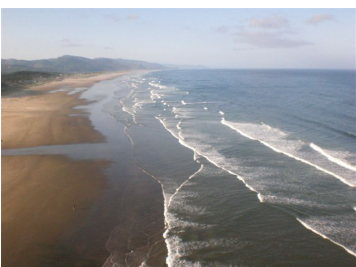
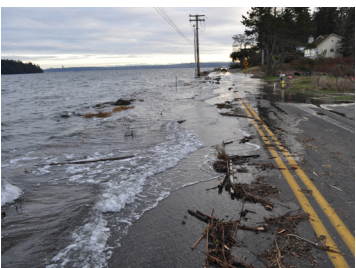


Sea Level Rise and Coastal Hazards

Preparing Washington for a Changing Climate



Washington's climate is changing in ways that could lead to potentially profound effects on valuable infrastructure, development, and natural resources along the coast.

As global temperatures rise, the oceans warm and expand, and ice caps and glaciers melt. This causes sea levels to rise. In June 2012 the National Research Council released a report entitled *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Key findings of the study include:

- 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. Sea level rise in this region is projected to be lower than the global average because tectonic plate movement is causing the land to rise at about .6 to 1.2 inches per decade.
- 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.

Sea Level Rise Projections for Washington, Oregon, and northern California (relative to year 2000)		
Year	Projection (in inches)	Range (in inches)
2030	+2.6	-2 to +9
2050	+6.5	-1 to +19
2100	+24	+4 to +56

- Much of the damage along the Washington coast is caused by storms – particularly from the combined effects of large waves, storm surges, and high tides during a strong El Niño. Sea-level rise will magnify the adverse impact of storm surges and high waves on the coast, and will increase the risk of coastal flooding and damage and cause increased coastal erosion and retreat of coastal cliffs, beaches, and dunes.
- Natural shorelines can provide partial protection for coastal development against sea level rise and storms.
- Impacts of sea level rise on marshes depends on local conditions. Salt marshes in areas with a high sediment supply (such as at the mouth of a major estuary) will persist in their current form.



Protecting Coastal Areas in a Changing Climate

With over 3,000 miles of marine coastline, much of Washington's population lives, works, and thrives in coastal areas. Washington State's Climate Change Response Strategy lays out a roadmap for state and local policymakers and planners to prepare for the risks sea level rise poses to our coastal communities, wildlife, and economy, and includes strategies to:

- Identify and map areas vulnerable to sea level rise and storm surge and help focus new infrastructure investments in areas at low risk.
- Protect and restore nearshore habitat and natural processes.
- Build capacity in local communities to assess vulnerability and respond to risks by incorporating climate change considerations into land use and shoreline decisions.
- Develop tools such as a sea level rise guidebook to assist local planners.
- Consider potential climate risks and options to prevent, detect, and swiftly respond to risks in long-range programs, policies, and public investment initiatives at the state level.

Taking action now can reduce our vulnerability, ensure our investments and operations are strategic and prudent, and help keep Washington's coastal areas vibrant and healthy under future climate conditions.

What is at risk?

Although risk levels vary by location, rising sea levels will increase the vulnerability of low-lying areas to flooding and erosion and result in losses of beaches and tidal habitats.

- Coastal communities will face increased risk of property damage to infrastructure.
- Ports, harbors and low-lying transportation networks will face increased risk of disruptions from flooding.
- Low-lying agricultural areas could be adversely affected by salt water inundation, dikes and levees will be threatened, and drainage will become more difficult.
- Beaches and nearshore areas that provide critical habitat for fish, shorebirds, shellfish, and other species could shift inland or be lost.

More information

See 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.