Regional Framework for Climate Adaptation

for Clatsop and Tillamook Counties

Land Conservation and Development Commission
May 21, 2015

What's behind this agenda item?

- Climate change is changing the overall environment for land use planning and resource management
- Climate change will affect several local government responsibilities
- LCDC is uniquely positioned for a role in adaptation planning

Background: *Where were we*?

- ✓ July 2009: LCDC's Interim Climate Change Strategy
- ✓ November 2010: *Oregon Climate Change Adaptation Framework*
- ☞ 2012: Find resources for a regional adaptation pilot project

Oregon Climate Change Adaptation Framework, 2010

- Developed in parallel with the *Oregon Climate Assessment Report*
- Position Oregon for federal cap and trade funds
- Outlines eleven climate 'risks' *and*
  - State agency needs to address those risks

Eleven climate risks in the Framework:

- **Higher temperatures**
- **Changes in precipitation, hydrology**, water supplies
- Increase in wildfires
- **Changes in ocean conditions (temp & pH)**
- Increased drought
- Sea level rise and coastal erosion
- Habitat changes
- Increase in diseases, invasive species, pests
- Wetland changes
- Increased flooding
- Landslides

Climate change will affect almost *everything* we manage

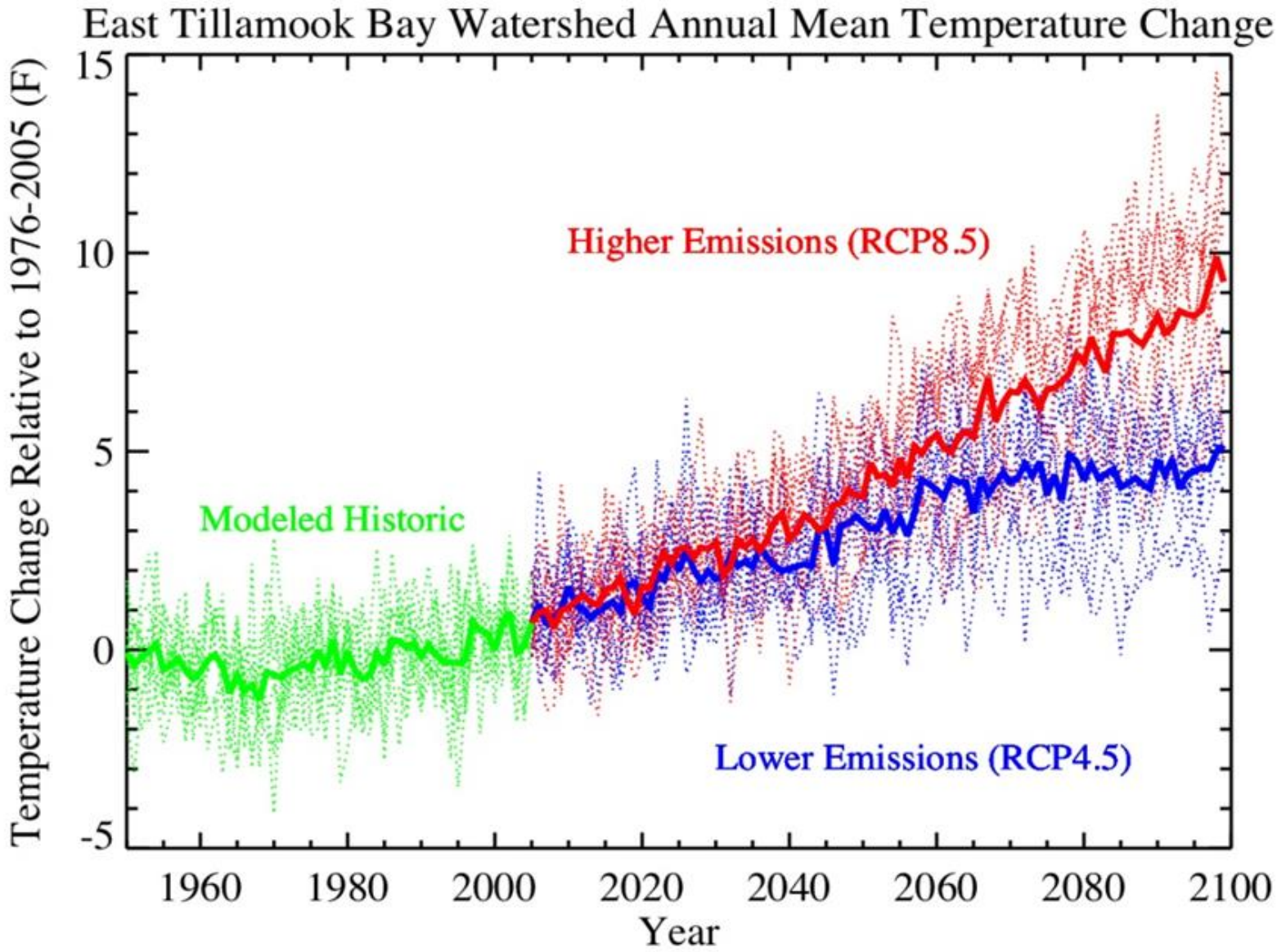
- Natural hazards
- Public safety
- Water supplies
- Water quality
- Agriculture
- Economy
- Fish and wildlife habitats
- Watershed health
- Green infrastructure
- Infrastructure
- Public health
- Energy use
- Coastal shorelands
- Forest health
- …

Oregon Sea Grant research highlights obstacles to adaptation:

- Lack of agreement on importance of climate change effects
- Unclear how climate relates to my work
- Lack of urgency
- Limited access to information

Proof of concept: *Build capacity*

- Compile and review the science that applies to *this place*
- Collaborate at the regional scale to:
  - Identify *priority* climate risks
  - Develop *management objectives* to address priority risks
  - Identify *implementation mechanisms* for the objectives


East Tillamook Bay Watershed Annual Mean Temperature Change
Temperature Change Relative to 1976-2005 (F)
15
10
5
0
-5
Higher Emissions (RCP8.5)
Modeled Historic
Lower Emissions (RCP4.5)
1960
1980
2000
2020
2040
2060
2080
2100
Year

Regional Framework for Climate Adaptation

Clatsop and Tillamook Counties

Oregon Department of Land Conservation and Development

Several partners were involved in developing the Framework

- Clatsop and Tillamook Counties, Astoria, Seaside, Cannon Beach, Nehalem, Tillamook
- Ten state agencies
- Eight federal agencies
- NGOs
- Oregon Sea Grant
- Oregon Climate Change Research Institute

Regional Framework for Adaptation

- Look at the science: Describe how climate change will affect the *systems we manage*
- Focus on risks: Priority risks are based on the science that applies *to this place*
- Create new context: Management objectives for adaptation apply *across the landscape*

Management objectives help inform and revise ***climate-sensitive decisions***:

- Laws
- Rules
- Policies
- Plans
- Criteria
- Standards
- Practices

… that reflect or incorporate assumptions about future climate conditions

Management regimes where climate-sensitive decisions occur

- Infrastructure
- Public health and safety
- Natural systems
- Working lands

Priority climate risks for Clatsop and Tillamook Counties

Priority risks	Infra-structure	Health & safety	Natural systems	Working lands
Sea level rise and increased coastal erosion (SLR)	x		x	
Increased storm water; increased flooding; changes in flood intensity and frequency; increased erosion & sedimentation (FLOOD)	x	x		x
Decline in late season stream flows; … changes in hydrology, including decreased summer precipitation, reduced base flows, increased seasonal extremes of rivers (HYDRO)	x		x	x
Increased forest fires, including an increase in air quality and associated health problems; safety (FIRE)	x	x		x
Increased average temperatures, heat-related illnesses (HEAT)		x	x	

Management regime	Primary Management Objective for Adaptation
Infrastructure	IN-1 Manage risks to infrastructure from flooding, wildfire, and changes in stream hydrology and ocean water levels to ensure safe, reliable services
Public health and safety	HS-1 Reduce risks of illness, injury, death, and property damage from flooding, wildfire and heat events
Natural systems	NS-1 Develop and implement coordinated management strategies that enhance, protect and restore high quality and important habitats to mitigate the effects of higher temperatures, changes in hydrology, and changes in ocean chemistry and water levels
Working lands	WL-1 Manage the use of working lands to sustain production of food and fiber (forest, farm, and fishing activities) with projected changes in average temperatures, precipitation, and stream hydrology

Infrastructure management objectives	Implementation mechanisms	Possible Implementation actions
IN-1. Manage risks to infrastructure from flooding, wildfire, and changes in stream hydrology and ocean water levels to ensure safe, reliable services		
IN-2. Identify areas subject to flooding, sea level rise, and wildfire	▪ Natural Hazard Mitigation Plans (to help identify location and magnitude of future climate-related risks) ▪ Natural hazard elements in local comprehensive land use plans ▪ Statewide Planning Goal 7 for Natural Hazards, Goal 17 for Coastal Shorelands, and Goal 18 for Beaches and Dunes	▪ Collaborate with climate and other specialists to generate scenarios of likely future conditions related to flood, sea levels, and wildfire ▪ Use GIS to display and distribute data and information on the location and extent of areas subject to climate-related risks
IN-3. Assess risks to infrastructure assets in areas subject to flooding, sea level rise, and wildfire under likely future climate conditions or scenarios	▪ Capital improvement plans and system master plans for managing infrastructure ▪ Infrastructure vulnerability assessments ▪ Local natural hazard mitigation plans ▪ Transportation improvement plans	▪ Develop data, information and other technical assistance to support risk assessments for transportation and other infrastructure systems ▪ Develop methodologies to evaluate climate risks to infrastructure assets ▪ Inventory infrastructure exposure to flooding, wildfire, and ocean water levels ▪ Review existing capital improvement plans, master plans for infrastructure systems, and information on infrastructure vulnerability, and revise plans to factor in climate change where appropriate ▪ …

The current approach to adaptation has inherent limitations

- Climate change is a *landscape-scale problem* that warrants *landscape-scale* planning
- Communities are independent
- Current governance structures do not fit the scope of the problem

Last slide: *Follow-through*

- The Regional Framework is *not a plan*
- It provides context and direction for making different decisions
- Funding: To change the basis for decisions we're making today
- Capacity: Leadership and resolve
- Alternative: Adaptation by crisis (flood, fire, drought)

Thank you!

Next up:

- Mark Barnes, Planning Director City of Cannon Beach
- Bryan Pohl, Community Development Director, Tillamook County
- Alyssa Mucken, Integrated Water Resources Strategy Program Coordinator, OWRD