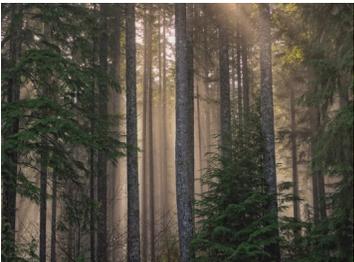


Climate Change Impacts

Preparing Washington for a Changing Climate



Washington's climate is changing in ways that bring significant risks to human health, our forests, agriculture, freshwater supplies, coastlines, and other resources vital to our economy and the environment.

Washington State is already experiencing trends that are consistent with a warming climate. Without additional action to reduce carbon emissions, scientists project that these trends will continue and in some cases accelerate. The following provides an overview of past and projected climate change.

Warmer temperatures and more severe heat waves

In the Pacific Northwest, average annual temperature rose 1.5 °F between 1920 and 2003. Climate scientists project average annual temperatures in the Pacific Northwest will rise 2°F by the 2020s and 3.2°F by the 2040s, compared with 1970-1999 averages. Heat waves are projected to occur more often and last longer.

Larger and more intense wildfires

Rising temperatures, more frequent and longer lasting heat waves, and drier summers are expected to contribute to larger, more severe wildfires. Researchers project that the area burned by fire each year in the Columbia Basin will double or triple by the 2080s, compared to the 1916-2006 average. Costs of fighting wildfires are expected to rise and risks to communities, the environment, and wildlife are expected to increase.

Drier summers and wetter autumns and winters

Climate models project that summer precipitation will decrease and autumn and winter precipitation will increase. Washington could experience more intense rainfall events more often.

Decreased snowpack and loss of natural water storage

In Washington's Cascades average snowpack declined about 25 percent between 1950 and 2006. Spring snowpack across Washington State is projected to decrease 28 percent by the 2020s and 40 percent by the 2040s relative to the 1916-2006 average, and snowmelt is expected to occur earlier in the spring.



More frequent and severe drought

Increasing temperature, declining snowpack and earlier snowmelt will increase the risk of summer water shortages and increase demand for water. The amount of water available for communities, irrigation, fish, hydropower generation, recreation, and other uses will be affected and competition for water will increase.

More severe winter flooding

Although the risks vary by location, Washington is expected to experience more severe winter flooding. More severe winter flooding poses challenges for managing reservoirs for flood control, fish, and hydropower production. Damages and repair costs for vulnerable homes, roads, and other infrastructure could increase. Extreme rainfall may place more stress on our stormwater infrastructure.

Sea level rise

Global sea level has risen about 7 inches during the 20th century and is projected to rise at a higher rate in the future. For the Washington, Oregon, and California coasts north of Cape Mendocino, sea level is projected to rise 24 inches over the next century. An earthquake magnitude 8 or greater along the Cascadia Subduction Zone would suddenly raise sea level along parts of the coast by an additional 3-7 feet over projected levels.

Ocean acidification threatens shellfish and marine life

The world's oceans absorb excess carbon dioxide (CO₂) from the atmosphere, causing ocean pH to decline and making seawater more acidic. More acidic waters threaten Washington's shellfish industry and could affect the marine food web. Ocean acidity is increasing at a faster rate than what scientists expected, and this increase can reduce the ability of oysters and other species to form shells.

Washington's shellfish industry leads the nation in the production of farmed oysters, clams and mussels. It employs thousands of people and contributes hundreds of millions of dollars to the state economy. Shellfish producers in Washington have already experienced declines in oyster production in the past few years, due at least in part to the increasing acidity of our marine waters.

More information

Ecology's Climate Change website:

www.ecy.wa.gov/climatechange/ipa_responsestrategy.htm

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See page 200 of the Response Strategy report.