

# Chesapeake Bay Program Climate Resiliency Workgroup

HRPDC Regional Environmental Committee

June 2, 2016

# Purpose

- Formed in 2014 to address climate resiliency priority of the Chesapeake Bay Watershed Agreement
- Goal: Increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure and communities, to withstand adverse impacts from changing environmental and climate conditions.
- Outcomes:
  - Continually **monitor and assess the trends and likely impacts of changing climatic and sea level conditions** on the Chesapeake Bay ecosystem, including the effectiveness of restoration and protection policies, programs and projects.
  - Continually **pursue, design and construct restoration and protection projects** to enhance the resiliency of Bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms and sea level rise.

# Organization

- Key Personnel
  - Mark Bennett, USGS (Co-Chair)
  - Erik Meyers, The Conservation Fund (Co-Chair)
  - Zoe Johnson, NOAA CB Office (Coordinator)
- Membership
  - Federal agencies (Corps, USDA, NOAA, etc.)
  - State agencies (Natural resources,
  - Universities (VIMS, ODU, UMCES, Penn State)
  - COGs (MWCOG, HRPDC)
  - NGOs (Alliance for the CB, NWF, Choose Clean Water Coalition)

# 2017 Mid-Point Assessment

- Climate Resiliency Workgroup is working on sea level rise projections and consequent tidal wetland marsh loss estimates for the Water Quality and Sediment Transport Model for the 2017 Mid-Point Assessment

# 2017 Mid-Point Assessment and Climate Change

- Potential independent scientific peer review in summer 2016 (STAC)
- Generation of climate change analyses by fall 2016 to inform future policy decisions (Modeling Workgroup)
- Partnership decides how to factor climate change into WIPs in fall 2016-winter 2017 (WQGIT, Mgmt Board, Principals' Staff Committee)
- Factor climate change considerations into Phase III WIPs in 2018 (States)

# Climate Change and CB Water Quality

- Climate impacts being studied:
  - Increased estuarine temperature
  - Sea level rise (50cm)
  - Watershed hydrologic and loading changes
  - Ecological changes
  - Airshed changes
- Two timeframes
  - 2025
  - 2050

# Climate Change and CB Water Quality

- Takeaways:
  - Influence of increased temperature and sea level rise on hypoxia is small
  - A large loss of wetlands results in a 1% increased in Deep Channel DO nonattainment
    - Most losses are in lower Bay, so less impact

# Sea Level Rise

- Key Uncertainties
  - Climate forcings
  - Human behavior
  - Physical system response
    - Thermal Expansion, Ocean Dynamics, and Antarctic Ice Sheet

# Sea Level Rise Scenarios

- 2025
  - 0.1-0.4m (4-16 inches)
  - Interannual variability outweighs global SLR
- 2050
  - 0.2-0.7m (8-28 inches)
  - Dynamic sea level and land ice mass changes become more dominant factors

# Next Steps

- Continue discussion
  - How much SLR?
  - Modeling SLR for tidal wetlands – SLAMM model
- Conference Call – June 20
- In person Meeting – July 18