

11-5-2009

## Planning for Maine's Climate Future : Implications for Geologists

Malcom C. Burson  
*Maine Department of Environmental Protection*

Follow this and additional works at: [https://digitalmaine.com/dep\\_docs](https://digitalmaine.com/dep_docs)

---

### Recommended Citation

Burson, Malcom C., "Planning for Maine's Climate Future : Implications for Geologists" (2009).  
*Environmental Protection Documents*. 100.  
[https://digitalmaine.com/dep\\_docs/100](https://digitalmaine.com/dep_docs/100)

This Text is brought to you for free and open access by the Environmental Protection at Digital Maine. It has been accepted for inclusion in Environmental Protection Documents by an authorized administrator of Digital Maine. For more information, please contact [statedocs@maine.gov](mailto:statedocs@maine.gov).

# Planning for Maine's Climate Future: Implications for Geologists

Malcolm Burson, Office of the Commissioner  
Maine DEP

Geological Society of Maine

November 5, 2009

University of Maine - Farmington

# Context for This Effort

- LD 460, "Resolve, To Evaluate Climate Change Adaptation Options for the State": 124<sup>th</sup> Maine Legislature (2009)
- "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