

# Impact of Climate Change on Alaska Native Communities



Alaska Native Science  
Commission

[www.nativescience.org](http://www.nativescience.org)

[www.nativeknowledge.org](http://www.nativeknowledge.org)

# Overview of Alaska Native Concerns

- Global Warming
- Abnormalities in Subsistence Foods
- Human Health
- Impact of Commercial and Sports Fishing
- Local Sources of Contaminants
- Outside Sources of Contaminants
- Changes in the Ecosystem
- Perpetuation of Culture



# Climate Change Affects Community Way of Life

- Alaska Natives have always expected fluctuations from year-to-year in weather, hunting conditions, ice patterns and animal populations, but since 1970's they have noticed many indications of major climate change.



# Climate Change Observations



- Parts of Alaska 4+ degrees hotter in last 30 years
- Permafrost becoming impermanent
- Glaciers retreating 15 percent every decade
- Hunters/travelers falling through thin sea ice
- Spruce beetles decimating forest areas
- Iditarod moved north due to lack of snow

# Impacts of Climate Change



- Shore erosion and wind patterns
- Ice conditions
- Seasonal characteristics
- Human populations

# Shore Erosion - Shishmaref



- Sea ice-free into December instead of Oct-June
- Severe storms more frequent in summer and fall
- Waves swept away fish and game drying racks
- Since 1977 one home lost and 18 relocated
- Sea gnawing away at airstrip
- Estimated cost to move \$120 million

# Erosion, Ice & Wind Patterns



- There have been a lot of changes in the sea ice currents and the weather. Solid ice has disappeared and there are no longer huge icebergs during fall and winter. The ice now comes later and goes out earlier, and it is getting thinner. The current is stronger and it is windier on the island. We had a bad hunting season with lots of high winds. Our elders tell us that our earth is getting old and needs to be replaced by a new one.

Jerry Wongittilin, Sr., Savoonga

# Ice, Precipitation & Weather Conditions



- Copper River – we've noticed that in the last 10 years that it doesn't freeze across like it used to. The temperatures are warmer. The lakes are drying up. Over the last 2 years, the water has been low in June affecting the fish run. Sockeyes are much smaller and so are hatchery fish.

Gloria Stickwan, Copper Center

# Ice & Temperatures

- This year our ice didn't last long because it was so thin. It made it dangerous to go out. There was open water between Wales and Brevig at Lost River. The ice at Wales when it forms - it goes out a quarter mile and forms a pressure ridge. The ice was very thin and rotted very early between the pressure ridge and the village.

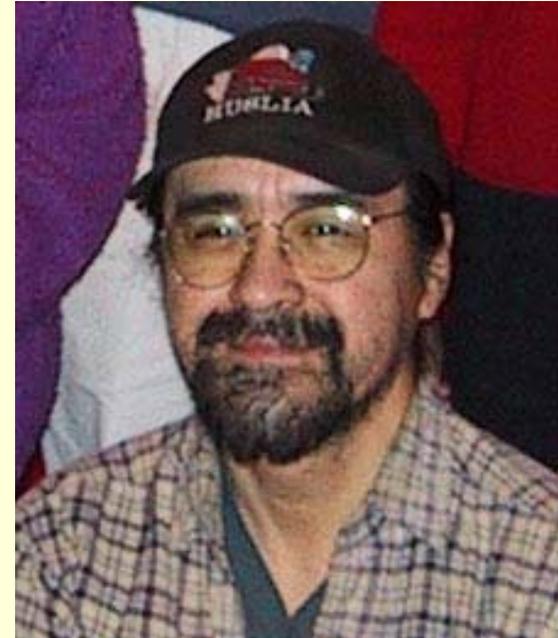
Ellen Richards, Wales



# Temperatures

- The temperatures - it used to get warm, but now it gets hot. There are droughts in some places. There are trees where there never used to be trees. The tree line is moving out where it didn't used to be. If contaminants are in the snow, then they are everywhere. They will contaminate fish. We're not going to walk around with a gas mask on; we're going to have to figure out how to live.

Orville Huntington, Huslia



# Seasonal Characteristics and Weather

- Last spring we got only six walrus because of the weather and ice moving out too quick. A long time ago it used to be real nice for weeks and even sometimes for months. Now we only have a day or two of good weather and this impacts our hunting. The hunters talk about the ice getting a lot thinner. It is going out too quick.



William Takak, Shaktoolik

# Seasonal Characteristics & Weather

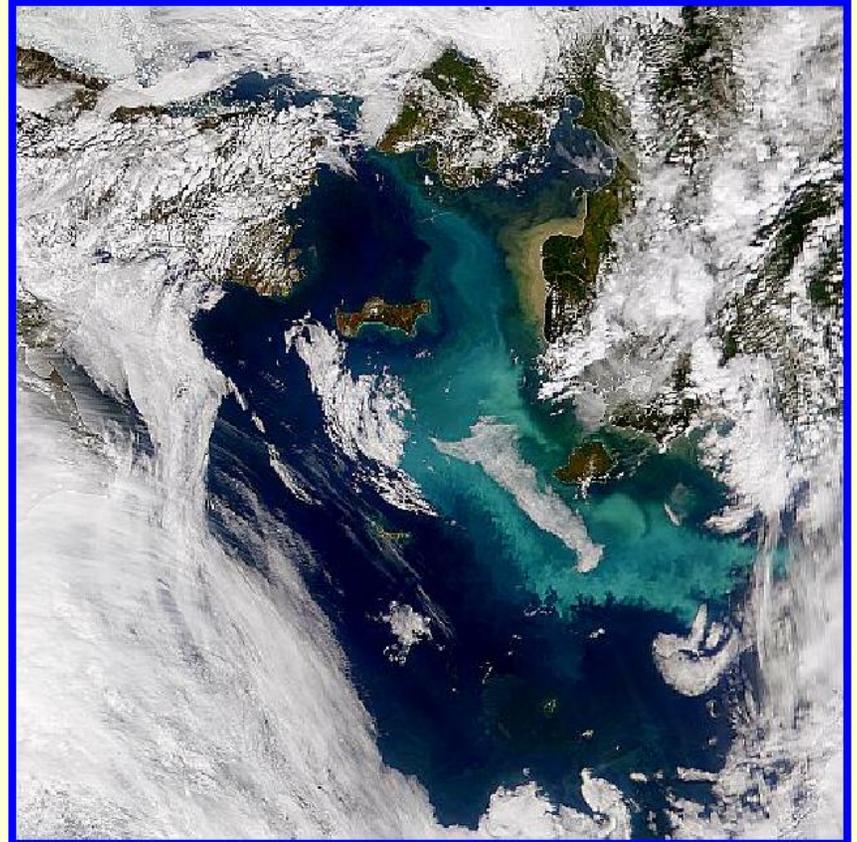


- The seasons are getting very fast and are all mixed up. The last few years my grandmother was living she said that there was not enough time to put things away like there used to be. When we are done with the willow leaves then comes the sourdocks. These seasons are in too much of a hurry now.

Hannah Miller, Nome

# Effects on Food Resources

- **Water temps affect phytoplankton and zooplankton growth, indirectly affecting fish and marine mammals**
- **Fish and marine mammals may change their distribution**
- **Changes in sea ice cover is a major cause**
- **Water temps may affect fish production**
- **Human harvests of species and environmental changes**



# What's causing these changes?

- We don't know, but we have some ideas about changes in climate:
- Changes in solar activity (7-17 year shifts with an average of 11 years plus a 22 year cycle)
- Changes in the position of the moon (18.6 year tidal cycle)
- Variations in the Aleutian low
- Atmospheric pressure “regime” shifts (20-28 years)



# Alaska lands and streams are also experiencing climate change



- Increased insect infestations in forests
- Increased risk of catastrophic wildfires in settled areas and in coastal forests
- Coastal stream changes affecting fish
- Thaw of large areas of permafrost
- More forested areas over long term

# Broad Impacts

- Climate change is already profoundly affecting the lives and culture of people who depend on traditional ways of acquiring and storing their food.
- The observations of Alaska Native people today not only mirror scientists' predictions but provide firsthand evidence that the effects are being felt now.



# George Noogwook

## “The Earth is Faster Now”



We cannot change nature, our past, and other people for that matter, but we can control our thoughts and actions and participate in global efforts to cope with these global climate changes. That I think is the most empowering thing we can do as individuals.