Regional Climate Change Project

Presentation to the Hampton Roads Planning District Commission Executive Committee

December 16, 2009

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Presentation Outline

- Overview of Regional Climate Change Project
- Opportunities Presented by Climate Change
- Challenges Presented by Climate Change
- Establishment of Regional Climate Change Working Group

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Hampton Roads Climate Change Project

- 3-year grant project with the Virginia Coastal Zone Management Program
- Year 1: Research on Mid-Atlantic climate change impacts, begin stakeholder process
- Year 2: Establishment of regional climate change working group, assessment of potential impacts and development of policy recommendations through stakeholder process
- Year 3: Continued assessment of infrastructure and environmental impacts and completion of the regional framework for adaptation to climate change

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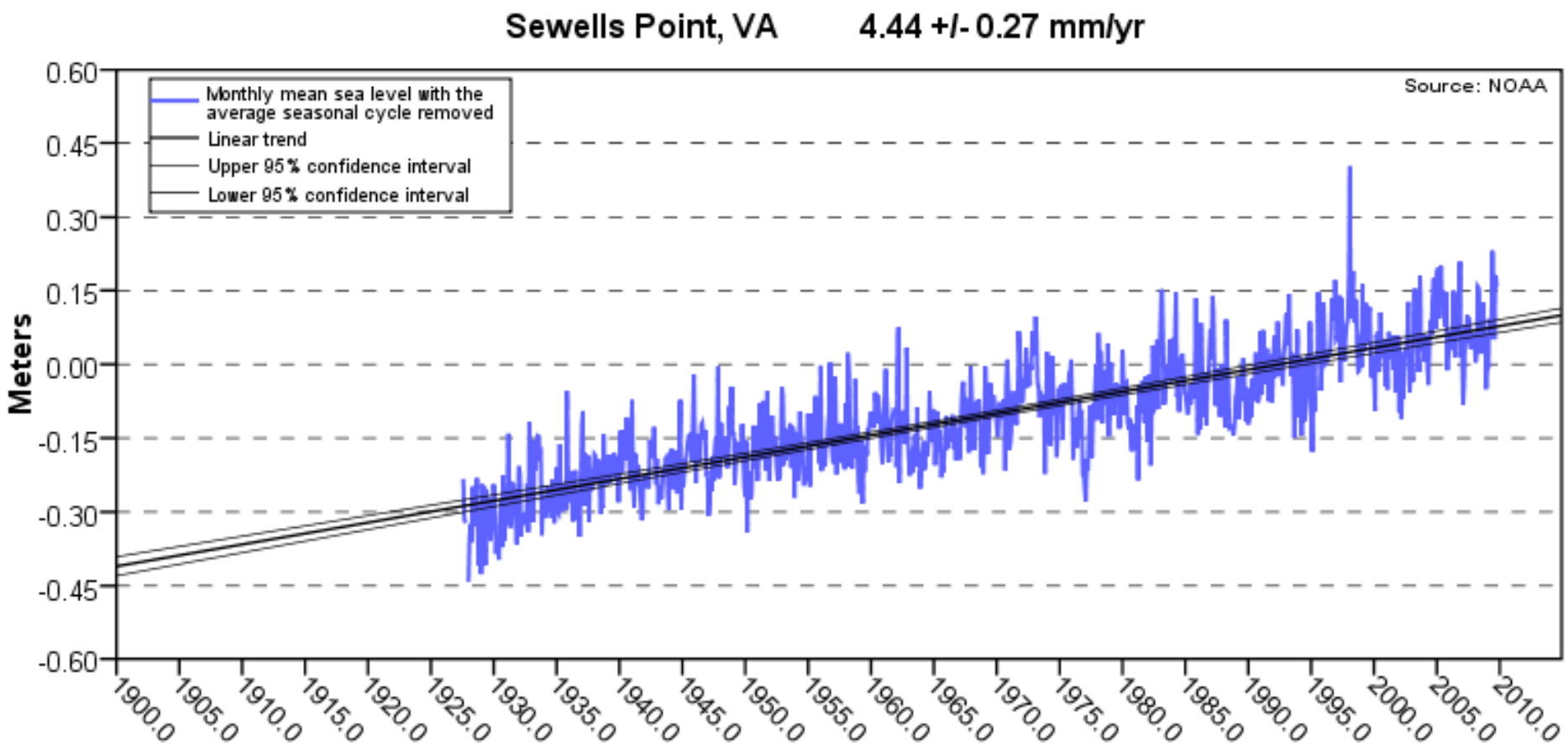
Opportunities Presented by Climate Change

- Development of Wind Energy
  - Emphasis on low-carbon fuels will create an opportunity for wind energy development
  - The Port of Hampton Roads has much of the industrial infrastructure to support the development and maintenance of wind farms off of the Mid-Atlantic coast
  - Class 5 and 6 winds in the Virginia offshore waters will support the development of wind farms off of Virginia Beach
- Modeling and Simulation
  - Downscaling of global climate models
  - Sea level rise and storm surge prediction

Climate Change Impacts in Hampton Roads

- Governor's Commission on Climate Change:
  - 3.1° C average warming for Virginia by 2100
  - 11% precipitation increase
  - Sea-level rise between 2.3 and 5.2 ft by 2100
- Major Challenges for Hampton Roads
  - Infrastructure impacts due to sea level rise and associated increase in storm surge
  - Flooding and loss of wetlands due to sea level rise

Historic Sea Level Rise Rate



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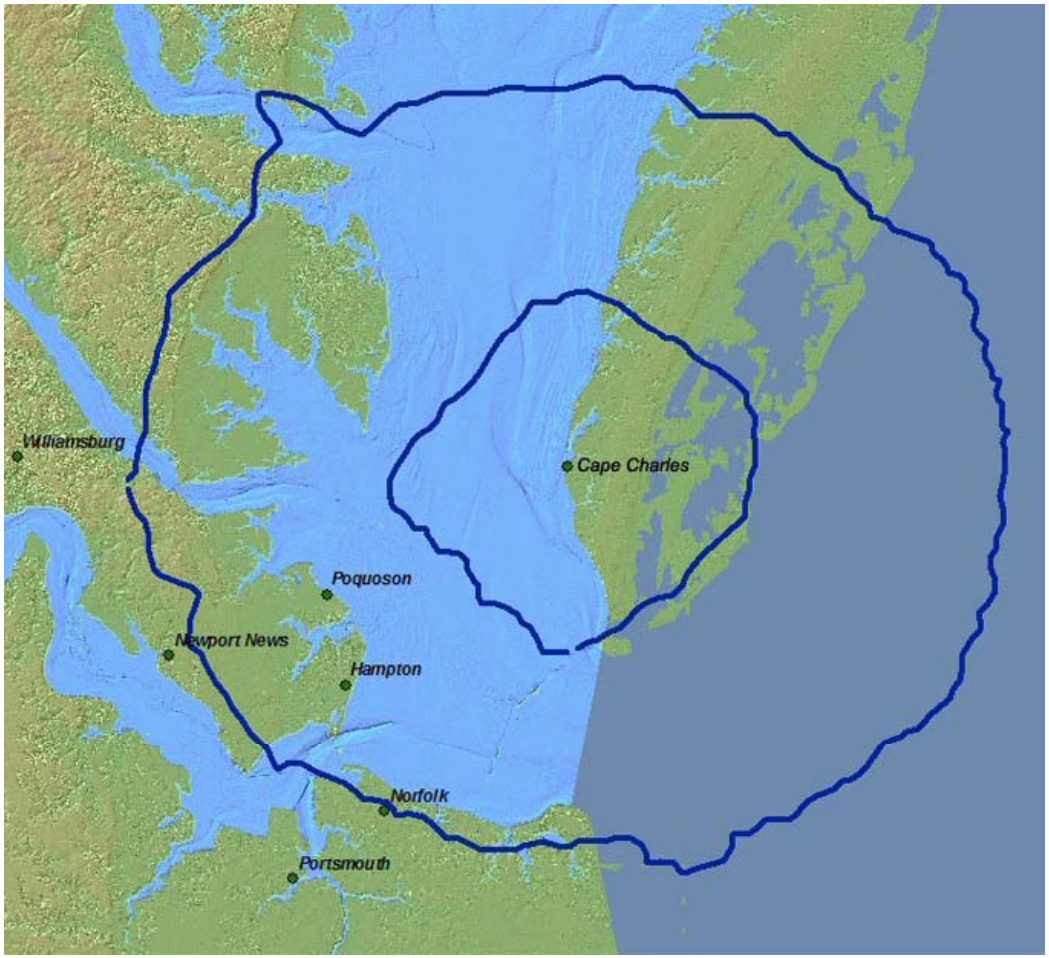
Chesapeake Bay Impact Crater

Sea Level Rise in Hampton Roads is enhanced by subsidence of the land caused by pumping of groundwater and continued settling of the Chesapeake Bay Impact Crater



www.smithtrail.net/images/bolidecrater.jpg

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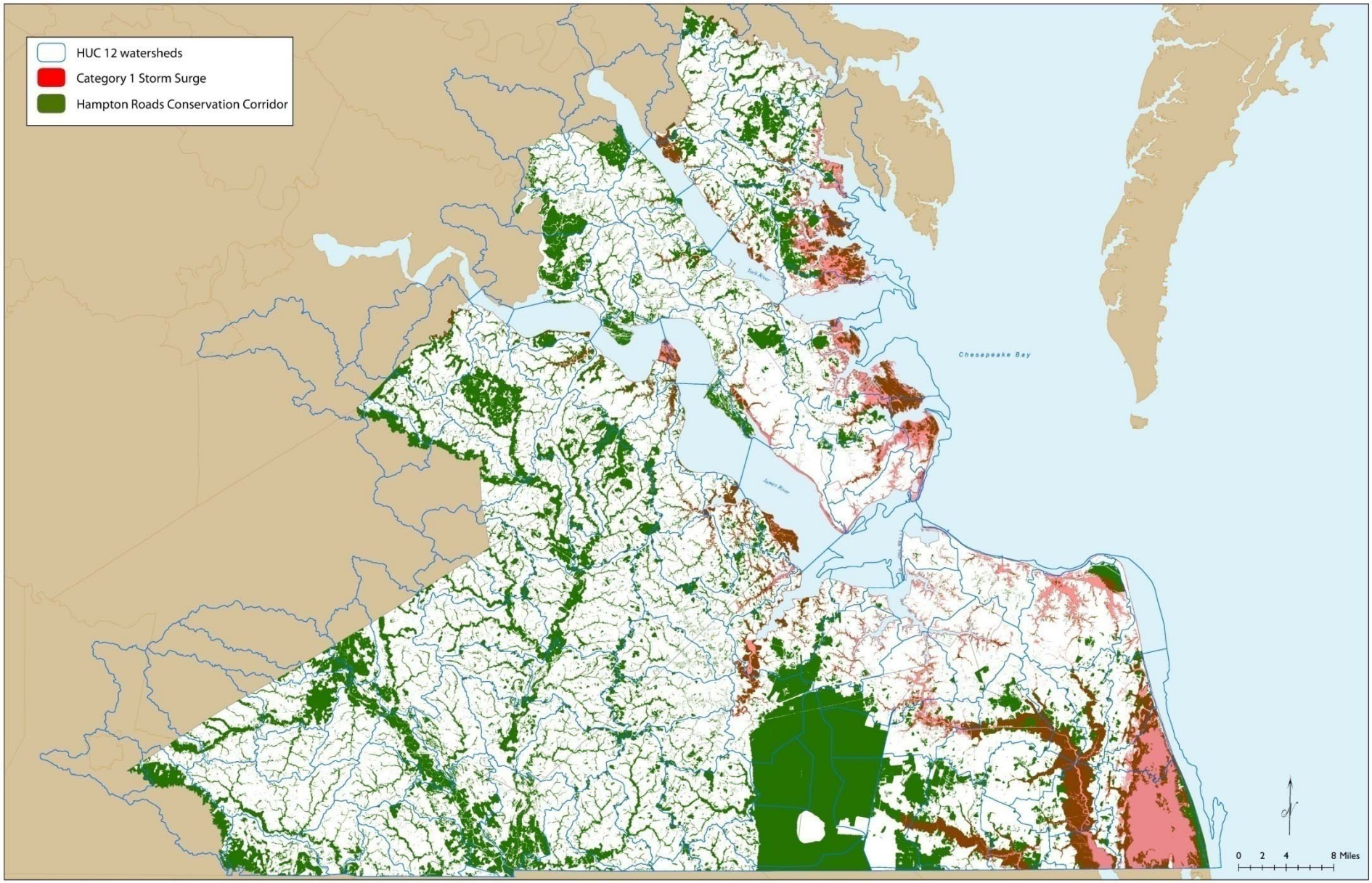

Flooding vulnerability will increase over time

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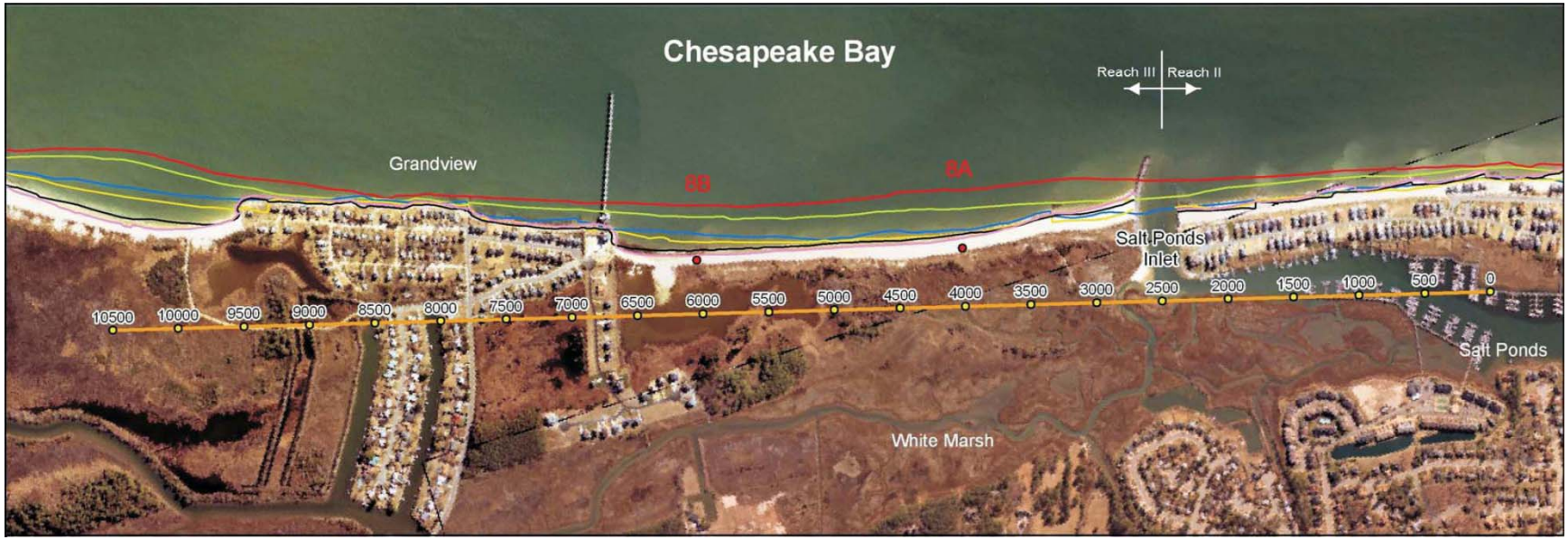
Erosion and Sea Level Rise



Legend

- Transect Point
- Identified Dune Sites
- Baseline
- 1937 Shoreline
- 1953 Shoreline
- 1963 Shoreline
- 1980 Shoreline
- 1994 Shoreline
- 2002 Shoreline

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Development of a Framework for Response to Climate Change in Hampton Roads

- Adaptive Management Approach
  - Assessing risk
    - Probability
    - Consequence
    - Vulnerability
  - Reducing risk
    - Prevent
    - Prepare
    - Respond
    - Recover

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Related Regional Planning Efforts

- Hazard Mitigation Plan Update: Combined effort for Peninsula and Southside
- Critical Infrastructure Project: Focus on resiliency, will include climate change in the range of issues considered
- Regional Green Infrastructure Project
- State LIDAR Acquisition Project

Example Climate Change Planning Documents

- Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline (April 7, 2009)
- Thames Estuary 2100 (April 2009)
- Sea Level Response Strategy for the State of Maryland (October 2000)
- PlanNYC: Climate Risk Information (February 2009)

Climate Change Working Group

- Representation from:
  - Local Elected Officials
  - Federal, State and Local Government Staff
  - Department of Defense
  - Business and Industry
  - Academia
  - Environmental Advocacy Groups
  - Others?

Questions?

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