

Aleutian Islands and Southwest / Aleut & Yup'ik, Cup'ik Regional Listening Session Notes

Aleutian Islands & Southwest regions

Observations of changes in important climate patterns and phase change situations such as less sideways snow and more rain, mid-winter melt, freshwater inputs impact on near shore algal blooms. People see less sideways snows these days. Short warming period with thawing and runoff and can have nearshore algal bloom. Harmful algal blooms in region, impact on food safety of local shellfish; maybe higher ecosystem impacts than just shellfish, higher fish.

Need to consider other factors beyond precipitation. Warming air temperatures and drought impacts are interwoven, and very difficult to separate out (melting glaciers causing freshwater influxes into saltwater environments, timing of mountain snowpack melt and effect on river levels being driven by air temperatures).

During drought people experienced the costs of energy sources and costs of alternative energy sources going up and an increase in the general cost of living. People are also observing some erosion issues, likely due to climate change.

Aleutian Islands

Reports of low aquifers and sediment in wells during recent drought.

Seeing winds blow out the snow and then concerned no snow there to melt into the soil. Is this normal or new?

People report seeing some invasive plant species, which may be due to climate change or could be drought.

Port Heiden / Chinick

When there is not a lot of snow up in the mountains had wells go dry, not where he was in Port Heiden but other areas. In Port Heiden the ground water will get sediment in wells and other changes. Over in Chinick one of their wells went dry 2019.

Port Heiden we get snow and it'll blow, and it evaporates away before it gets a good soak into the ground...wondering about winds: what is changing, what was normal, what can we expect?

Quinhagak is having problems with erosions on the airstrip from permafrost heavy thaw and had to turn away a few emergency flights.

Sand point

We have a few drought issues here also. **One stream here has completely dried up where fish used to swim up and spawn**, years ago tried to dig a trench to help restore water and begin that process again for fish to go up the stream, but it didn't take. Another stream here is in great threat due to erosion and is also a source to our drinking water supply.

There were times when couldn't land helicopter, you have to travel to the coast to get cloud berries...not plentiful until up past **Bethel**...Most houses are built on stilts you have to restabilize more every year or so, securing gravel pads, had to do that before, but have to do that more frequently now.

Southwest

Impacts on Navigation & transportation. Impacts to traditional lands and fishing and berries.

SW AK probably most places too, different time scales – low water levels in early summer reflecting previous 6 to 8 months of precipitation, while recent precipitation may be affecting berries and fuels for wildfire. Different direction things are going at the same time.

SW AK potential of low precipitation or low snowmelt impacts on marine environment and saltwater environment is something we need to look at as an aspect of drought in AK that could be quite important with increasing threat of nearshore hazards and impacts on ecosystem and communities.

Rate of glacial melt is so extreme in SW AK.

In the big rivers like the Kusko and Yukon, early summer river levels are driven by snow melt and not so much by recent precipitation.

In a recent study co-authored by the NPS Southwest Alaska Inventory and Monitoring Network, results indicate that sites where white spruce are already sensitive to warm or dry early growing-season conditions experienced the most beetle-kill, which has important implications for forecasting future mortality events in Alaska. For more information, see <https://www.nps.gov/articles/treeringisotopes.htm>:

Csank, A. Z., A. E. Miller, R. L. Sherriff, E. E. Berg, and J. M. Welker. 2016. Tree-ring isotopes reveal drought sensitivity in trees killed by spruce beetle outbreaks in southcentral Alaska. *Ecological Applications* 26:2001-2020.

The National Park Service and U.S. Geological Survey are leading a study of the consequences of changing glacial inputs on marine ecosystems in Kenai Fjords NP, to document and predict how climate change will be expressed in high-latitude coastal ecosystems.

Drought results in seeing streams/rivers low in general and impacting fish.

Berries

Berry production affected by years past (2 years for flowers to form fruit). Reports of good and bad berry production are insightful.

During drought people report seeing problems with berry production.

If we don't get great snowfall in the winter, we expect more drought like effects during the spring and throughout the summer. If we don't get great snowfall, we can also expect less berries.

Actions / Adaptations

Can other berry types from outside of the region be planted and will do better here?

More risk assessments for at-risk communities are needed to access more of the resources needed to adapt – risk assessments expensive though and require a vote from the people in the area, but without them can't get FEMA help.

The AK Statewide Threat Assessment - Nov 2019

<https://www.denali.gov/wp-content/uploads/2019/11/Statewide-Threat-Assessment-Final-Report-20-November-2019.pdf>