

# Oregon Climate Change Adaptation Framework

Oregon  
Environmental Quality Commission  
December 10, 2010

## Climate Change Adaptation Framework

### *Presentation at a glance:*

- Purposes of the framework
- Participating agencies
- Climate risks
- Short-term priority actions
- Recommendations for implementation

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## Framework Context

### Context for the Framework:

**Previous effort:** The Oregon Climate Change Integration Group's *Framework for Addressing Rapid Climate Change*, January 2008

**Starting point:** October 2009 meeting of Governor Kulongoski and agency directors: Develop a "state-level climate change adaptation plan"

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## Purposes of the Framework

**State-level plan:** Provide a framework to help state agencies and local governments plan for and adapt to changes in Oregon's climate

**Parallel effort:** Oregon Climate Change Research Institute's *Oregon Climate Assessment Report*

**Context:** Revenue forecasts since February 2010 anticipate diminishing resources (no new state funds)

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## Purposes of the Framework

### **Purposes of the framework are to:**

- Identify future climate conditions that pose major risks for Oregonians
- Assess state-level capacity to address climate-related risks to people, communities, infrastructure, and natural resources
- Identify short-term, low- or no-cost priority actions to prepare for those risks
- Provide context and direction for additional planning and coordination

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## Participating agencies

### • *State Agencies:*

- Agriculture
- Energy
- Environmental Quality
- Fish and Wildlife
- Forestry
- Geology and Mineral Industries
- Human Services, Public Health Division
- Land Conservation and Development
- Parks and Recreation

- State Lands
- Transportation
- Water Resources
- Watershed Enhancement Board
- *Institutes & other:*
- OCCRI
- Global Warming Commission
- Climate Leadership Initiative
- Oregon Sea Grant
- OSU Extension Service
- Institute for Natural Resources

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## Climate Change Adaptation Framework

### Principal framework elements:

- Summary of climate risks
- Short-term priority actions
- Recommendations for implementation

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## Climate Risks

### Levels of climate risk:

- Risks that are *very likely* to occur
- Risks that are *likely* to occur
- Risks that are *more likely than not* to occur

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## Climate Risks

### Risks that are *very likely* to occur

- ❖ Increase in average annual air temperature and likelihood of extreme heat events
- ❖ Changes in hydrology and water supply; reduced snowpack and water availability in some basins; changes in water quality and timing of water availability

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## Climate Risks

### Risks that are *likely* to occur (slide 1 of 2)

- ❖ Increase in wildfire frequency and intensity
- ❖ Increase in ocean temperatures with potential for changes in ocean chemistry and increased ocean acidification
- ❖ Increased incidence of drought
- ❖ Increased coastal erosion and risk of inundation from increasing sea levels and increasing wave heights and storm surges

(continued)

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## Climate Risks

### Risks that are *likely to occur* (slide 2 of 2)

...

- ❖ Changes in abundance and geographical distributions of plant species and habitats for aquatic and terrestrial wildlife
- ❖ Increase in diseases, invasive species and insect, animal and plant pests
- ❖ Loss of wetland ecosystems and services

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## Climate Risks

### Risks that are *more likely than not to occur*

- ❖ Increase incidence and magnitude of damaging floods and frequency of extreme precipitation events
- ❖ Increased incidence of landslides

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## Climate Risks and Priority Actions

### Framework 'Risk summaries'

- Overview of the climate risk including confidence, timing, geography, and related risks
- Consequences of the risk
- Assessment of state capacity:
  - Agency capacity to address the risk
  - Gaps in state capacity to address the risk
  - **Needed actions:** Priority and additional actions
- Implementing priority actions:
  - Next steps
  - Research and monitoring
  - Coordination
  - Resource requirements

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## Short-term Priority Actions

### *Risks that are very likely to occur*

1.	<b>Increase in average annual air temperatures and likelihood of extreme heat events</b>
	<input type="checkbox"/> Enhance and sustain public health system capacity to prepare for and respond to heat waves and smoke emergencies, and improve delivery of information on heat events and cooling centers, especially for isolated and vulnerable populations.
2.	<b>Changes in hydrology and water supply; reduced snowpack and water availability in some basins; changes in water quality and timing of water availability</b>
	<input type="checkbox"/> Maintain the capacity to provide assistance to landowners to restore wetlands, uplands and riparian zones to increase the capacity for natural water storage.
	<input type="checkbox"/> Improve real-time forecasting of water delivery and basin yields to improve management of stored water.
	<input type="checkbox"/> Improve capacity to provide technical assistance and incentives to increase storage and to improve conservation, reuse, and water use efficiency among all consumptive water uses.

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### Short-term Priority Actions

<i>Risks that are likely to occur</i>	
3.	<b>Increase in wildfire frequency and intensity</b>
	<ul style="list-style-type: none"> <li><input type="checkbox"/> Include wildfires in planning to reduce vulnerability to natural hazards.</li> <li><input type="checkbox"/> Restore fire-adapted ecosystems to withstand natural recurring wildfires.</li> <li><input type="checkbox"/> Develop short- and medium-term climate change adaptation strategies for forests and other fire-prone habitats, and improve development standards to reduce exposure to fire risk at the urban-wildland interface.</li> <li><input type="checkbox"/> Improve the capabilities of public health agencies to plan for and respond to the public health and safety risks of wildfire emergencies.</li> </ul>
4.	<b>Increase in ocean temperatures, with potential for changes in ocean chemistry and increased ocean acidification</b>
	<ul style="list-style-type: none"> <li><input type="checkbox"/> Increase research on the impacts of changes in ocean temperature and chemistry on estuarine and near-shore marine habitats, including commercial and recreational fisheries.</li> </ul>

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### Short-term Priority Actions

<i>Risks that are likely to occur</i>	
5.	<b>Increased incidence of drought</b>
	<ul style="list-style-type: none"> <li><input type="checkbox"/> Improve capacity to provide technical assistance and incentives to increase storage capacity and to improve conservation, reuse, and water use efficiency among all consumptive water uses.</li> </ul>
6.	<b>Increased coastal erosion and risk of inundation from increasing sea levels and increasing wave heights and storm surges</b>
	<ul style="list-style-type: none"> <li><input type="checkbox"/> Inventory and map coastal shorelands that are at risk of erosion or inundation, or are barriers to shoreline migration, and develop long-term state and local adaptation strategies for shorelands.</li> </ul>
7.	<b>Changes in the abundance and geographical distributions of plant species and habitats for aquatic and terrestrial wildlife</b>
	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify ways to manage ecosystems that will improve their resilience to changes in climate conditions.</li> </ul>

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### Short-term Priority Actions

<i>Risks that are likely to occur</i>	
<b>8.</b>	<b>Increase in diseases, invasive species, and insect, animal and plant pests</b>
	<input type="checkbox"/> Increase monitoring, detection and control measures for pest insects and plant and wildlife diseases.
	<input type="checkbox"/> Increase surveillance and monitoring for climate-sensitive infectious diseases to humans.
	<input type="checkbox"/> Increase outreach and community education about disease and invasive species prevention measures.
	<input type="checkbox"/> Seek new means of securing resources to detect and combat diseases and invasive species.
<b>9.</b>	<b>Loss of wetland ecosystems and services</b>
	<input type="checkbox"/> Support implementation of priority actions for Risks 2, 5, 6, 7, and 10 related to hydrologic changes, drought, coastal erosion and inundation, habitats, and flooding.

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### Short-term Priority Actions

<i>Risks that are more likely to occur than not</i>	
<b>10.</b>	<b>Increased frequency of extreme precipitation events and incidence and magnitude of damaging floods</b>
	<input type="checkbox"/> Inventory past flood conditions and define and map future flood conditions.
	<input type="checkbox"/> Improve capability to rapidly assess and repair damaged transportation infrastructure, in order to ensure rapid reopening of transportation corridors.
<b>11.</b>	<b>Increased incidence of landslides</b>
	<input type="checkbox"/> Develop public education and outreach on landslide risks and how to adapt to landslide risks.

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## Recommendations for Implementing the Framework

### Recommendations for Implementation

- Identify Research Needed for Management
- Monitoring for Management
- Agency Program Assessments
- Integrating Economic Information into Adaptation Planning
- Mainstreaming Adaptation
- Intergovernmental Coordination
- Integrating Adaptation and Mitigation Strategies
- Communications and Outreach
- Resources

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