



Climate Change: Adapting to a Changing World

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Workshop on Adapting to Climate Change in the Mid-Atlantic

USGS Role in Climate Change

USGS Science Strategy goal
on Climate Variability and Change

*Draw on interdisciplinary programs in
energy, water, ecosystems, and hazards*

*Clarify the geologic record and assess
consequences*



USGS Role in Climate Change

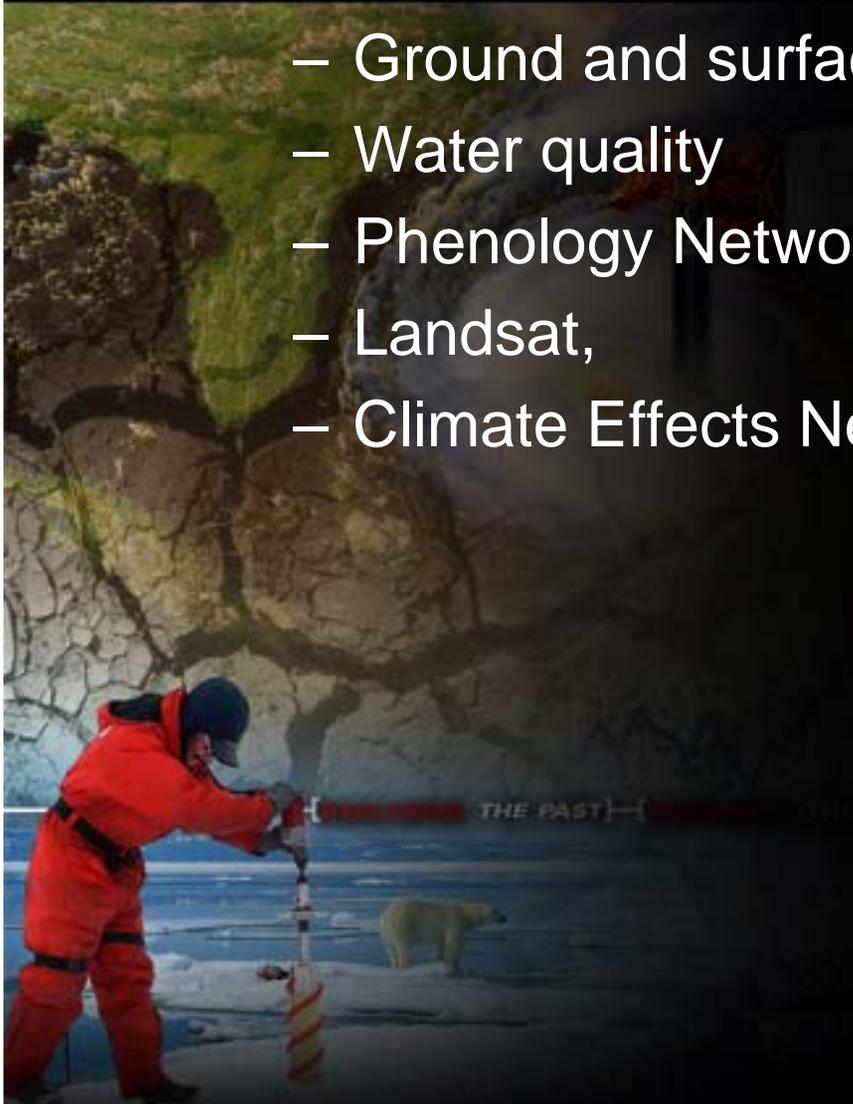
- USGS provides decision support tools, resources, expertise, and techniques
- Managers use USGS science as the basis for informed decision making about responding to the effects of climate change

USGS Decision Support Capabilities

- Monitoring and observation networks
- Long-term data sets
- Multidisciplinary scientific expertise
- Models
- Predictive scenarios
- Forecasting
- Risk assessments
- Adaptive management

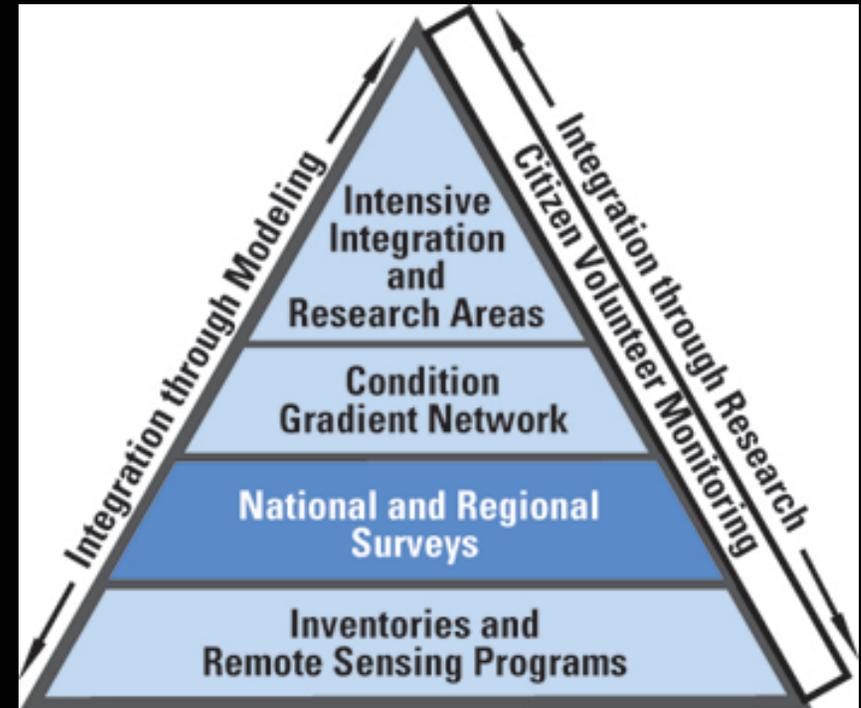
Examples of networks and data sets

- Ground and surface water
- Water quality
- Phenology Network
- Landsat,
- Climate Effects Network, etc.



Climate Effects Network

- A network of networks
- Detect and anticipate how climate affects human and environmental health
- Provide science to support informed policy decisions



The National Climate Change and Wildlife Science Center

- Purpose: To provide climate science information to support improved management of fish, wildlife, and other natural resources affected by climate change.
- Priorities: downscaling of global climate models, linking models with responses, forecasting responses at scales useful for managers, establishing partnerships to link science with policy.

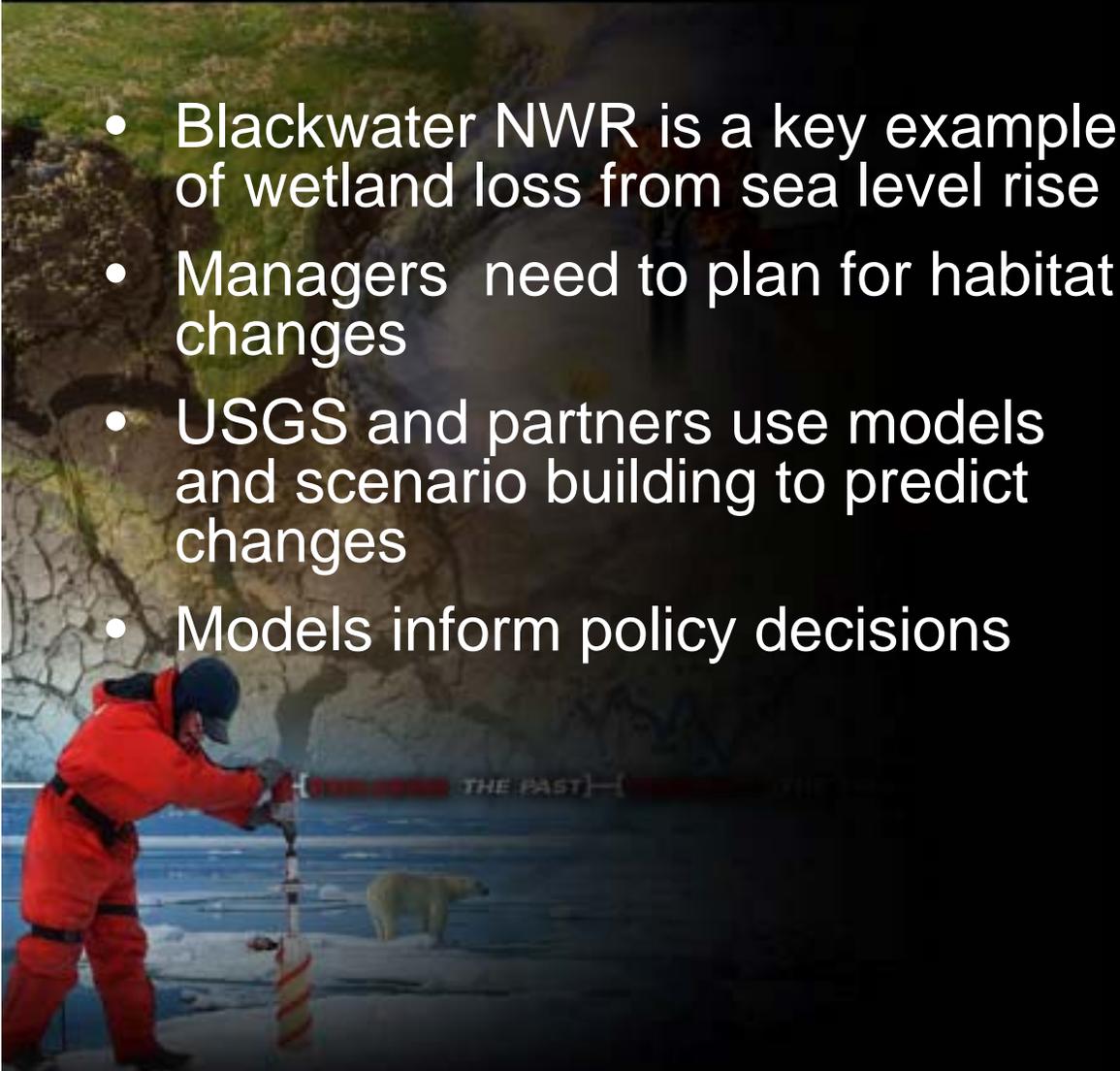
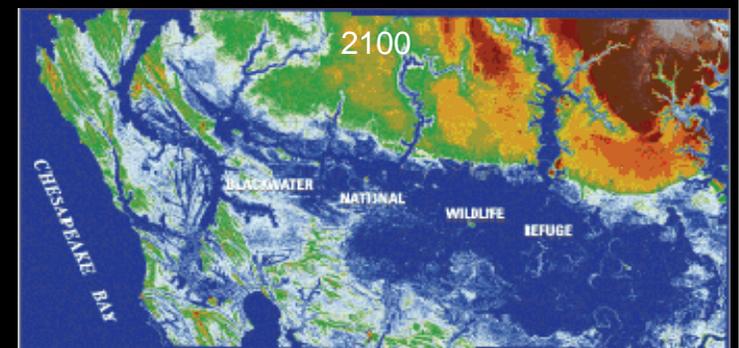
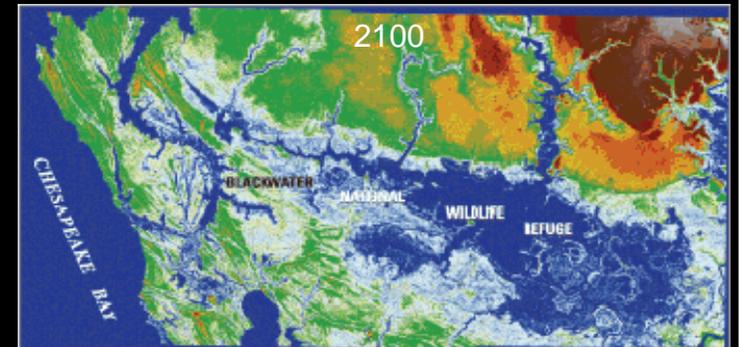
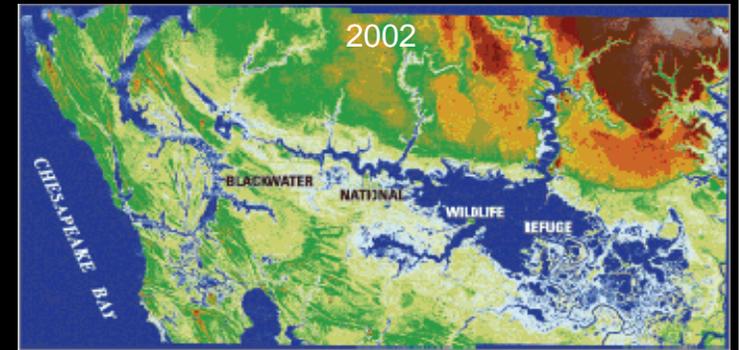


Examples of USGS Modeling Capabilities

- Vegetation
- Snowmelt
- Ecosystem and habitat
- Hydrologic
- Land cover and change
- Species, including invasives
- Flood inundation
- Sediment/contaminant transport
- Fire-related hazards
- Sea level rise

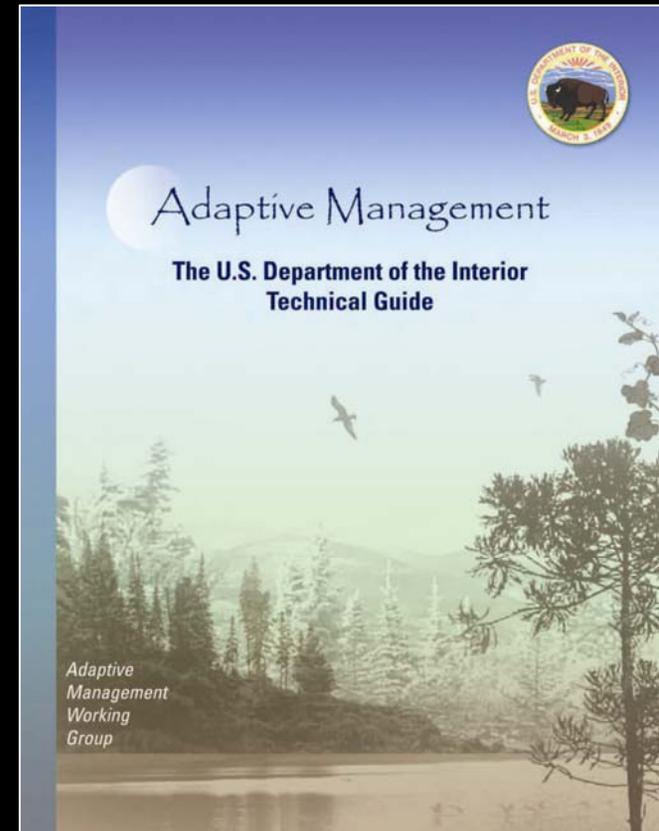
Example of USGS modeling used to inform decisions

- Blackwater NWR is a key example of wetland loss from sea level rise
- Managers need to plan for habitat changes
- USGS and partners use models and scenario building to predict changes
- Models inform policy decisions



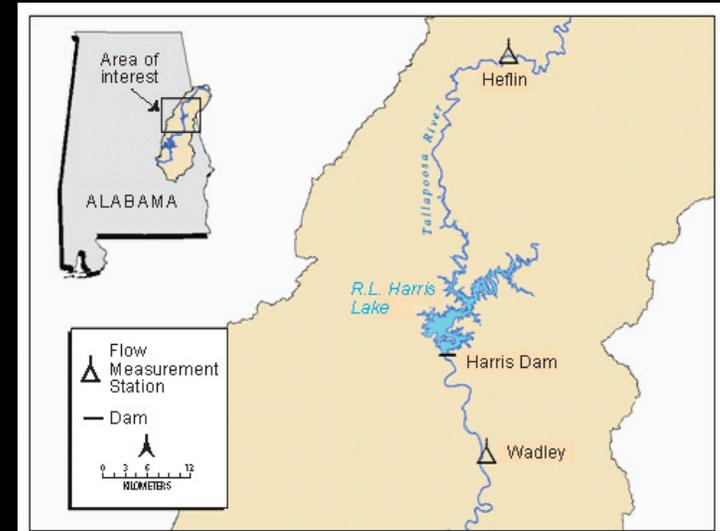
Adaptive Management

- DOI has adopted this approach
- Process:
 - Identify and engage stakeholders
 - Assess problem
 - Develop goals and plan
 - Implement plan
 - Monitor progress
 - Evaluate
 - ***Adjust***



Example of Adaptive Management

- Competing goals for the Tallapoosa River (as identified by all stakeholders)
 - Promote economic development
 - Maintain diversity of native flora/fauna
 - Limit erosion downstream from dam
 - Maximize reservoir levels
 - Support recreational use
 - Maximize dam's hydropower revenue



Science is critical to decision making about climate change

- *“Science is more essential for our prosperity, our security, our health, our environment, and our quality of life than it has ever been.”*
- -- President Obama to the National Academy of Sciences