



CLIMATE CHALLENGES ON THE KENAI PENINSULA



With temperatures at about -10 °C, a musher and his team sprint down a long straightaway at the edge of Anchorage during the 2012 World Championship Sled Dog Race. The race was canceled in 2015 and 2016 because of insufficient snow resulting from warm temperatures and rain.

- Over the past half-century, annual available water has declined 62% on the western Kenai Peninsula; wetlands have decreased 6–11% per decade in surface area on the Kenai Lowlands.¹

- Current trends indicate that the southern Kenai Peninsula will lose 10-20% of our snowpack by 2030-2059.²

- Ocean acidification will continue to damage vital nurseries for many fish stocks in Kachemak Bay and Cook Inlet, which in turn will harm tourism, subsistence, commercial fisheries, and our basic way of life here.³

- Climate trends threaten the future of the Kenai Peninsula's salmon runs by depleting water levels and raising temperatures in Cook Inlet streams.⁴

- In the absence of adaptation efforts, damage to public infrastructure caused by climate change could cost Alaska \$142 to \$181 million per year and a cumulative \$4.2 to \$5.5 billion by the end of the century.⁵

- There is a projected 66-percent increase in the estimated value of human structures (e.g. homes, businesses) that are at risk to fire in the next half

¹ Kenai National Wildlife Refuge, U.S. Fish & Wildlife Service, "Climate Adaptation" online at: https://www.fws.gov/refuge/Kenai/what_we_do/resource_management/climate_adaptation.html.

² "Climate Change Vulnerability Assessment for the Chugach National Forest and Kenai Peninsula" by the USDA, Forest Service. Edited by Gregory D. Hayward, Steve Colt, Monica L. McTeague, and Teresa N. Hollingsworth, General Technical Report PNW-GTR-950. May 2017.

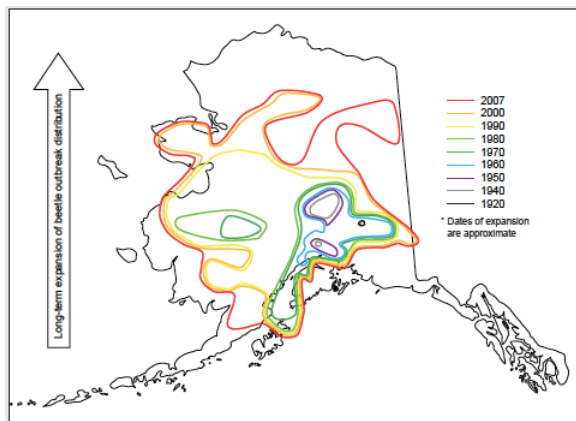
³ Climate Science of Kachemak Bay and the Kenai Peninsula: Local science to inform local decisions, KBNERR, 2016. Online at: http://trnerr.org/wp-content/uploads/2016/04/Climate-science_Kachemak-Bay_Kenai-Peninsula.pdf

⁴ <https://inletkeeper.org/2019/07/10/heat-wave-hits-cook-inlet-salmon-streams/>

⁵ Anchorage Climate Action Plan 2019.



century on the Kenai Peninsula.⁶ Estimated costs due to increased wildfires across Alaska are \$1.1 to \$2.1 billion annually from 2006 through the end of the century.⁷



Historical distribution of reported spruce beetle outbreaks in Alaska, and the large-scale, long-term trend of their spread across the state ("Climate Change Vulnerability Assessment for the Chugach National Forest and Kenai Peninsula" by the USDA, Forest Service. May 2017).

- The Caribou Hills was the epicenter of a spruce bark beetle outbreak that eventually killed about 1 million acres of Sitka, white and Lutz spruce on the Kenai Peninsula from the mid-1980s through the 1990s, sustained by consecutive summers of above-average temperatures.⁸ Spruce bark beetle's range is expanding as the state warms, and the scale of outbreaks is increasing.⁹

- Erosion rates on Eastern shores of Cook Inlet are 1 foot per year, and 2.3 feet per year on the western Homer area.¹⁰

- The effects of the changing climate have the potential to impact the sustainability of Alaska's fish and wildlife resources and are

beginning to impact Alaska's natural systems and the uses they sustain.¹¹

- Treeline has risen 1m per year on the Kenai Mountains, and shrubline an astounding 2.8m per year.¹²

⁶ Climate Change Vulnerability Assessment for the Chugach National Forest and the Kenai Peninsula. Edited by Gregory D. Hayward, Steve Colt, Monica L. McTeague, and Teresa N. Hollingsworth. 2017. Gen. Tech. Rep. PNW-GTR-950. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

⁷ "Estimating Wildfire Response Costs in Alaska's Changing Climate" by April Melvin, Jessica Murray, Brent Boehlert, Jeremy A. Martinich, Lisa Rennels, and T. Scott Rupp. Climatic Change 141, no. 4 (April 24, 2017): 783–95. <https://doi.org/10.1007/s10584-017-1923-2>.

⁸ Kenai National Wildlife Refuge, U.S. Fish & Wildlife Service, "Climate Adaptation" online at: https://www.fws.gov/refuge/Kenai/what_we_do/resource_management/climate_adaptation.html

⁹ *Ibid.*

¹⁰ Climate Science of Kachemak Bay and the Kenai Peninsula: Local science to inform local decisions, KBNERR, 2016. Online at: http://tnerr.org/wp-content/uploads/2016/04/Climate-science_Kachemak-Bay_Kenai-Peninsula.pdf

¹¹ "The Effects of a Changing Climate on Key Habitats in Alaska," Alaska Department of Fish and Game Special Publication No. 10-14 by Robert Clark, Alvin Ott, Mary Rabe, Douglas Vincent-Lang, and Douglas Woodby. September 2010.

¹² Kenai National Wildlife Refuge, U.S. Fish & Wildlife Service, "Climate Adaptation" https://www.fws.gov/refuge/Kenai/what_we_do/resource_management/climate_adaptation.html