

How Climate Change Will Impact the Chugach National Forest & Kenai Peninsula

The Big Picture

The world's climate is changing, and these changes will have significant impacts both globally and locally. Depending on the location, positive and negative impacts will vary greatly. Even within Alaska, the severity of impacts varies, from disappearing western coastlines to increased southcentral pink salmon runs. Alaska is a dynamic region and has a long history of a changeable climate, and in some areas such as the Chugach National Forest, this history of variation may position the region to better withstand and adapt to expected changes.

Local Impacts

In order to help Alaskans understand, adapt, and respond to potential impacts, the United States Forest Service and agency partners¹ assessed the vulnerability of the Chugach National Forest and Kenai Peninsula to changes in climate. They examined four local features and resources, highlighted to the right, and focused on the potential social and economic consequences of climate change on these features over the next 30 to 50 years.

One overarching conclusion of the assessment² is that predicting change is difficult due to the complex and interactive nature of the systems involved. However, the results indicate that immediate impacts are likely to be less severe, and sometimes even positive, in comparison to other locations in Alaska. This is partially because the Chugach coastal rainforest environment is accustomed to significant variation in tides, temperatures and precipitation, and historically has been less strained by human activities than other locations around the United States.

Overall, the assessment area is expected to become warmer, resulting in earlier springs, later autumns, a longer growing season, and distinctly shorter, less severe winters. The anticipated impacts may increase over time, and they will directly affect residents and users of the Forest and Kenai Peninsula. Specific impacts on the four features and resources are detailed on the reverse side.



Coasts & Seascapes



Vegetation & Species



Salmon



Snow & Ice



Assessment area

¹Assessment conducted by Chugach National Forest (State and Private Forestry), University of Alaska, Kenai National Wildlife Refuge, Forest Service Research-PNW, USGS Climate Science Center, SNAP, Defenders of Wildlife, Kenai Fjords National Park.

²Climate Vulnerability Assessment for the Chugach National Forest and Kenai Peninsula: A Partnership Project



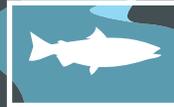
Impacts on Features and Resources

The overall social and economic impacts due to climate change are potentially positive, neutral or negative, and are marked accordingly. For specific details and supporting data, view the entire assessment online at www.onlineresourcehere.com

 Positive

 Neutral

 Negative



Snow & Ice

- Precipitation overall (rain and snow) is expected to increase in the future, but overall snowfall will decrease, particularly at lower elevations and in the late autumn.
- The snowline will move higher in elevation and further from the coast. Snowpack at higher elevations will likely increase, but will decrease at lower elevations.
- As good snow conditions shift to higher elevations, access points for winter recreation opportunities will become more distant.
- There will be fewer snow days. Over the next 3 to 5 years, one half to one full day per year of the winter recreation season could be lost.
- As the snow season declines, businesses and users will be forced to adapt.

Coasts & Seascapes

- Increased ocean surface temperature and increased acidity will change the marine environment.
- The consequences of marine changes are hard to predict. There is some risk of food chain disruption, but some populations may increase.
- Non-tidewater glaciers are thinning at a rate of three meters per year, equal to the height of one school bus. Over the past decade, all glaciers in the region have lost mass, with one exception.
- Glaciers are a main tourist attraction, and their retreat could have economic impacts.
- Local sea level is declining, due to ocean circulation shifts, melting glaciers, and earthquake activity. This decline may affect the location of tidal marshes and the birds and communities that use them. However, this trend in falling sea level is not projected in the extremely long term.
- Prince William Sound and the Copper River Delta are two of the most visited stopover locations for migrating shorebirds, which are vulnerable to loss of mudflats caused by sea level change.

Vegetation & Species

- Over a quarter of the land cover in the assessment area is projected to change by 2060.
- Sub-alpine and alpine terrain is converting to shrubs or forest.
- In the Chugach, the coastal rainforest will remain and expand westward, while on the Kenai Peninsula, deforestation is occurring as evergreen forest converts to grassland.
- Fires on the western Kenai Peninsula will likely increase in frequency.
- There will be a change in the frequency and extent of insect effects on vegetation, as has been visible in recent decades.
- Spruce beetle will likely continue to be a major catalyst for vegetation change.
- The interaction of changing vegetation patterns, wildfire activity, and snow depth will result in Sitka black-tailed deer continuing to move west onto the Kenai Peninsula, while caribou populations may decline over the long term.
- Moose abundance may increase in the near term due to vegetation changes, but could decrease in the long term due to the introduction of new diseases.

Salmon

- Overall, salmon populations in the area are expected to increase, with impacts varying by species.
- Pink salmon populations could increase by 26 percent in 50 years.
- Certain sportfishing species like Sockeye or Chinook may decrease, which could impact sportfishing, subsistence, and the economies of nearby communities.
- An increase in ocean acidity could affect the shells of some salmon food sources, resulting in a decrease in food supply.
- The large majority of waterways that support salmon will likely maintain an environment conducive to salmon spawning and development.