

Climate Impacts Relevant Data and Publications

Overview

This matrix briefly summarizes the resources from a background research of available information and documentation related to historical and projected climate impacts for Kitsap County. Findings in this document are organized by the following 11 focus areas:

- ▶ **Agriculture**- Food crops, ornamental crops, livestock, aquaculture, wild food harvest, timber production, urban forestry, etc.
- ▶ **Cultural Resources**- Archeological resources, recreation, historically significant structures and places, etc.
- ▶ **Economy**- Property values, shifts in business opportunities, changed energy demand due to temperature, water dependent industries, buildable lands, etc.
- ▶ **Fire**- Wildfire and wildland/urban interface, structure fires, demand on emergency response, etc.
- ▶ **Geologic Hazards**- Landslides, bluff erosion, storm surge, etc.
- ▶ **Habitat**- Sea-level rise, ocean acidification, impacts to native and cold-water species, invasive species, shifting of aquatic habitat (salmon habitat projects, eelgrass, shorelines, etc.), compression of habitat, etc.
- ▶ **Hydrology**- Stream flows, flooding, changes in precipitation, etc.
- ▶ **Land Use and Development**- Affordable housing, open spaces, mixed-use construction, and green building.
- ▶ **Local Government Finance**- Insurance premiums, municipal bond ratings, tax revenue, etc.
- ▶ **Public Health**- Saltwater intrusion into wells, increase in hot days, air quality impacts due to smog and wildfires, etc.
- ▶ **Public Infrastructure**- Roads, bridges, bridge clearances, wastewater facilities, drainage systems, etc.

Key sources of information that encompasses two or more focus areas include the following:

- [State of Knowledge: Climate Change in Puget Sound, prepared by University of Washington Climate Impacts Group \(CIG\), 2015.](#)
- [Fifth National Climate Assessment Synthesis Report, Intergovernmental Panel on Climate Change, 2014.](#)
- [Northwest. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II, May et al. U.S. Global Change Research Program, Washington, DC. 2018.](#)
- [Port Gamble S'Klallam Tribe Climate Impacts Assessment. Port Gamble S'Klallam Natural Resources Department. 2018.](#)
- [Kitsap County Multi-Hazard Mitigation Plan. 2015.](#)

Broad Climate Science

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Bainbridge Island Climate Impacts Assessment	BICIA Final 28 July 2016	https://www.cakex.org/sites/default/files/	2016	Bainbridge Island	This report is a climate impacts assessment for the city of Bainbridge Island. It covers six key impacts areas: temperature, precipitation/storminess, sea level rise, vegetation change, ocean acidification, and slope stability.
Climate Impacts Group Tribal Climate Tool	climateReport_PtGamble_Big.LittleQuilcene	https://climate.northwestknowledge.net/	2018	Big and Little Quilcene River Basins	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Port Gamble S'Klallam Tribe currently resides in Kitsap County in Kingston. A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Climate Impacts Group Tribal Climate Tool	climateReport_PtGamble_Dosewallips	https://climate.northwestknowledge.net/	2018	Dosewallips River Basin	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Port Gamble S'Klallam Tribe currently resides in Kitsap County in Kingston. A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Climate Impacts Group Tribal Climate Tool	climateReport_PtGamble_Reservation	https://climate.northwestknowledge.net/	2018	Port Gamble Reservation	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Port Gamble S'Klallam Tribe currently resides in Kitsap County in Kingston. A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Climate Impacts Group Tribal Climate Tool	climateReport_PtGamble_BayWatershed	https://climate.northwestknowledge.net/	2018	Port Gamble Bay Watershed	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Port Gamble S'Klallam Tribe currently resides in Kitsap County in Kingston. A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Climate Impacts Group Tribal Climate Tool	CIG Tribal Tool. Port Madison Indian Reservation	https://climate.northwestknowledge.net/	2018	Port Madison Indian Reservation	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Suquamish Tribe currently resides in Kitsap County (Chief Kitsap, the namesake of the County, was a Suquamish tribal leader in the late 1700s to mid 1800s, when European contact was made). A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Climate Impacts Group Tribal Climate Tool	CIG Tribal Tool. Suquamish Area of Interest	https://climate.northwestknowledge.net/	2018	Suquamish Area of Interest	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Suquamish Tribe currently resides in Kitsap County (Chief Kitsap, the namesake of the County, was a Suquamish tribal leader in the late 1700s to mid 1800s, when European contact was made). A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Climate Impacts Group Tribal Climate Tool	CIG Tribal Tool. Suquamish U&A Areas	https://climate.northwestknowledge.net/	2018	Suquamish Usual and Accustomed Fishing Areas	This tool was developed by UW CIG for Tribes in the Pacific Northwest and Great Basin. They downscaled GCMs and RCMs to localized areas of interest for various Tribes in this geography. The Suquamish Tribe currently resides in Kitsap County (Chief Kitsap, the namesake of the County, was a Suquamish tribal leader in the late 1700s to mid 1800s, when European contact was made). A high and a low emissions scenario was used, and three time periods for the downscaled data was included (2010-2039, 2040-2069, and 2070-2099). Downscaled data includes: annual average temperature, seasonal average temperature, extreme heat days, freeze free days, heat accumulation, annual precipitation, seasonal precipitation, and vegetation growing seasons.
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov/chapter/	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. Key conclusions of this report include: climate change has already impacted natural resource economies in the Northwest, specifically around fisheries, forestry, agriculture, and tourism; climate change has already impacted the wellbeing, culture, and livelihoods of Northwest communities, especially for tribal and Indigenous communities; climate change and extreme events are compromising the infrastructure and support systems of the Northwest; climate change is exacerbating the stress on the health systems and social safety nets in the Northwest; and climate change is disproportionately affecting frontline communities (e.g. Tribes & Indigenous peoples, low-income communities of color, farmworkers), who often have a lower capacity to adapt to changes.
Hood Canal Climate Projection Summary	Hood_Canal_Climate_Projection_Summary_May_2015	http://hccc.wa.gov/sites/default/files/resc	2015	Hood Canal and surrounding counties and watersheds, including Kitsap County	This report highlights the biophysical climate impacts for Hood Canal, which include increase in air temperature, increase in extreme precipitation, shift to a rain-dominant system, shift in peak stream flow to early winter from late spring, and increasing flood and drought events. These will have consequences for natural and human resources, including impacts to salmon, shellfish, forests, invasive species and pests, agriculture and forestry practices, infrastructure, water resources, human health, and tribal and cultural resources.
Intergovernmental Panel on Climate Change, Synthesis Report	IPCC_SYR_AR5_FINAL_full	https://www.ipcc.ch/site/assets/uploads/	2015	International	This report gives an overview of the state of the science at an international scale. Some of its key conclusions include: climate change is unequivocally caused by human activities, especially GHG emissions; the atmosphere and ocean have already warmed and will continue to do so; amounts of snow and ice cover have diminished; sea level has risen; climate change has already significantly impacts human and natural systems; extreme weather and climate events are changing; and continued GHG emissions will drive further warming and changes in the climate.
Nitrogen in Puget Sound- Interactive Tool	--	https://waecy.maps.arcgis.com/apps/Map	2018	Puget Sound	This toolkit provides brief summaries of nitrogen levels in the Puget Sound and its impacts on local ecosystems. Additionally, it provides maps to help visualize excess nitrogen, nitrogen sources/pathways, river trends, and marine trends for the Puget Sound.

NOAA National Center for Environmental Information - Washington State	WA-screen-hi.pdf https://statesummaries.ncics.org/download	2016 Washington State	This is an informational summary of the climate impacts in WA. These impacts include: increasing annual temperature by 1.5°F with winter warming being particularly significant, with far below average number of occurrences of extremely cold days. Under higher emissions scenarios will lead to unprecedented warming. This will lead to earlier snowpack melting, shifting precipitation regimes from snow to rain, and increased likelihood of springtime flooding. Wildfire frequency is also projected to occur.
Port Gamble S'Klallam Tribe Climate Impacts Assessment	PGST_climate-impact-assessment_report_0518-FINAL http://nr.pgst.nsn.us/wp-content/uploads	2016 Port Gamble S'Klallam Tribe	This is the climate impacts assessment for the Port Gamble S'Klallam Tribe, who has traditional areas in Kitsap County and their HQ in Kingston, WA.
State of Knowledge, Climate Change in Puget Sound, Section 2: How is Puget Sound's Climate Changing	CIG_ps-sok_sec02_climate_2015 https://cig.uw.edu/wp-content/uploads/si	2015 Puget Sound	This report gives an overview of the long-term climate trends in Puget Sound, which is consistent with comparative global climate impacts driven by human causes. These impacts include: warmer temperatures, longer frost-free seasons, less summer precipitation, nighttime warming, increase in heavy rainfall events, and increase extreme heat events.
Task 700 Climate Change Assessment: Kitsap County	Kitsap County_Task 700 Climate Change Assessment --	2019 Kitsap County	This report looks at climate change impacts to the stormwater system in Kitsap County. Key conclusions include: sea level rise has been rising and will continue to increase at a low emissions scenario; though precipitation has had a gradual increase, the frequency of extreme rainfall events have increased and will continue to intensify across all emission scenarios. Both of these impacts will have significant impacts to Kitsap's stormwater systems capacity to adapt in future climate change scenarios.
Third National Climate Assessment, Climate Change Impacts in the United States - Northwest.	NCA3_Full_Report_21_Northwest_LowRes https://nca2014.globalchange.gov/	2014 Northwest, with some specifics to Puget Sound	This is the 3rd National Climate Assessment, and highlights the specific biophysical climate change impacts in the Northwest. The key messages of this chapter include: streamflow and snowmelt changes are already being observed and will continue to worsen, reducing water supply for multiple competing demands; sea level rise, erosion, inundation, and ocean acidification pose major threats to infrastructure and habitat; wildfire, insect outbreaks, tree diseases are causing massive tree die-offs in the region, with projections of shifting forest composition in the future; and multiple agricultural impacts though there is technical capacity to adapt to future conditions.
Scientific Summary of Ocean Acidification in Washington State Marine Waters	WA State Ocean Acidification Summary https://fortress.wa.gov/ecy/publications/c	2012 WA State, but specifics on Puget Sound and Hood Canal	This report covers the scientific summary of ocean acidification impacts, historical trends, attribution, and drivers.

Public Health

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Cancer Deaths and Incidence: Washington State, Kitsap County and Kitsap County Regions	Cancer_Incidence_Mortality_2016	https://kitsapublichealth.org/	2016	Kitsap County	This report identifies the incidences of cancer rates and deaths in Kitsap County between 1990 and 2013. Kitsap County has a statistically higher rate than Washington state.
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov/	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, key message 4 specifically highlights climate impacts around human health and wellbeing. Key conclusions include: sea level rise and coastal flooding will likely lead to saltwater intrusion of groundwater; extreme heat and cold events and wildfires have led to more hospital room and emergency room visits, with elderly people and children particularly vulnerable (data from King County); infectious diseases are increasing due to expanding tick habitat and rising temperatures; extreme precipitation events are associated with Shigellosis, an infectious diarrheal disease; harmful algal blooms can lead to toxin accumulation in shellfish, which can poison people who consume them; youth may experience cumulative mental health impacts over their lifetimes from exposure to extreme events and increased toxic exposures; fetal development may also be impacted by increased exposures to toxins; community wellbeing for Tribes and Indigenous peoples will likely suffer, exacerbating multi-generational trauma.
Kitsap County Core Public Health Indicators	KPHD_Health_Indicators	https://kitsapublichealth.org/	2018	Kitsap County	This report is a high level synthesis of demographic and public health data for Kitsap County. The majority of data come from standard public health sources: vital records, public health program tracking, reportable illnesses, surveys, and the U.S. Census. Section IV looks at the health of Kitsap County surroundings; Overall the natural environment indicators were statistically better in 2017 than 200. The outliers was the average number of days a fresh water beach was closed due to an advisory for illness (algae or elevated bacteria) which rose from 5 to 25.
Increased mortality associated with extreme-heat exposure in King County, Washington, 1980–2010.		https://link.springer.com/article	2016	King County	This paper looked at the association between extreme heat events and increased mortality in King County to see if there was a trend in the risk of death on a heat day versus non-heat day.
Maternal and Child Health Services Block Grant (MCHBG) indicators.	MCHBG Indicators FINAL 06272018.pdf	https://kitsapublichealth.org/	2018	Kitsap County	This report prepared by the Kitsap County Public Health District provides information about women ages 15 to 44 in Kitsap County. Each indicator is reported for Kitsap and Washington State and for available subgroups. It looks at demographic, pregnancy, socioeconomic, chronic disease, access to care, communicable disease, mental health, and substance use indicators.
State of Knowledge, Climate Change in Puget Sound, Section 7: How is Puget Sound's Water Quality Changing?	SOK_Water Quality	https://cig.uw.edu/wp-content	2015	Puget Sound	This report is a synthesis of the changes in water quality in Puget Sound, which is changing due to climate change, natural variability, and additional anthropogenic inputs (e.g. runoff). Key conclusions, as it relates to health, are: harmful algal blooms will increase in magnitude and frequency, increasing bioaccumulation of toxins in shellfish.
State of Knowledge, Climate Change in Puget Sound, Section 13: How Will Climate Change Affect Human Health?	SOK_Human Health	https://cig.uw.edu/wp-content	2015	Puget Sound	This report is a synthesis of the climate impacts to human health in Puget Sound. Climate change could affect human health in the Puget Sound region via the direct effects of more intense heat waves and higher flood risk, and via the indirect effects of increasing wildfire severity, declining summer water supply, shifting infectious disease dynamics, and declining air quality. Projected changes in climate are likely to have widespread implications for Puget Sound's population, and a disproportionate effect on its most vulnerable residents (i.e., over age 65, children, homeless). Projected increases in the frequency and intensity of extreme heat events are expected to increase hospitalizations due to heat stress, and have the potential to reduce air quality. Increasing fire risk could affect human health via smoke exposure and increased occupational hazards for emergency responders. Washington's state and local governments are in the early stages of identifying how climate change may affect human health and public health infrastructure.
Third National Climate Assessment, Climate Change Impacts in the United States - Northwest.	NCA3_Full_Report_21_Northwest_LowRes	https://nca2014.globalchange.gov/	2014	Northwest, with some specifics to Puget Sound	This is the 3rd National Climate Assessment, and highlights the specific biophysical climate change impacts in the Northwest. The key messages of this chapter include: streamflow and snowmelt changes are already being observed and will continue to worsen, reducing water supply for multiple competing demands; sea level rise, erosion, inundation, and ocean acidification pose major threats to infrastructure and habitat; wildfire, insect outbreaks, tree diseases are causing massive tree die-offs in the region, with projections of shifting forest composition in the future; and multiple agricultural impacts though there is technical capacity to adapt to future conditions.

Cultural Resources

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Bainbridge Island Climate Impacts Assessment	BICIA Final 28 July 2016	https://www.cakex.org/sites/d	2016	Bainbridge Island	This report is a climate impacts assessment for the city of Bainbridge Island. It covers six key impacts areas: temperature, precipitation/storminess, sea level rise, vegetation change, ocean acidification, and slope stability.
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, Key Message 2 talks specifically about climate impacts to cultural heritage and resources. Key conclusions from this section include: 1) climate change has already impacted outdoor recreation opportunities, iconic wildlife, and habitat and species critical to many livelihoods and quality of life, especially for Tribes and Indigenous peoples; 2) climate change will exacerbate these impacts, and affect summer and winter recreation opportunities and continue to worsen quality of life, which may have implications for local economies.
Kitsap Parks Map	KitsapParksMap_8x11.pdf	https://www.kitsapgov.com/parks	--	Kitsap County	This is a map of the Kitsap County parks system. It includes 42 parks.
National Park Service, Climate change Response program, Climate Change Impacts on Cultural Resources	NPS-Climate-Impacts-to-Cultural-Resources_7-2016.pdf	https://www.nps.gov/subjects/climate	2016	National	This document has an impacts table that describes how different manifestations of climate change will affect different types of cultural resources. The table is organized by major measurable trends of climate change, such as temperature and precipitation. The five types of cultural resources evaluated in the table are: 1) Archeological resource, 2) Cultural Landscapes, 3) Ethnographic resources, 4) Museum collections, 5) Buildings and structures.
Port Gamble S'Klallam Tribe Climate Impacts Assessment	PGST_climate-impact-assessment_report_0518-FINAL	http://nr.pgst.nsn.us/wp-content	2016	Port Gamble S'Klallam Tribe	This is the climate impacts assessment for the Port Gamble S'Klallam Tribe, who has traditional areas in Kitsap County and their HQ in Kingston, WA.
The impacts of climate change on tribal traditional foods.	Impacts on tribal traditional foods_lynn	https://www.fs.fed.us/pnw/pu	2013	National	This paper examines the impacts of climate change on tribal traditional foods. The paper highlights the cultural importance of traditional foods to tribal culture, recognizing that tribal access to traditional food resources is strongly influenced by the legal and regulatory relationship with the federal government, and examining the complex relationship that tribes have with places, ecological systems and species.

Land Use and Development

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Climate Change and Land: an IPCC special report.	IPCC_Land Use_Technical-Summary	https://www.ipcc.ch/srccl/	2019	International	An IPCC Special Report that discusses climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in international ecosystems.
Kitsap County Comprehensive Plan 2016-2036	CompPlanUpdate_2016	http://compplan.kitsapgov.com	2016	Kitsap County	The Kitsap County Comprehensive Plan 2016-2036 serves as the policy document that helps guide decisions on services for a wide range of critical County programs, such as building roads, providing land for housing, and protecting the environment.
Kitsap County Multi-Hazard Mitigation Plan	Kitsap Hazard Mitigation	http://citeseerx.ist.psu.edu/vie	2015	Kitsap County	This report did not explicitly include climate change consideration, however it included a risk assessment of various extreme events that are projected to change from future climate change. This report highlights the existing city and county building and residential units in Kitsap County (page 2-11 and Table 2.2). City/County buildings have approximately 2500 units and there are over 100,000 residential units that span single family units (approx. 71,000), multi-family units (approx. 20,000), mobile home units (approx. 9,500), and other types of housing units (approx. 200). These numbers were from a 2008 survey and published in the 2011-2015 Kitsap County Consolidated Plan, and very likely out of date.
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, climate impacts to hydrological regimes include impacts to salmonids and infrastructure. Lower summer streamflow and higher winter flow, due to decreased winter snowpack, precipitation shifts, and heavy rainfall events, will affect the survivability of salmonid and other freshwater species. Winter precipitation in rain, instead of snow, coupled with heavy rainfall events will increase flooding intensity and frequency, impacting infrastructure and habitats.
Fourth National Climate Assessment, Volume II. Land Cover and Land-Use Change. In Impacts, Risks, and Adaptation in the United States.	NCA4_Ch05_LCLU_Full	https://nca2018.globalchange.gov	2018	National	This is in the 4th National Climate Assessment, and highlights the specific changes in land-use practices that change land cover, and how land cover enables specific land uses. The chapter outlines how land cover, use, condition, and management vary. The key messages of this chapter include: land use impacts on weather and climate, and climate change impacts on land use and ecosystems.
State of Knowledge, Climate Change in Puget Sound, Section 9: How Will Climate Change Affect the Terrestrial Ecosystems?	SOK_Terrestrial Ecosystems	http://cses.washington.edu/pir	2015	Puget Sound	Section 9 of the SOK Report provides observations and projected impacts terrestrial ecosystems, including changes in timing of biological events, changes in the species distribution, forest health and biodiversity, wildfires, and invasive species.
The Growing Threat of Urban Flooding: A National Challenge	National Urban Flooding Report	https://cdr.umd.edu/sites/cdr	2018	National	This report focuses attention on the widespread and costly damage caused by urban flooding due to city landscapes that cannot absorb or otherwise manage rainfall. Based on the results of a nationwide survey of stormwater and floodplain management professionals, the report (by researchers from the University of Maryland and Texas A&M University) demonstrates how urban flooding is a separate phenomenon from coastal and river flooding.

Agriculture

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Bainbridge Island Climate Impacts Assessment	BICIA Final 28 July 2016	https://www.cakex.org/sites/default/files	2016	Bainbridge Island	This report is a climate impacts assessment for the city of Bainbridge Island. It covers six key impacts areas: temperature, precipitation/storminess, sea level rise, vegetation change, ocean acidification, and slope stability.
Climate change in the Northwest: Implication for our Landscapes, Waters, and Communities. Chapter 6. Agriculture.	Chapter 6. Agriculture_Climate change in the Northwest.	http://cses.washington.edu/db/pdf/dalor	2013	Northwest, though many WA state and local case studies	This report looks to asses the state of knowledge about key climate impacts and consequences to various sectors and communities in the Northwest United States. Chapter highlights climate impacts to the agriculture sector, vulnerabilities to projected climate change, and identifies strategies and measures for adaptation and mitigation.
Fourth National Climate Assessment, Vol. II. Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov/chapte	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, Key Message1 talks about the impacts of climate change to the natural resource economy, which includes agriculture. Specific challenges to agriculture include: extreme heat events (highlighting 2015 as an extreme year); shifts in snowmelt timing and declining summer flows affecting irrigation and crop productivity and increasing tensions on water supply challenges; warmer temperatures shifting phenological characteristics of crops and shifting crop production and planting seasonality; decreasing quality of crop products, which is likely to affect economic viability of farmers.
Fourth National Climate Assessment, Volume II. Agriculture and Rural Communities. In Impacts, Risks, and Adaptation in the United States.	NCA4_Ch10_Agriculture_Full	https://nca2018.globalchange.gov/chapte	2018	National, with some downscaled models to WA State or NW region	This is in the 4th National Climate Assessment, and highlights the specific biophysical climate change impacts in to the United States agriculture sector. The key messages of this chapter include: agricultural productivity, soil and water resources, health challenges, vulnerability, and adaptive capacity.
Kitsap County Agriculture Sustainability Plan.	Kitsap County Agriculture Sustainability Situation and Analysis_2011	https://www.kitsapgov.com/BOC_p/Policy	2011	Kitsap County	This situation and analysis report addresses these queries by provide a sense of what agriculture is in Kitsap County, where agriculture stands today, and define a baseline so that future development goals can be set for agriculture in Kitsap County.
Third National Climate Assessment, Climate Change Impacts in the United States - Northwest.	NCA3_Full_Report_21_Northwest_LowRes	https://nca2014.globalchange.gov/	2014	Northwest, though many WA state and local case studies	This is the 3rd National Climate Assessment, and highlights the specific biophysical climate change impacts in the Northwest. The key messages of this chapter include: streamflow and snowmelt changes are already being observed and will continue to worsen, reducing water supply for multiple competing demands; sea level rise, erosion, inundation, and ocean acidification pose major threats to infrastructure and habitat; wildfire, insect outbreaks, tree diseases are causing massive tree die-offs in the region, with projections of shifting forest composition in the future; and multiple agricultural impacts though there is technical capacity to adapt to future conditions.
State of Knowledge, Climate Change in Puget Sound, Section 8: How Will Climate Change Affect Agriculture?	SOK_Agriculture	http://cses.washington.edu/picea/maugei	2015	Puget Sound	This report is a synthesis of the climate impacts to agriculture in Puget Sound. Key conclusions is that climate change will: lengthen growing season, shift crop production (depending on crop), exacerbate water supply challenges, changing risks of pests and diseases, increasing winter flood risk, and increasing risk of saltwater intrusion. There is also risks to farming and agricultural infrastructure from coupled impacts of sea level rise and increased flooding.

Local Government Finance

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
An inconvenient cost: the effects of climate change on municipal bonds	--	https://www.sciencedirect.com	2019	National; review article	Counties more likely to be affected by climate change pay more in underwriting fees and initial yields to issue long-term municipal bonds compared to counties unlikely to be affected by climate change. This difference disappears when comparing short-term municipal bonds, implying the market prices climate change risks for long-term securities only. Higher issuance costs for climate risk counties are driven by bonds with lower credit ratings. Investor attention is a driving factor, as the difference in issuance costs on bonds issued by climate and non-climate affected counties increases after the release of the 2006 Stern Review on climate change.
Climate change could make borrowing more costlier for States and Cities	--	https://www.pewtrusts.org/en	2019	National article with some statewide specifics	This article talks about expected future changes to the municipal bond market in response to climate change. More firms are beginning to account for climate change risks in the future. "That's the conundrum facing the municipal bond market right now: If the market fails to be proactive about future risks, it could lead to billions in ill-fated investments in communities at the forefront of climate change. But making it more expensive for governments with environmental liabilities to borrow money could prevent them from making the improvements needed to strengthen their infrastructure." According to PEW, WA State has \$9.2billion in municipal bond issuance.
Climate change disasters and your municipal bonds	--	https://www.forbes.com/sites/	2019	National article	This article talks about how more municipal bond issuers and firms are considering climate change. Not considering climate change in municipal bond issuances could lead to economic disruption, citizens leaving the geography (and the associated tax base), and more maladaptive infrastructure.
Getting physical: Scenario analysis for assessing climate-related risks.	bii-physical-climate-risks-april-2019	https://www.blackrock.com/us	2019	National with some regional specifics	This national report shows how changes to the climate and related extreme weather events increase the risks to investment portfolios. The report outlines physical climate risks and their implications for local GDP.
Municipal climate change adaptation and the insurance industry.	Municipal-CC-Adaptation-and-Insurance-Industry	http://blogs.harvard.edu/envir	2012	Massachusetts; with an expanded focus on coastal municipalities	This memorandum describes the insurance industry's involvement with climate change, outlines challenges for climate change adaptation via insurance, and recommends potential adaptation actions that coastal municipalities can utilize.
Evaluating the impacts of climate change on US state and local issuers.	Evaluating-the-impact-of-climate-change-on-US-state-and-local-issuers-	https://southeastfloridaclimate	2017	National article with some statewide specifics	This article evaluates the United State's economic exposure and vulnerability. This piece discusses how to properly asses the credit impact that climate change will have on states and local credit issuers.

Geology Hazards

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov/	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, geological hazards were relevant across multiple key messages. Landslides and mudslides, which will likely increase in frequency and intensity due to more extreme storms, are projected to alter essential habitat for aquatic species, disrupt local infrastructure (e.g. roads and highways) and access to emergency and social services. Coastal bluff landslides have shut down the Amtrak operations, with 26.7% of bluff landslides since 1914 occurring between 2009-2013. Low lying coastal areas are at risk to storm surges, which coupled with large waves, high tides, and coastal erosion, will very likely impact critical coastal infrastructure and habitats for fish and shellfish.
Kitsap County Multi-Hazard Mitigation Plan	Kitsap Hazard Mitigation	http://citeseerx.ist.psu.edu/viewdoc/download?cid=10110111&context=JCR	2015	Kitsap County	This report did not explicitly include climate change consideration, however it included a risk assessment of various extreme events that are projected to change from future climate change. This report mentions that Kitsap County has been particularly susceptible to fatal landslides and marine bluff failures that are caused by heavy rainfall events and ground saturation. There is an additional map in this report outlining vulnerable areas within the county (Exhibit 2.5 in the report, page 2-17). Furthermore, the report gives an overview of the geological characteristics of the Kitsap County, which is: "The Kitsap Peninsula area is geologically the remnant of a glacial drift plain. The peninsula is deeply dissected by inlets, giving the County roughly 33 miles of freshwater waterfront, and 210 miles of salt-water coastline (see Appendix D – Kitsap County Hazard Identification and Vulnerability Analysis – HIVA). Landslide and marine bluff failures are relatively common in the low hills on the perimeter of Puget Sound, particularly in unsheltered bluff areas subjected to wave cutting (Young et al, 1993). Four main geologic units have been identified in the subsurface: fill, younger alluvium including beach deposits, alluvium associated with the Vashon Glacier, and basaltic bedrock. Low areas have filled with peat and very loose soils over time, and may have been artificially filled during previous development. (Dames & Moore 1997)."
Port Gamble S'Klallam Tribe Climate Impacts Assessment	PGST_climate-impact-assessment_report_0518-FINAL	http://nr.pgst.nsn.us/wp-content/uploads/2016/08/PGST-climate-impact-assessment-report-0518-FINAL.pdf	2016	Port Gamble S'Klallam Tribe	This is the climate impacts assessment for the Port Gamble S'Klallam Tribe, who has traditional areas in Kitsap County and their HQ in Kingston, WA.
Risk Report: For Kitsap County, including the Cities of Bremerton, Bainbridge, Port Orchard, Poulsbo, the Port Gamble S'Klallam Indian Reservation, the Suquamish Tribe, and Unincorporated Kitsap County.	Risk Report - Kitsap County - Final	https://fortress.wa.gov/ecy/gis/Port%20Gamble%20S%27Klallam%20Tribe%20Risk%20Report%20-%20Final.pdf	2015	Kitsap County	This report identifies and discusses risk for Kitsap County and its incorporated cities, including Bainbridge, Bremerton, Port Orchard, and Poulsbo. Two tribal reservations, the Port Gamble S'Klallam Tribe and the Suquamish Tribe, are also included. The Risk Report has highlights risk related to natural hazards and identifies measures to help communities reduce their risk.
Sea level rise and coastal flood exposure: Summary for Kitsap County, WA.	--	https://ss2.climatecentral.org/	2016	Kitsap County* (Uses Seattle Data as a Proxy)	This interactive tool provides maps of areas below different amounts of sea level rise and flooding, down to neighborhood scale, matched with area timelines of risk. The tool also provides statistics of population, homes and land affected by city, county and state, plus links to factsheets, data downloads, action plans, and has additional widgets to select between variables.
State of Knowledge, Climate Change in Puget Sound, Section 5: How Will Climate Change Affect Landslides, Erosion, and Sediment Transport?	SOK_Landslides, Erosion, and Sediment Transport	https://cig.uw.edu/resources/sok-landslides-erosion-sediment-transport/	2015	Puget Sound	This report gives an overview of the climate impacts in Puget Sound around specific geologic hazards, such as landslides. Warmer temperatures, declining snowpack, and increases in the frequency and intensity of heavy rainfall events will increase the frequency of landslides and the rate of erosion and sediment transport. Sediment transport will decrease during summers due to low streamflow and drier soils. Human modification of landscapes and natural climate variability will continue to influence these geological processes. There are few studies published on trends in landslides, and even fewer that have correlated these trends to climate change.
Task 700 Climate Change Assessment Kitsap County	Kitsap County_Task 700 Climate Change Assessment	--	2019	Kitsap County	This study contains current and potential impacts of climate on Kitsap County's stormwater system from sea level rise as well as current and projected trends in precipitation intensities.

Hydrology and Hydrogeology

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, climate impacts to hydrological regimes include impacts to salmonids and infrastructure. Lower summer streamflow and higher winter flow, due to decreased winter snowpack, precipitation shifts, and heavy rainfall events, will affect the survivability of salmonid and other freshwater species. Winter precipitation in rain, instead of snow, coupled with heavy rainfall events will increase flooding intensity and frequency, impacting infrastructure and habitats.
How will heavy rains change in western Washington?	--	https://cig.uw.edu/our-work/a	2018	Port Gamble S'Klallam Tribe. Further reports for King County, Everett, and Thurston County.	The tool provides information on the projected changes, as well as comparisons with observations for a number of precipitation durations, seasons, future decades, and return frequencies. The tool includes three visualizations for precipitation: (1) Percent Changes, (2) Intensity-Duration-Frequency Curves, and (3) Model Validation.
Implications of 21st Century Climate Change for the Hydrology of Washington State	Elsner_Implication of 21st Century Climate Change for the Hydrology of Washington State	--	2009	Washington State, specific Puget Sound conclusions	This publication highlights the sensitivities to climate change of hydrologic regimes in WA and the PNW using two climate models and the A1B and B1 emissions scenarios. Watersheds west of the Cascades will have virtually no snow water equivalent by April 1 by the 2080s, which will impact seasonal streamflow timing and shift the snowmelt watershed basins to mixed snow-rain watershed basins. Annual runoff will also steadily increase to 4-6% by the 2080s.
Interactive Sea Level Rise Data Visualizations	--	https://cig.uw.edu/our-work/a	2018	Kitsap County	This model shows downscaled SLR visualizations down to the Kitsap County scale, with even further downscaled projections along most of the County's coastline.
Kitsap County Multi-Hazard Mitigation Plan	Kitsap Hazard Mitigation	http://citeseerx.ist.psu.edu/vie	2015	Kitsap County	This report did not explicitly include climate change consideration, however it included a risk assessment of various extreme events that are projected to change from future climate change. This report includes a flood hazard and floodway map from FEMA (2007) as well as multiple references to the flood risks of low-lying areas.
NOAA National Center for Environmental Information - Washington State	WA-screen-hi.pdf	https://statesummaries.ncics.org	2016	Washington State	This is an informational summary of the climate impacts in WA. These impacts include: increasing annual temperature by 1.5°F with winter warming being particularly significant, with far below average number of occurrences of extremely cold days. Under higher emissions scenarios will lead to unprecedented warming. This will lead to earlier snowpack melting, shifting precipitation regimes from snow to rain, and increased likelihood of springtime flooding. Wildfire frequency is also projected to occur.
NOAA Relative Sea Level Trend	--	https://tidesandcurrents.noaa.gov	2019	Seattle	The graph shows the monthly average sea level for Seattle, WA. The long-term linear trend is also shown, including its 95% confidence interval.
Projected Sea Level Rise for Washington State	Miller et al_Projected SLR for Washington State	https://cig.uw.edu/wp-content	2018	Washington State, specific Puget Sound conclusions	This report provides an updated set of absolute and relative sea level rise projections out to 2150 for Washington State.
State of Knowledge, Climate Change in Puget Sound, Section 2: How is Puget Sound's Climate Changing	CIG_ps-sok_sec02_climate_2015	https://cig.uw.edu/wp-content	2015	Puget Sound	This report gives an overview of the long-term climate trends in Puget Sound, which is consistent with comparative global climate impacts driven by human causes. These impacts include: warmer temperatures, longer frost-free seasons, less summer precipitation, nighttime warming, increase in heavy rainfall events, and increase extreme heat events.
State of Knowledge, Climate Change in Puget Sound, Section 3: How Will Climate Change Affect the Water Cycle?	SOK_Water Cycle	http://cses.washington.edu/pi	2015	Puget Sound	Section 3 of the SOK Report provides observations and projected impacts on hydrology, snow, streamflow, water resources, and infrastructure.
State of Knowledge, Climate Change in Puget Sound, Section 4: How Will Climate Change Affect the Sea Level?	SOK_Sea Level Rise	https://cig.uw.edu/wp-content	2015	Puget Sound	Section 4 of the SOK Report provides observations and projected impacts on sea level, storminess, and vertical land motion.
Surging Seas- Risk Finder	--	https://riskfinder.climatecenter.org	2016	Kitsap County* (Uses Seattle Data as a Proxy)	This online tool provides summaries and visualizations on the trends and projections for SLR and flooding in Kitsap County.
Task 700 Climate Change Assessment	Kitsap County_Task 700 Climate Change Assessment	--	2019	Kitsap County	This study contains current and potential impacts of climate on Kitsap County's stormwater system from sea level rise as well as current and projected trends in precipitation intensities.
Third National Climate Assessment, Climate Change Impacts in the United States - Northwest.	NCA3_Full_Report_21_Northwest_LowRes	https://nca2014.globalchange.gov	2014	Northwest, with some specifics to Puget Sound	This is the 3rd National Climate Assessment, and highlights the specific biophysical climate change impacts in the Northwest. The key messages of this chapter include: streamflow and snowmelt changes are already being observed and will continue to worsen, reducing water supply for multiple competing demands; sea level rise, erosion, inundation, and ocean acidification pose major threats to infrastructure and habitat; wildfire, insect outbreaks, tree diseases are causing massive tree die-offs in the region, with projections of shifting forest composition in the future; and multiple agricultural impacts though there is technical capacity to adapt to future conditions.

Habitat

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Bainbridge Island Climate Impacts Assessment	BICIA Final 28 July 2016	https://www.cakex.org/sites/d	2016	Bainbridge Island	This report is a climate impacts assessment for the city of Bainbridge Island. It covers six key impacts areas: temperature, precipitation/storminess, sea level rise, vegetation change, ocean acidification, and slope stability. There is a section that looks at the vegetation changes.
Forest Stewardship Plan for the Ecological Restoration of Port Gamble Forest Heritage Park	ForestStewardshipPlan_EcologicalRestoration_PGFHP_2016.pdf	https://www.kitsapgov.com/pg	2016	Kitsap County	This report outlines a restoration vision of the Port Gamble Forest Heritage Park in Kitsap County. The ecosystem approach identified will be to: Work with nature, enhance forest wildlife habitat, diversify plant species, recognize the connection between all plants, fungi, and animals, protect water as a vital resource, and consider that human park users are part of the system. This forest restoration program needs to meet four goals, established in the 2012 Kitsap County Integrated Forest Stewardship Plan: 1) Enhance natural forest ecosystem complexity and health, 2) Protect and enhance soil, water quality, and fish and wildlife habitat, 3) Be biologically, socially and economically self-sustaining, 4) Provide safe, reasonable and appropriate public access to County forestlands. The report outlines strategies, such as thinning, to support the restoration of various 'resource categories', such as wetland areas. The timeline for the plan goes to 2023.
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.j	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, climate impacts to habitat were highlighted throughout the chapter. Compounding impacts from sea level rise, storm surge, and extreme storm events will decrease essential habitat for shellfish and fish. Warmer stream temperatures, lower summer streamflow, lower winter snowpack, and additional anthropogenic stressors (e.g. runoff) coupled with riparian habitat loss or quality degradation from wildfires will very likely impact native cold water species, like salmon or bull trout, potentially leading to local extirpations. Warmer ocean temperatures and ocean acidification will likely shift geographic ranges of some species due to habitat suitability. Invasive species, both in terrestrial and marine systems, will likely increase in prevalence, posing multiple challenges for native species and habitat quality. Much of this habitat loss is also associated with substantial economic consequences.
Port Gamble S'Klallam Tribe Climate Impacts Assessment	PGST_climate-impact-assessment_report_0518-FINAL	http://nr.pgst.nsn.us/wp-content	2016	Port Gamble S'Klallam Tribe	This is the climate impacts assessment for the Port Gamble S'Klallam Tribe, who has traditional areas in Kitsap County and their HQ in Kingston, WA.
Preparing Washington State Parks for Climate Impacts: A Climate Change Vulnerability Assessment for Washington State Parks.	WA-Parks-Vulnerability-Assessment	https://cig.uw.edu/wp-content	2017	WA State, but specifics on Puget Sound and Kitsap County forest species.	This report identifies climate change impacts that are anticipated to create new challenges for State Parks and exacerbate existing threats. The report revealed that many State Parks staff are already adjusting to climate change-related impacts such as sea level rise and changes in snowpack, flood risk, wildfire risk, tree health, and water supply reliability.
Relative Sea Level Rise Projections	--	RSLProjections_Lat47.6N_Long	2018	WA State, but specifics on Puget Sound and Hood Canal	Projections for two local sites in Kitsap County. Provided as a downloadable excel spreadsheet which contains three tabs: (1) an overview, (2) RSLR projections for a low greenhouse gas scenario (RCP 4.5), and (3) RSLR projections for a high greenhouse gas scenario (RCP 8.5).
Scientific Summary of Ocean Acidification in Washington State Marine Waters	WA State Ocean Acidification Summary	https://fortress.wa.gov/ecy/pu	2012	Canal	This report covers the scientific summary of ocean acidification impacts, historical trends, attribution, and drivers.
State of Knowledge, Climate Change in Puget Sound, Section 4: How Will Climate Change Affect the Sea Level?	SOK_Sea Level Rise	https://cig.uw.edu/wp-content	2015	Puget Sound	Section 4 of the SOK Report provides observations and projected impacts on sea level, storminess, and vertical land motion.
State of Knowledge, Climate Change in Puget Sound, Section 9: How Will Climate Change Affect the Terrestrial Ecosystems?	SOK_Terrestrial Ecosystems	http://cses.washington.edu/pir	2015	Puget Sound	Section 9 of the SOK Report provides observations and projected impacts terrestrial ecosystems, including changes in timing of biological events, changes in the species distribution, forest health and biodiversity, wildfires, and invasive species.
State of Knowledge, Climate Change in Puget Sound, Section 10: How Will Climate Change Affect the Freshwater Ecosystems?	SOK_Freshwater Ecosystems	https://cig.uw.edu/wp-content	2015	Puget Sound	Section 10 of the SOK Report provides observations and projected impacts on freshwater ecosystems, including changes in temperature, water temperatures, and species health and biodiversity.
State of Knowledge, Climate Change in Puget Sound, Section 11: How Will Climate Change Affect Marine Ecosystems in Puget Sound?	SOK_Marine Ecosystems	https://cig.uw.edu/wp-content	2015	Puget Sound	Section 11 of the SOK Report provides observations and projected impacts on marine ecosystems, including changes in water temperature, ocean acidification, and species health and biodiversity.
Task 700 Climate Change Assessment Kitsap County	Kitsap County_Task 700 Climate Change Assessment	--	2019	Kitsap County	This study contains current and potential impacts of climate on Kitsap County's stormwater system from sea level rise as well as current and projected trends in precipitation intensities.
Third National Climate Assessment, Climate Change Impacts in the United States - Northwest.	NCA3_Full_Report_21_Northwest_LowRes	https://nca2014.globalchange.j	2014	Northwest, with some specifics to Puget Sound	This is the 3rd National Climate Assessment, and highlights the specific biophysical climate change impacts in the Northwest. The key messages of this chapter include: streamflow and snowmelt changes are already being observed and will continue to worsen, reducing water supply for multiple competing demands; sea level rise, erosion, inundation, and ocean acidification pose major threats to infrastructure and habitat; wildfire, insect outbreaks, tree diseases are causing massive tree die-offs in the region, with projections of shifting forest composition in the future; and multiple agricultural impacts though there is technical capacity to adapt to future conditions.

Fire

Publication or Data Source	Filename	Hyperlink	Publication Year	Geographic Scope	Description
Bainbridge Island Community Wildfire Protection Plan	rp_burn_cwpp_bainbridgeIsland.pdf	https://www.bifd.org/pdfs/CWPP%20Bainbridge%20Island.pdf	2010	Kitsap County, Bainbridge Island	This plan does not specifically discuss climate change. It identifies communities at risk, prioritizes hazardous fuel treatments, and recommends ways to reduce structural ignitability. It is intended to be used to develop risk assessment and prioritize mitigation projects. With the increasing in Wildlife-Urban Interface (WUI) areas, Kitsap County has the seventh highest existing risk catastrophic losses in the event of a major wildfire in Washington
Fourth National Climate Assessment, Vol. II Impacts, Risks, and Adaptation in the Northwest	May et al_NCA4_Ch24_Northwest_Full	https://nca2018.globalchange.gov/	2018	Northwest, though many WA state and local case studies	This is Volume II of the 4th National Climate Assessment. This report expands on the Vol. I Climate Science Special Report and links the biophysical drivers and impacts of climate change to socio-ecological impacts. In the Northwest chapter, fire was touched upon multiple times. Key considerations and risks around fires include: drought conditions, changing precipitation regimes, and pest/diseases increase wildfire risk for NW forests; wildfires are changing forest composition in the NW interior; freshwater bull trout are sensitive to wildfires; impacts to foraging patterns of game species, like elk and deer; degrade air quality and opportunity for outdoor recreation and decreased demand for recreation businesses; place additional stress on infrastructure and support systems, such as utilities and highways; impacts to public health, especially persons with existing chronic respiratory diseases or increasing risk for acute respiratory illnesses; closing schools in some regions (e.g. Boise) due to dangerous air quality levels; and wildfires in 2015 burned 1.6 million acres in WA and OR.
NOAA National Center for Environmental Information - Washington State	WA-screen-hi.pdf	https://statesummaries.ncics.org/	2016	Washington State	This is an informational summary of the climate impacts in WA. These impacts include: increasing annual temperature by 1.5°F with winter warming being particularly significant, with far below average number of occurrences of extremely cold days. Under higher emissions scenarios will lead to unprecedented warming. This will lead to earlier snowpack melting, shifting precipitation regimes from snow to rain, and increased likelihood of springtime flooding. Wildfire frequency is also projected to occur.
Managing Western Washington Wildfire Risk in a Changing Climate, Workshop Summary	FINAL-Managing-Western-Washington-Wildfire-Risk-in-a-Changing-Climate-12.5.19.pdf	https://nwcasc.uw.edu/wp-content/uploads/sites/23/2019/04/Managing-Western-Washington-Wildfire-Risk-in-a-Changing-Climate-1.pdf	2018	Western Washington	This summary outlines the themes from the December 2018 Managing Western Washington Wildfire Risk in a Changing Climate Workshop. The five key themes identified during three workshop were: 1) Fire plays an important ecological and cultural role west of the Cascades, 2) Wildfire risk on the west of the Cascades is higher than most people realize, and we may need more outreach to effectively communicate this growing risk in order for individuals and communities to take action, 3) Wildland fire is fundamentally different east and west of the Cascades, and we may need different management strategies to cope with westside fire moving forward, 4) The risk of wildfire west of the Cascades will likely increase with climate change and population growth. 5) Collaboration will be critical to deal with increasing wildfire risk in a changing climate.
Third National Climate Assessment, Climate Change Impacts in the United States - Northwest.	NCA3_Full_Report_21_Northwest_LowRes	https://nca2014.globalchange.gov/	2014	National report with some statewide specifics	This is the 3rd National Climate Assessment, and highlights the specific biophysical climate change impacts in the Northwest. The key messages of this chapter include: streamflow and snowmelt changes are already being observed and will continue to worsen, reducing water supply for multiple competing demands; sea level rise, erosion, inundation, and ocean acidification pose major threats to infrastructure and habitat; wildfire, insect outbreaks, tree diseases are causing massive tree die-offs in the region, with projections of shifting forest composition in the future; and multiple agricultural impacts though there is technical capacity to adapt to future conditions.