

# Adaptation to Sea Level Rise

## Federal and State Approaches

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# Potential Policy Responses

1. Minimize Impacts....

....Mitigation

2. Create Strategies to Respond....

...Adaptation

# Adaptive Capacity

The ability of a system to modify or change its characteristics or behavior so as to better cope with existing or anticipated external threats.



# Components of Adaptive Capacity

- Vulnerability
- Risk
- Other Characteristics of the System or Resource

# U.S. Geological Survey

## *National Hazards, Risk, and Resilience Assessment Program*

- Risks to society and environment of the combined effects of such natural hazards as coastal erosion and the influence of climate variability and change.
- Developing accurate forecasts of hazard losses; increasing efforts to communicate about risks, resilience, and ongoing changes in the environment that relate to natural hazard vulnerability.
- Building a robust monitoring infrastructure that includes its Marsh Surface Elevation Network.

Reducing vulnerability in order to develop adaptive capacity.

# Army Corps Coastal Buyout

In Mississippi the Army Corps is considering facilitating a retreat of residents from flood prone areas.



# Other Federal Initiatives

- House Appropriations Subcommittee on Interior, Environment, and Related Agencies *Temporary Commission on Adaptation* to review science
- EPA Report called *Preliminary Review of Adaptation Outcomes for Climate Sensitive Ecosystems and Resources*
- *Senators Whitehouse and Boxer proposed the Global Warming and Acidification Coastal and Ocean Resiliency Act (S.2211)*

# National Flood Insurance Program

- Repetitive loss properties make up 1% of the NFIP properties but represent about 38 % of the total insured losses
- Over 2.3 M buildings were constructed in 100-year flood plains in communities that participate in NFIP
- By 2005, 70 % of the NFIP flood maps were over 10 years old



# Proposals to Improve Federal Policy

1. Multiperil Insurance Act of 2007  
(H.R. 920 )
2. Homeowners Insurance  
Protection Act and Homeowners  
Insurance Availability Act (H.R.  
91 and H.R. 330)
3. Policyholder Disaster Protection  
Act (H.R. 164)

# Proposed Amendment of NFIP

## Flood Insurance Reform and Modernization Act (H.R. 1682)

- Phase out subsidies;
- Authorize rate increases;
- Increase max coverage available; and
- Require NFIP to update flood maps.

# Opportunity for States

- States already provide disaster insurance
- Could states fill gaps left by the federal government?



# State Responses to Climate Change

- 47 states will have climate action plans by 2008
- Alaska, Arizona, California, Maryland, Oregon, and Washington have addressed adaptation with plans or commissions.



# Maryland

- Sea Level Response Strategy for the State of Maryland (2000)
- Maryland Wildlife Diversity Conservation Plan (2006) recognized threat of SLR
- O'Malley's Climate Change Commission Adaptation and Response Group working to reduce vulnerability
- Developed a catalogue of adaptation actions for the existing built environment and infrastructure



# Washington

- Gregoire's State Climate Change Challenge and Climate Advisory Team
- Coastal and Infrastructure Preparation/Adaptation Working Group

# Proposals in Washington

- Develop scenarios of sea level response for different environments
- Limit armoring, increase setbacks, restore shorelines, remove dikes
- Improve processes for siting new construction in vulnerable areas
- Increase resilience
  - Set back development
  - Protect key geomorphic processes
- Identify critically vulnerable sites, areas, and settings
  - Natural places AND built environments
  - Develop creative funding mechanisms for acquisition
- Anticipate responses that will be driven by crises
- Where engineering is inevitable, be imaginative



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# California

- Schwarzenegger commissioned *Preparing for the Impacts of Climate Change in California: Opportunities and Constraints for Adaptation* (California Climate Change Center, 2006)
- San Francisco Bay Conservation and Development System mapped areas vulnerable to SLR for adaptation planning
- California Energy Commission published *Climate Change Impacts and Adaptation in California* (2005)



# Other States Adapting to SLR

- Alaska
- Connecticut
- Maine
- Massachusetts
- New Jersey
- New York
- North Carolina
- Oregon
- Rhode Island
- South Carolina
- Texas
- Virginia



# Concerns for the Future

- Takings claims
- Successful adaptation requires interjurisdictional cooperation