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Planning for Maine’s Climate Future: Implications for Geologists

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Context for This Effort

- “Prepare for and adapt to most likely impacts of climate change.”
- Produce a report with recommendations by February 27, 2010
- Stakeholder group(s) of 100+ from private, public interest, state agencies
LIKELY FORESEEABLE IMPACTS / EFFECTS

• Changes in air temperature (increase/decrease)

• Oceanic changes
  o Sea-level rise
  o Changes in circulation patterns
  o Increase in ocean temperature
  o Changes in seawater chemistry, nutrient levels

• Terrestrial surface water changes
  o Changes in seasonal flow regimes and volumes
  o Nutrient levels
  o Freshwater chemistry, temperature

• Seasonal shift / variation

• Precipitation changes

• Weather extremes and storm events

• Wind variability (pattern/intensity)
LD 460 - “Planning is Necessary”

- Emergency response
- Built infrastructure, especially coastal
- Fish / wildlife habitat
- Marine eco-systems
- Water supplies and drinking water
- Forests and forestry
- Agriculture and farming
- Human health
- Identify sustainable opportunities for offsets and technologies
Basic approach as borrowed from Washington State’s plan (2007)

• Four working groups (Built; Coastal; Natural; Human / Social Environments)
• Identify key impacts and issues
• Assess vulnerability / risk / urgency
• Choose sector-specific strategies
• Develop specific recommendations
  - Likely to be top-level, planning focused
  - “Current Preparedness” and “Building Resilience”
Key Assumptions / Principles

• This is only the beginning: realistic planning will take 3-5 years
• Build resiliency in natural and human systems
• Municipal and local planning will be critical to success; avoid “unfunded mandates”
• Current predictive modeling must be validated by long-term ongoing mapping and monitoring
• “No regrets” strategies that are valuable regardless of how things turn out, and which address things that we already ought to be doing
Key Issues: Coastal Geology

- Sea level rise / storm surge
  - Inundation of natural and human systems
  - Beach, dune, and wetland migration
  - Bluff erosion
  - Coastal infrastructure
  - Potential saltwater intrusion to DW sources

- Stormwater, esp. in coastal rivers and estuaries

- Need for comprehensive coastal LIDAR maps

- Development planning
Key Concerns: Inland Geology

• Impacts due to severe weather, increases / changes in precipitation and stormwater flow
• TP 40 maps
• Vulnerable systems include vertical infrastructure; water and wastewater infrastructure; transportation; stormwater; electricity delivery; emergency response
• Riverine flood plains
• Water resources: precipitation changes will affect water availability and use patterns