

# Sustaining Subsistence, Life & Culture as the Climate Changes

Climate change is here today and accelerating, transforming the land, waters, plants and animals of western arctic Alaska. Communities, tribal organizations, land managers, researchers and agencies will all need to work together to respond to these serious challenges, and where possible seize on new opportunities.

— Quotes below from participants in 2016 workshops in King Salmon, Unalaska, Nome and Kotzebue.

**“Freezing rain on snow; caribou and other creatures have trouble reaching food.”**

**“Streams are getting warmer and there’s less water – what will this do to salmon?”**

**“Seeing big changes where and when we find berries; berries are 5-10% of our diet.”**

**“More sun/less fog means less lichen for caribou.”**

**“Lagoons on Alaska’s western coast are pristine and incredibly biologically productive – not many of those left on our planet.”**

**“Starting to see strange insects, birds and mammals never before seen here.”**

**“Rivers are our roads. Channels are shifting and silting up; we’re losing our highways.”**

**“Look where villages are located: on bays, rivers, lagoons where there is best access to subsistence foods. These places are getting hammered by climate change.”**

**“We need soil information to project mass wasting locations along the coasts.”**

**“We’re going to have to move roads, fuel tanks, and maybe our clinic.”**

**“There is a lot more room to use the knowledge of fisheries skippers and other industry people.”**

**“Water is getting warmer, and we’re getting harmful algal blooms. PSP (paralytic shellfish poisoning) levels are rising; many traditional foods are inedible now.”**

**“Storms, water, ice, migrations – they’re all unpredictable. Sometimes we can’t get to where we always harvested subsistence food. We can’t plan hunting activities a week ahead of time, we can only plan 24 hours out.”**

**“Rivers are getting warmer and there’s less water – what will this do to salmon?”**

**“Seeing changing insect hatch; afraid this will impact timing of food for breeding birds.”**

**“Forests and shrubs are expanding north and west.”**

**“Are increases in nearshore spring salinity levels altering prey availability for salmon smolts?”**

**“Changing weather affects preserving fish – changes drying times.”**

**“Seal ice extent retreat”**

**“Growing season expansion (due to warmer temperatures)”**

**Seasonal Subsistence and the Changing Seasons**

**Winter**

**Spring**

**Summer**

**Fall**

## More Than Just Food: Family, Fitness, Identity, Community, Memory, Spirit

Subsistence is the heart of life of western arctic Alaska. This graphic, based on the UAF Native Knowledge Network, gives a generalized picture of foods used through the seasons, and how these seasons are changing. The value of subsistence life can’t be quantified, but picking one dimension: what’s a walrus worth? Most importantly, it sustains culture and community, but just as food a walrus provides about 500 pounds of high quality protein; the equivalent of approximately 800 less nutritional steak meals, which would cost \$6000-\$7000.

**“For us, it’s like someone moved the calendar by a month and nobody told us. We wonder what it must be like for the animals, plants and fish.”**

## RESPONSE TO CHANGE: “We have always been adaptive, resilient people”

For thousands of years, Alaska’s traditional cultures have shown remarkable resilience, applying a mix of ancient and new skills to adapt, survive and thrive. Sections below highlight emerging strategies to sustain lives and cultures in the face of climate change.

**WORKING TOGETHER TO TRACK CHANGE:** “We need to do a better job of bringing science back to communities, to let people know what is happening so we can see what to do to change ahead of time.”

- New, standardized protocols for local monitoring to better quantify change – one example is the State of Alaska’s “Stakes for Stakeholder” program, which sets up a simple, effective means for residents produce quantifiable, monitoring data
- New regional partnerships to blend traditional knowledge and formal scientific research
- Improved salmon monitoring to understand changing run times

**LIVING WITH RISING WATERS:** “Some of us are going to have to do things in new ways, make those calls ourselves, do things for ourselves.”

- New, mobile infrastructure; new styles of building; weather appropriate buildings
- “Moving villages costs \$100’s of millions, we need affordable portable solutions”
- Well outfitted, multi-use community buildings for short term emergencies
- Dispersed seasonal subsistence camps and shelters – “we’ve been nomadic in the past”
- A range of creative new energy sources, micro hydro, wind, solar – “not easy to move a tank farm”

**PROVIDING FOOD:** “Greenhouses and gardens may be one adaptation strategy but they don’t work everywhere. The land is our garden. That is what is preferred.”

- “Should we create seed banks for native plants, help establish naturally occurring berries?”
- “Turkeys are more cold tolerant than chickens - but bears will eat ‘em both!”
- “Grow food locally, re-establish tradition of household gardens; we’re growing potatoes in Teller!”
- Need new subsistence practices, equipment, and more flexible harvest regulations
- “The last couple of winters in Bristol Bay we’ve had almost no snow - you can’t use your snowmachine”