A Changing Climate in Lane County

A Changing Climate

Climate change is caused by increased pollution in the air that traps heat in the atmosphere. Carbon dioxide is the primary of six pollutants responsible for climate change and is released due to human activity, such as burning of oil, fuel, and natural gas; most electricity generation; and production of food and goods. We are already observing changes to Oregon's climate, including hotter temperatures, drought, wildfire smoke, ocean acidification, and decreased mountain snowpack. Understanding the areas of greatest risk gives us the opportunity to act and evolve our economies and social structures.

Northwest Will be Less Vulnerable than Much of the U.S. With a Stronger Agricultural Economy[i]

While the pacific northwest can expect a fair amount of changes, effects from climate change should be milder than the majority of the country. Agricultural yields and total direct damages should be favorable for our region compared to the rest of the country. These are a few of the reasons that Lane County can expect an influx in population.

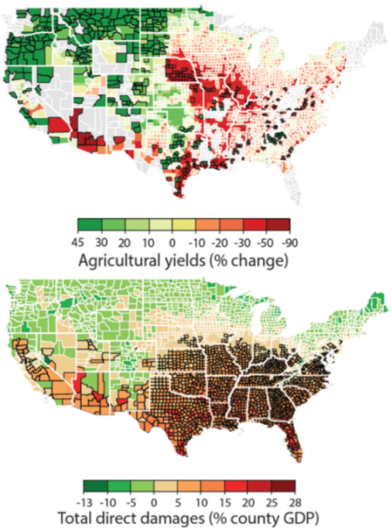


Image note: Estimating economic damage from climate change in the United States, year 2090 [i]

County-wide

- Average summer increase of +10-12°F, winter +3-5°F by 2100
- Wildfire surface area increasing by 400-500% by 2040
- Reduced stream flow by 40-60% in dry season by 2040 due to reduced snowmelt
- Intense precipitation and higher stream flows in wet season (annual precipitation unchanged)
- Changes in disease patterns, potential for new disease
- Population changes through climate migration

Coast

- Sea level rise and flooding along the coast and tidal rivers
- Ocean acidification impacting wildlife and seafood/aquatic industries

Mountains

- Snowpack in the Cascades nearly gone by 2040
- Near total conversion of subalpine forest to other vegetation types by 2080

Happening Now: Water Temperature and Ocean Acidification

Warm and acidic waters put enormous risk on aquatic industries. Carbon dioxide is stored in oceans and create carbonic acid, impacting shellfish ability to grow. Ocean and river waters will be warmer impacting fish and wildlife. Hatcheries in Oregon are already experiencing impacts from these changes.

Dry Season Water Flows

A reduction in snowfall means that in the summer months our rivers and streams will not have the same quantities of flowing water from the melting snow – rivers are expected to reduce by 40-60% in summer

by 2040[ii]. This lower volume of water means pressures on our water supply, agricultural irrigation, habitat for fish species like salmon and trout, water supply to power hydroelectric electricity, and water recreation such as boating, fishing and rafting that provide helpful cooling during heat waves.

Summer Temperatures

Lane County can expect that our summer average temperatures to increase 10-12°F by 2100[iii]. Hotter temperatures will disproportionately affect the health of vulnerable populations, including the very young, old, and families in poverty. Heat and drought will affect forests, rivers, and agricultural land.

Regional Wildfire Risk

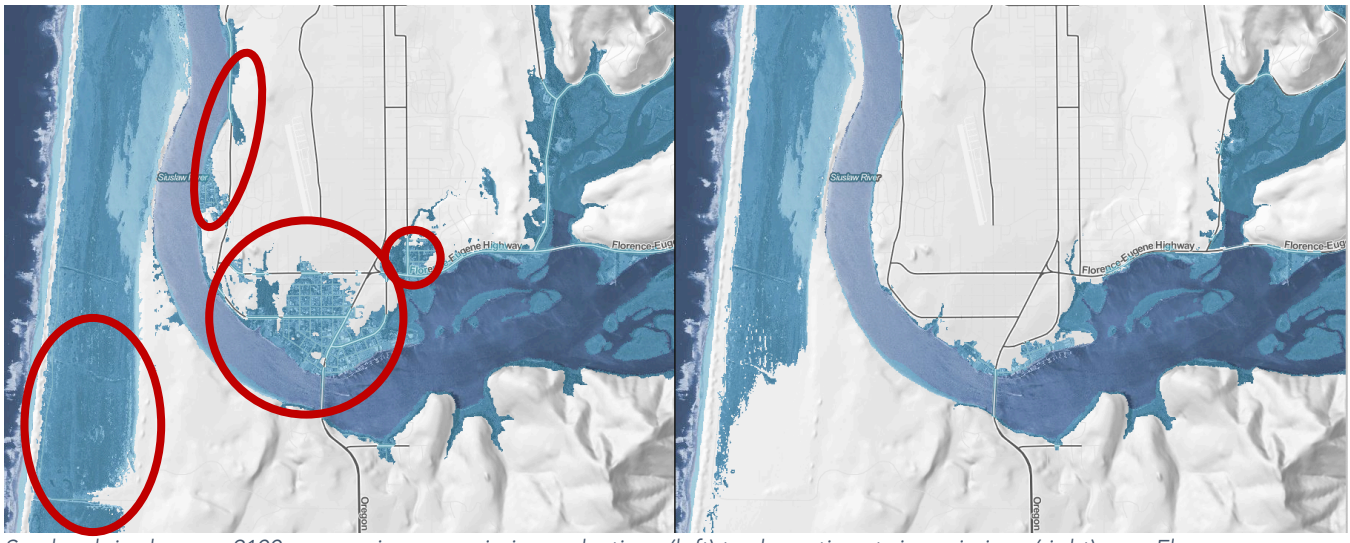
By 2040, we can anticipate a 400% to 500% increase in the number of acres burned[iv]. Beyond the threat of local fires, Lane County will be exposed to the air quality impacts as surrounding regions burn.

Wet Season Precipitation – Rainstorms Become More Intense, Snow Becomes Rain

Winter temperatures are expected to increase 3-5°F (1.6-2.8°C) by 2100[iv]. There will be a shift from mixed rain-snow winters all over Oregon to rain[iv]. Lane County is primarily rain dominant, but the winter snow in the Cascades serves as storage for our rivers, streams, and groundwater. While annual precipitation totals are unlikely to change, rain and storms will be more intense in the winter season.

Sea Level Rise & Future Flood Risk

Coastal sea levels will rise impacting thousands of community members. Flood risk for Lane County is focused on areas where coastal rivers and streams will rise due to sea level and precipitation increases, as well as low-lying areas, inland rivers, and wetlands. Winter precipitation will shift from snow-rain mix to rain, with no opportunity to store precipitation causing more flooding in real time.



Sea level rise by year 2100, comparing no emission reductions (left) to dramatic cuts in emissions (right) near Florence

[i] Estimating economic damage from climate change in the United States, Hsiang et al., Science
[ii] Climate Change Impacts in the United States: Fourth National Climate Assessment, 2014.
[iii] Climate Central, Summer Temperatures 1001 Cities Tool and Cities Are Already Suffering from Summer Heat. Climate Change Will Make It Worse.
[iv] Portland General Electric, Appendix E OCCRI Report, Published as part of PGE's 2016 Integrated Resource Plan.