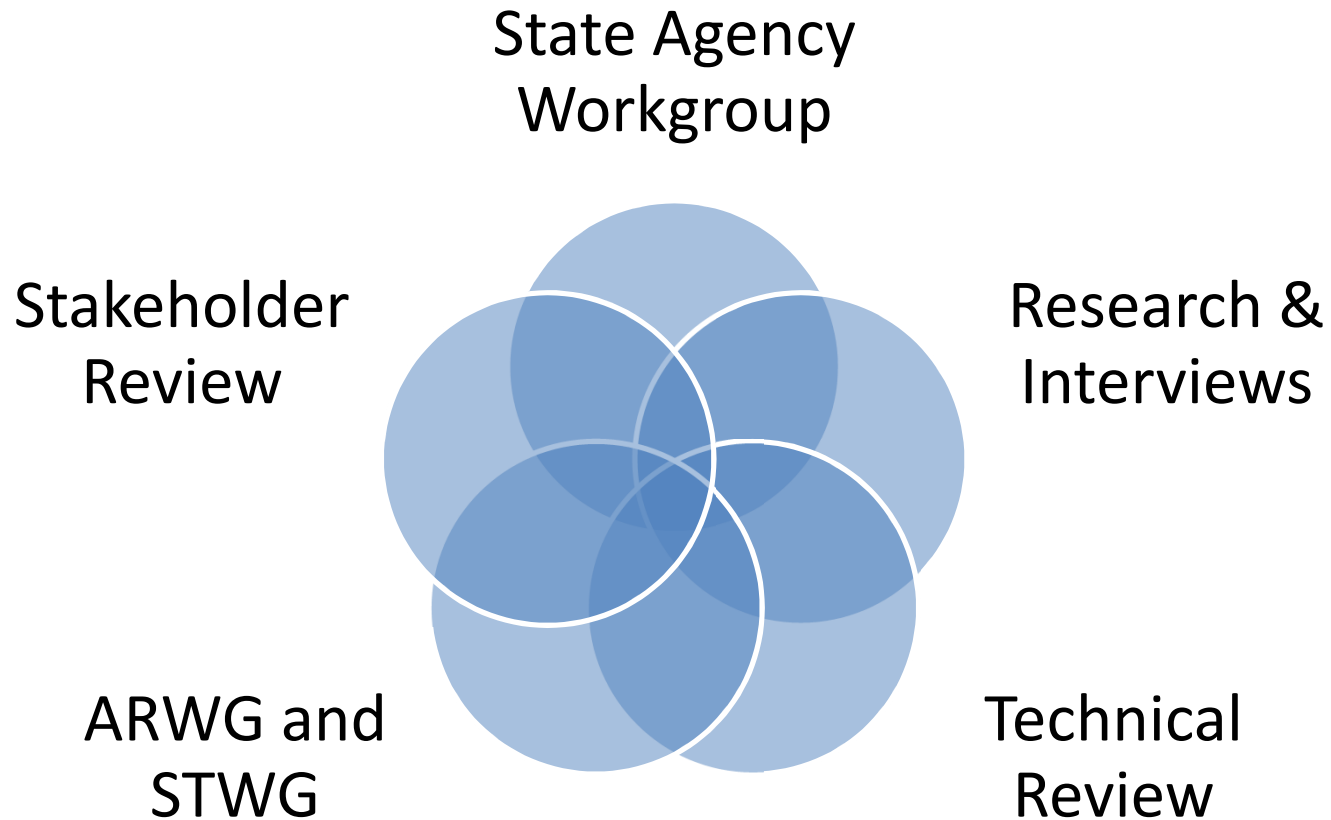


WHY?

- HB1350 (2018 session) directs 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

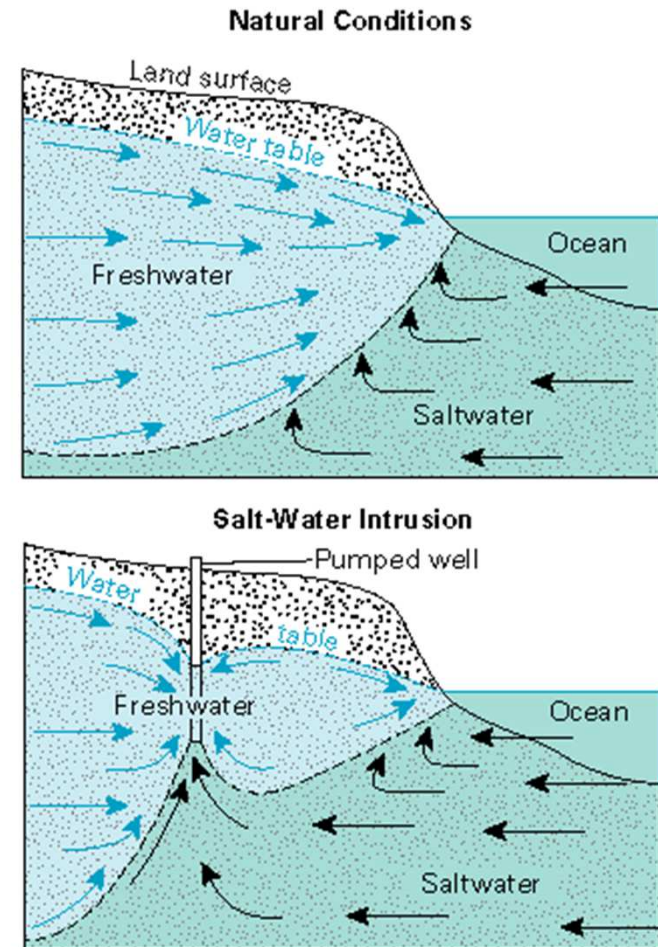


PLAN DEVELOPMENT PROCESS

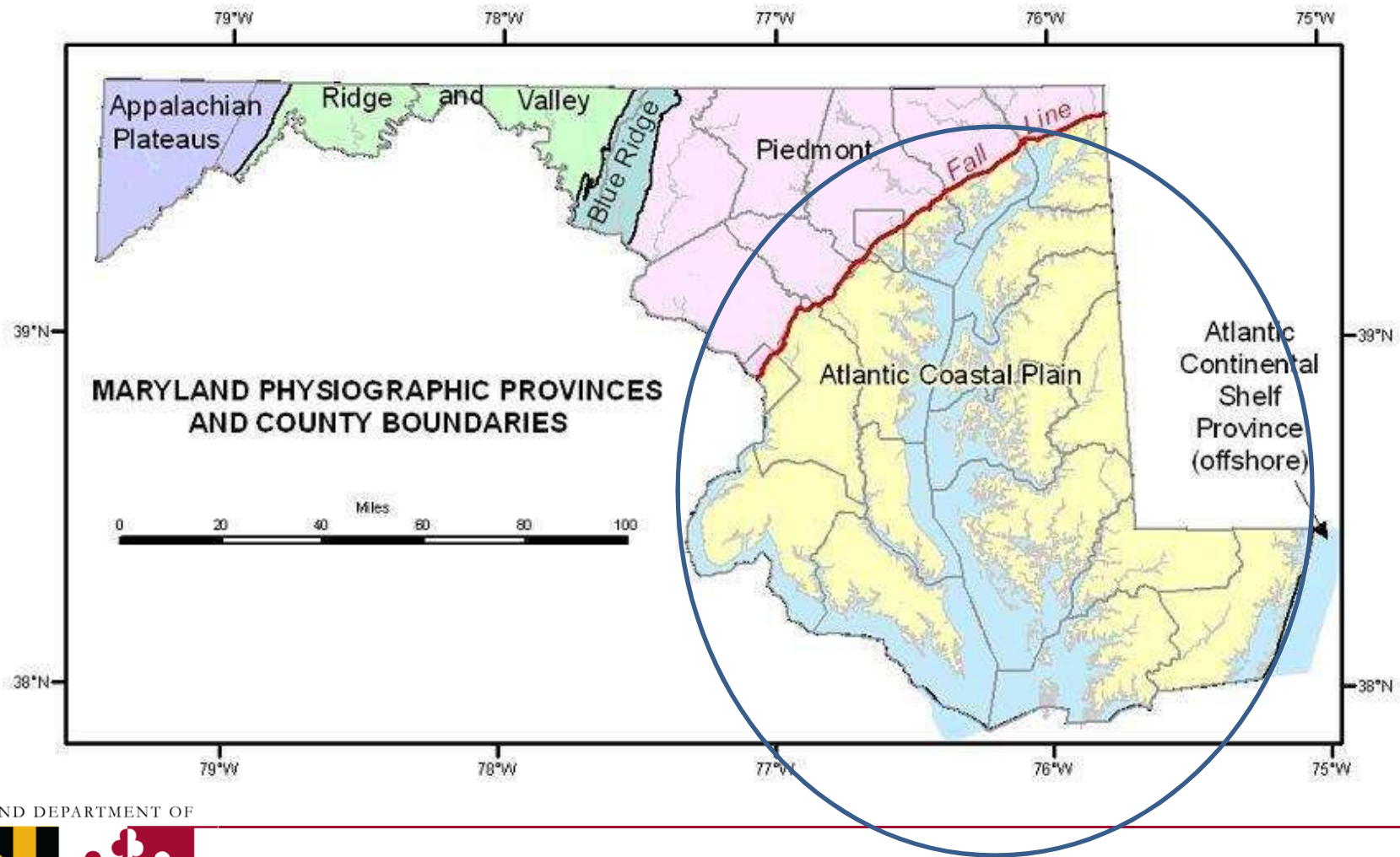


RESOURCES AND LAND TYPES

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



WHERE IN MARYLAND?



PLAN ORGANIZATION

- 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?



CLIMATE CHANGE AND SALINIZATION

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



CONCERNS

- Loss of productivity in some coastal farmland
- Altered ecological landscape for wetlands and coastal 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



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 (public and individual drinking water users, agricultural irrigators, etc.) in Maryland are at risk?



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?



UNANSWERED QUESTIONS

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



5-YEAR RESEARCH AND STUDY PLAN

- Develop forecasts
- Complete vulnerability assessments
- Conduct other monitoring and modeling
- Study, identify and adopt effective adaptation measures



DRAFT ADAPTATION MEASURES: RECOMMENDED NOW

- Facilitate transitional land uses for salt-impacted farmland, such as saltmarsh, through new types of conservation easements and adjusted agricultural technical and financial assistance programs.
- Establish additional education and assistance for farmers to address and prepare for salinization.



DRAFT ADAPTATION MEASURES: RECOMMENDED NOW

- Develop a statewide wetland adaptation plan, which would include marsh migration, and in some cases, measures to protect high priority wetlands in place.



DRAFT ADAPTATION MEASURES: RECOMMENDED NOW

- Facilitate alternative uses for inundated forest land, such as promoting sika deer or duck hunting, through new types of conservation easements, and adjusted agricultural technical and financial assistance programs.
- Review wetland regulations to determine if changes are recommended to facilitate harvesting prior to salt damage.

DRAFT ADAPTATION MEASURES: RECOMMENDED NOW

- Establish additional education and assistance for forest landowners to address and prepare for salinization, including development of a landowners outreach program.



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



LONG-TERM IMPLEMENTATION

- Lead state agencies for different research needs and adaptation strategies
- Annual progress reports to Maryland Commission on Climate Change, others
- As developed, incorporate updated data, modeling and forecasting into existing state technical assistance efforts and tools



NEXT STEPS

- Review by ARWG, STWG and stakeholders (August to mid-September)
- Incorporate feedback
- Approval by Planning Secretary in coordination with DNR, MDE and MDA Secretaries
- Governor's Office review and approval



QUESTIONS?

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2010 MARYLAND PHASE II ADAPTATION STRATEGY

- Encourage MDA to:
 - work with partners including farm credit and insurance operations to conduct a vulnerability assessment, and
 - establish priorities for increased education, funding, and risk management efforts to support transitions for vulnerable farmers.



2010 MARYLAND PHASE II ADAPTATION STRATEGY

- Explore the development of a Climate Change Adaptation Easement.
- Provides incentive to landowner to implement specific adaptation stewardship activities (e.g., wetland migration transition zone) on private lands.



2010 MARYLAND PHASE II ADAPTATION STRATEGY

- Expand MDE's work with local jurisdictions and water suppliers (providing funding or technical assistance where necessary) to:
 - promote water conservation
 - encourage the use of best management practices that reduce demand, and
 - advance the use of water reuse technologies.

