Fact sheet - North America

Climate Change Impacts and Risks

Observed and projected climate change impacts

Accelerating climate change hazards have adversely affected the wellbeing of North American populations and pose substantial risks to the natural, managed, and human systems on which they depend *(high confidence)*. {ES-Ch14}

Even if global warming is limited to 1.5°C, human life, safety, and livelihoods across North America, especially in coastal areas will be placed at risk from sea level rise (SLR), severe storms, and hurricanes *(very high confidence)*. {14.6.2}

Ecosystems

Rising air, water, ocean, and ground temperatures have restructured ecosystems and contributed to documented redistribution *(very high confidence)* and mortality *(high confidence)* of plant, fish, bird, mammal and other faunal species. Climate-driven changes are particularly pronounced within Arctic ecosystems *(very high confidence)*. {ES-Ch14}

Escalating climate change impacts on marine, freshwater, and terrestrial ecosystems *(high confidence)* will alter ecological processes *(high confidence)* and amplify other anthropogenic threats to protected and iconic species and habitats *(high confidence)*. {ES-Ch14}

Health

Climate change has negatively affected human health and wellbeing in North America *(very high confidence)*. High temperatures have increased mortality and morbidity *(very high confidence)*, with the severity of impacts influenced by age, gender, location, and socioeconomic conditions *(very high confidence)*. {ES-Ch14}

Health risks are projected to increase this century under all future emissions scenarios *(very high confidence)* but the magnitude and severity of impacts depends on the implementation and effectiveness of adaptation strategies *(very high confidence)*. Warming is projected to increase heat related mortality *(very high confidence)* and morbidity *(medium confidence)*. {ES-Ch14}

Economic activity

Extreme events and climate hazards are adversely affecting multiple economic activities across North America and have disrupted supply-chain infrastructure and trade *(high confidence)*. {ES-Ch14} Under current economic and consumption trends and paradigms, climate change impacts are projected to cause large market and non-market damages *(high confidence)* across North America. {14.6.2}

Food

Climate-induced redistribution and declines in North American food production are a risk to food and nutritional security *(very high confidence)*. Climate change will continue to shift North American agricultural and fishery suitability ranges *(high confidence)* and intensify production losses of key crops *(high confidence)*, livestock *(medium confidence)*, fisheries (high confidence), and aquaculture products *(medium confidence)*. {ES-Ch14}

Water

Heavy exploitation of limited water supplies, especially in the western US and northern Mexico, and deteriorating freshwater management infrastructure, have heightened water security impacts and risks *(high confidence)*. {ES-Ch14}

Intensified droughts and earlier runoff from diminished snowpack will increase water scarcity during the summer peak water demand period especially in regions with extensive irrigated agriculture, leading to economic losses and increased pressures on limited groundwater as a substitute for diminished surface water supplies *(medium to high confidence)*. {14.6.2}

Cities and Settlements

North American cities and settlements have been affected by increasing severity and frequency of climate-induced hazards and extreme events *(high confidence)* which has contributed to cascading effects of infrastructure damage, loss of services and economic activity, damage to heritage resources, safety concerns and disrupted livelihoods. Impacts are particularly apparent for Indigenous Peoples for whom culture, identity, commerce, health and wellbeing are closely connected to a resilient environment *(very high confidence)*. {ES-Ch14}

Coastal, riverine, and urban flooding affecting communities and ecosystems will become a dominant risk to urban centres *(high confidence)*, displacing people, compromising economic activity, disrupting transportation and trade infrastructure. Large wildfires will increasingly endanger lives, livelihoods, mental and physical health, property, key infrastructure, and economic activities and contribute to compromised air quality and municipal water contamination with multiple human health implications *(high confidence)*. {14.6.2}

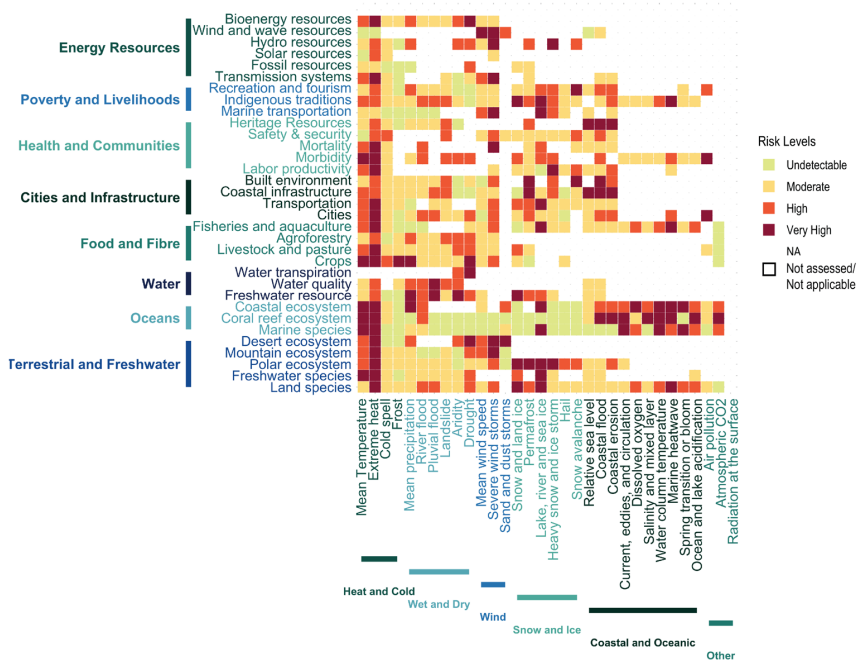

Figure 1: Rapid assessment of relative risk by sector (y axis) and climate hazards (x-axis) for North America based on an assessment of asset specific vulnerability and exposure across climate hazards (See SM14.3 for methodological details). For each unique combination, the hazard by sector risk was ranked as very high (very high risk and *high confidence*), high (significant impacts and risk, *high to medium confidence*), medium (impacts are detectable and attributable to climate change, *medium confidence*), low or not detected (risk is low or not detectable). Blank cells are those where the assessment was not applicable or not conducted. Risks identified through the rapid assessment were further evaluated in the chapter assessments (see corresponding sector text for full assessment of risk and impacts). {Figure 14.11}

Adaptation Options and Barriers

Barriers

Despite scientific certainty of the anthropogenic influence on climate change {SPM WGI}, misinformation and politicization of climate change science has created polarization in public and policy domains in North America, limiting climate action *(high confidence)*. Vested interests have generated rhetoric and misinformation that undermines climate science and disregards risk and urgency *(medium confidence)*. Resultant public misperception of climate risks and polarized public support for climate actions is delaying urgent adaptation planning and implementation *(high confidence)*. {ES-Ch14}

Fragmented responsibility for planning, disaster management, and mitigation and adaptation actions hinders the development of integrated and equitable policies *(high confidence)* and their implementation. While community-level planning tailors adaptation to the local context, misalignment of policies within and between levels of government can prevent implementation. Coordination, planning, and national support are needed as well as sufficient financial resources to implement climate-resilient policies and infrastructure *(high confidence)*. {14.7.2}

Adaptation options

Equitable, inclusive, and participatory approaches that integrate climate impact projections into near-term and long-term decision-making reduce future risks *(high confidence)*. {ES-Ch14}

Current practices will be increasingly insufficient to adapt to climate-induced risks *(high confidence)* without equitable and transformative adaptation policies focused on sustainable and resilient land use, consumption patterns, economic activities, and nature-based solutions with safeguards *(high confidence)*. {ES-Ch14}

Supporting Indigenous self-determination, recognizing Indigenous Peoples' rights, and supporting Indigenous knowledge based-adaptation are critical to reducing climate change risks to achieve adaptation success *(very high confidence)*. {ES-Ch14; Box 14.1; 14.3; 14.7}

Near- and long-term adaptation planning, implementation, and coordination across sectors and jurisdictions supports equitable and effective climate solutions *(high confidence)*. {ES-Ch14}

Climate Resilient Development

Without limiting global warming to 1.5°C, key risks to North America are expected to intensify rapidly by mid-century *(high confidence)*. Immediate, widespread, and coordinated implementation of adaptation measures aimed at reducing risks and focused on equity have the greatest potential to maintain and improve the quality of life for North Americans, ensure sustainable livelihoods, and protect the long-term biodiversity, and ecological and economic productivity in North America *(high confidence)*. {ES-Ch14}

Transformational, long-term adaptation action that reduces risk and increases resilience can address rapidly escalating impacts in the mid to latter part of the 21st century, especially if coupled with the lowest emission pathways of SSP1-19 and SSP1-26 that limit global warming *(high confidence)*. {ES-Ch14}