

# The Nome Nugget

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By:  
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A climate change workshop held in Nome last week brought together about 70 representatives from 15 Bering Strait tribal councils and communities, four nonprofits and 11 state and federal agencies. The gathering was funded and developed by the Aleutian and Pribilof Islands Association and three Alaskan Landscape Conservation Cooperatives: the Aleutian and Bering Sea Islands, Western Alaska, and Arctic. Landscape Conservation Cooperatives are U.S. Fish and Wildlife Service-funded public-private partnerships that address conservation issues.

The purpose of the workshop was to start a conversation between community members and state and federal agencies to create a “climate change resilience network.” The consulting firm of Agnew::Beck facilitated and gathered information for the workshop. Throughout the meeting, scientists presented data on the changing Alaskan environment and predictions for the future.

Residents of the region spoke about changes they have observed in the recent past, and how they impact their communities and lifestyles. The topics that were at the forefront of the meeting were: subsistence practices and culture, marine vessel traffic and sea ice changes.

Aaron Poe, Science Coordinator with the Aleutian and Bering Sea Islands LCC, said the point of the meeting was to get a wide variety of agencies and corporations in the same room with village leaders. Within the large group, he wanted participants to break up into smaller groups and have discussions about climate change. This way, different points of view and priorities were shared. Poe said he wanted it to be a select group so people would have a better opportunity to interact one-on-one.

The workshop was originally designed for 40 participants, but there was so much interest in the meeting the size nearly doubled. During future workshops, Poe said that he would make more time for individual sharing in small group discussions. “You get a general sense of these changes occurring from meetings, but when you hear people describing what is happening day-to-day, it just makes it that much more meaningful,” he said.

In addition to small group conversations, what made the meeting unique was the diversity of the attendees. Employees from the Federal Emergency Management Agency, the University of Alaska, the State of Alaska and NOAA don’t often come into direct contact with one another, Poe said. The meeting gave all these agencies the opportunity to have discussions with each other and with local leaders. “The Coastal Resiliency Workshop has given us (the Coast Guard) just an excellent opportunity to meet with local communities and learn directly from them what would be some of the major impacts to ultimately help us prepare,” said Matthew Mitchell, Chief of Planning and Force Readiness at the US Coast Guard Sector Anchorage.

## Presenting data

During the morning of the first day, several research scientists presented information about changes that have already occurred in Alaska and what future changes are in store. Nick Bond with the National Oceanic and Atmospheric Association spoke about changes in ocean characteristics, such as temperature, salinity and current flow. As the ocean warms, Bond said, water temperature has increased and the magnitude of currents and water salinity have decreased.

The warmer water paired with warmer air temperatures results in less sea ice, which has an impact on marine mammals and hunters. Delbert Pungowiyi of Savoonga said that historically subsistence hunters had been able to predict the hunting season about a year in advance. Now, that is impossible, he said, because of the “powerfully dramatic changes” the climate is undergoing.

“In climate change there are winners and losers,” Bond said. Animals that are not dependent on sea ice will thrive. The animals that need ice, such as walrus, will decrease. According to Bond, it is necessary to determine how quickly the animals will be impacted, and to determine what to do.

John Walsh, co-director of the Alaska Center for Climate Assessment and Policy, addressed changes in weather patterns. He said the Center conducted interviews with residents from the Nome region about the emerging trends and changes they have noticed. In his presentation,

Walsh compared the reoccurring points from the interviews with scientific data. The four main takeaways from the interviews were that sea ice is thinner, more mobile and forms later; winters are windier and have less snow and more rain; lakes are drying up and summers are dustier and permafrost is thawing at an accelerated rate.

Data confirms what North Western Alaska residents already knew, or at least suspected. The ocean is freezing later and the ice is melting sooner. Bond pointed out that there will still be ice and there will still be heavy ice years. The years with a heavy sea ice will just be fewer and farther between.

The melting ice is a mixed bag for the Arctic. The open transportation routes allow for more traffic and increased economic opportunities, but the more traffic raises the probability for oil spills. “The basic idea is that there’s going to be a lot more ship activity and we need to be ready for that,” Bond said. Mitchell spoke about the oil spill response training the Coast Guard held in Kotzebue last year. The Coast Guard taught local people how what to do in the case of a disaster. Another training will be held in Nome next month.

From 1907 through 2016, Nome’s temperature has increased by an average of three degrees Fahrenheit per decade. There has not been a clear trend as far as storm frequency, but there have been far more storms at times when the ocean is still open. The sea ice acts as a buffer between the water and the coast, protecting villages from water damage. Without that layer of protection, coastal communities are more vulnerable. Tim Stettinger with the Native Village of Solomon pointed out that he has noticed an increase in storms during the month of November, a time when the ocean is usually still open.

Winter precipitation totals have seen a seven percent decrease over the past 109 years. Future winters are predicted to be warmer and wetter, with more freezing rain. Walsh said this could be harmful to species such as caribou that will have trouble accessing a food source shrouded in ice. Winter temperatures will also change dramatically. From 1971 through 2000, Nome had an average of 39.6 days per year below -8°F. From 2070 until the end of the century, there are expected to be only 2.5 days below -8°F each year.

Summer precipitation has decreased by 10 percent since 1907. Walsh said that the shrinking lakes that residents mentioned could be due in part to melting permafrost as well as the lack of precipitation. It is predicted that future summers will be longer and warmer. There will be more precipitation, but also more evapotranspiration. This will cause warmer water temperatures in streams, which may be detrimental to species of fish that prefer colder environments.

The ocean and its ecosystem are obviously being impacted by the warming trend, and the land is not far behind. Jeremy Littell, Lead Research Scientist with the Department of the Interior’s Alaska Climate Science Center, spoke about terrestrial changes and what Alaskan residents can expect over the next few decades. By 2100, Littell said, areas on the Seward Peninsula currently covered in tundra will be well on their way to becoming a boreal forest. Spruce trees will begin to appear.

The tree cover, along with the warmer and longer summers, will raise the probability of fires. The likelihood of large tundra fires is predicted to be as much as four times higher than it currently is. Walsh said that summers like 2015, which was considered a large burn year by Alaska standards, are 50 percent more likely to occur than they would have been without the industrial revolution.

During the afternoon of the first day, participants were divided into eight groups to discuss four topics. The idea was for conference attendees to look at each poster, compiled by Agnew::Beck, and talk about what should be added, clarified or removed. The posters covered four subjects: marine environments; changes in coastal environments; future changes in Alaska's coastline and a framework for adaptation; and possible impacts to people, culture and food security.

Poe said his hope is that the posters will be widely distributed, and that they will tell a well-rounded story of climate change and its impacts in Alaska. The posters will help both regional residents and resource managers gather the information and tools they need to respond to the issues climate change presents. Poe believes they can help decision makers in Washington D.C. understand why certain villages need funding for erosion, "so we can point to the poster and say 'This is why.'"

Poe hopes the posters will find homes on walls of high school and university classrooms.

### Worth preserving

Also in small groups, participants discussed which elements of the community and environment are especially at risk, and what is most important to preserve. The environment, the subsistence lifestyle, and culture are all endangered, as are many homes. In the face of these drastic changes, participants voiced the need for residents to start a conversation about the reality of relocation, the need for communities to work with outside agencies about their futures, and the need to better explain to the outside world what the subsistence lifestyle means.

Wales resident Clyde Oxerok, like many hunters, was concerned by the extreme variability of the weather. When hunters venture out in the ocean to hunt marine mammals and get caught in bad weather, they need to decide whether to risk their own lives in the storm or to dump the meat into the water and possibly be fined for wasteful take. "It seems like we can't plan 24 hours in advance anymore, the weather change is so bad," Oxerok lamented. Animals are also changing their migration patterns and times, so hunters need to travel farther and farther away to get their food.

"We've been able to survive because sharing is a critical aspect of our culture," Rose Fosdick of Kawerak said. Her group discussed the importance of developing systems for local economic control. She said it was importance that small family businesses and fisheries take priority over large companies.

## Creating a toolbox

During the second day, representatives from various entities presented about their current and upcoming projects. They asked for community feedback on the tools used to measure and predict climate change.

Rhonda Sparks from the Defenders of Wildlife said that, though she has coordinated meetings with the U.S. Fish and Wildlife Service, there is a noticeable lack of local input. “How do we combine local subsistence knowledge with a response plan to help the environment and wildlife?” Sparks asked. To go along with Mitchell’s speech, she emphasized the importance of training local community members to respond in the case of an oil spill, because they will almost certainly be the first on the scene.

Two speakers, Jaci Overbeck with the State of Alaska Department of Natural Resources Division of Geological and Geophysical Surveys Coastal Hazards Program, and Joel Reynolds, Science Coordinator with the Western Alaska Landscape Conservation Cooperative, spoke about tools to measure coastal erosion. Using aerial photography, Overbeck said the DNR tracks the rate of shoreline change in several Alaskan communities. This tool can predict what the coastline near a community will look like several decades from now, which helps residents prepare for the future. Reynolds added that tracking coastal deterioration is also helpful for managing agencies to know which areas are particularly susceptible to erosion so they can prioritize which areas could possibly be awarded funding.

The Nome workshop is the first of four to be held around Alaska this year. Poe said future workshops would build off of the Nome session. “I think of it as a project with 300 contributors,” he laughed.

The final result will be a hard cover book and a jump drive with all of the information on it. The book, referred to as a toolbox, will be separated into three sections. The first is information and data, such as statistics about climate change, the second section will be the posters, and the third will be different actions and strategies communities can take. “We’re trying to roll up all the knowledge and information into something that is more representative of Western Alaska as a whole,” Poe said. The goal is for the toolbox to be published in the spring of 2017.

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