LOOKING FORWARD, LOOKING BACK

Building Resilience Today

Training Two Report

International Arctic Research Center

Fairbanks, Alaska

January 28-30, 2020

BUILDING RESILIENCE TODAY PROJECT TEAM

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All photos by Molly Tankersley unless otherwise noted.

Suggested Citation:
Chase, M., K. Heeringa, J. Littell, R. Toohey, and M.Tankersley, editors. 2020. Looking Forward, Looking Back: Building Resilience Today Training Two Report. *Aleutian Pribilof Islands Association*. Fairbanks, AK. 26 pp.

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Acknowledgments

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Qanirtuuq, Incorporation - Annie Roach

Village of Kotlik - Philomena Keyes, Victor Tonuchuk Jr., and Bernadine Keyes

Kotlik Yupik Corporation - Lorrena Prince

Native Village of St. Michael - Michelle Snowball and Darlene Chiskok

City of St. Michael - Harold Hawkins and Frank Myomick

Village of Iliamna - Rhonda Wayner, Nick Johnson, Louise Anelon, Lary Hill and Dwight Anelon

The *Looking Forward, Looking Back: Building Resilience Today (BRT)* project was hosted and supported by the Aleutian Pribilof Islands Association. Additional support and capacity was provided by the United States Geological Survey (USGS) Alaska Climate Adaptation Science Center.

The BRT project team was happy to welcome additional community team members to Training Two. Each of the five community teams contributed time, effort and observations. The project team sincerely thanks the community team members for their dedication and involvement in the Building Resilience Today project.

As the BRT project evolved, the Community Partnership for Self-Reliance offered the generous in-kind support of Krista Heeringa, who assisted with the overall project, and worked with Lewis Amik III, the Kwigillingok Community Lead, to complete a Healthy Harvest Survey for the community. We are grateful to Nathan Kettle for his work on the evaluation of this project.

For their expertise and willingness to assist with the training, we thank our training presenters: Princess Johnson, Hajo Eicken, LaVerne Demientieff, Elena Sparrow, Katie Spellman, Nancy Fresco, Rick Thoman, Noor Johnson, Matthew Druckenmiller, Jeremy Littell, Danielle Meeker, Adelheid Herrman, Sara Smith, and Enei Begay.

We are thankful for the support provided for Training Two from: Maria Stowe, Jaylene Hoelscher, Karen Pletnikoff, and Suanne Unger from the Aleutian Pribilof Islands Association, Inc., and Mimi Lesniak from the Alaska Climate Adaptation Science Center.

The University of Alaska Fairbanks Alaska Center for Climate Assessment and Policy, the Alaska Climate Adaptation Science Center, and the Tribal Liaison Program, which is affiliated with BIA's Tribal Resilience Program, provided additional funding and in-kind support for the training.

We would like to thank the BIA Tribal Resilience Program for funding this project, Award #A18AP00231. The views and conclusions contained in this document are those of the authors, supported by the U.S. Geological Survey, but should not be interpreted as representing the opinions or policies of other U.S. Government organizations. Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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ALEUTIAN PRIBILOF ISLANDS ASSOCIATION

IARC
International Arctic Research Center
University of Alaska Fairbanks

AK CASC
Alaska Climate Adaptation Science Center

Training Two Background

The *Looking Forward Looking Back: Building Resilience Today* Training Two is the final training in a series of project engagement events with the partner communities of St. Michael, Kotlik, Kwigillingok, Quinhagak, and Iliamna. Training Two Report provides an overview of the activities and information presented during the training, which took place at the International Arctic Research Center in Fairbanks, Alaska, January 28-30, 2020. Training One Report provides an introduction of the project, description of the project structure, and an overview of the activities and information covered in that training. Between Training One and Training Two, the project team traveled to, and worked individually with, each partner community to support the community teams with engaging their leadership and community members on climate issues and planning. This included identifying areas of concern, species of concern, and documenting community observations that could assist in further climate adaptation planning efforts.

Objective

The main objective of Training Two was to increase the awareness of tools, resources, and approaches for climate adaptation planning and decision-making.

Training Two Participants.

View from the International Arctic Research Center.

Opening and Welcome

The training opened with a brief welcome and recognition of the significant and difficult climate impacts that have taken place globally. Since Training One took place in April 2019, there have been devastating wildfires in Australia, flooding in Venice, Italy, and salmon and seal die-offs in Alaska. Remembering and showing respect towards profound loss of life and sense of grief that comes with loss is important among Alaska Native people and is guided by cultural protocols. Time was spent at the beginning of Training Two reflecting on the significance of these losses and acknowledging the feelings associated with these losses.

Presenter: Princess Johnson, Neets'aii Gwich'in

Member Climate advocate, and creative producer of Molly of Denali

princesslucaj@gmail.com

Princess Johnson provided opening comments, followed by a song that honored the grief felt over the loss from recent climate events. In this song, she envisions a healthy world we and future generations live in, and our ancestors whom we bring with us wherever we go. Sung in the Gwich'in language, Princess translated the song's meaning;

"Our ancestors, they watch over us…Time goes on and on and we go along with it, our children, our land it provides for us…".

Princess Johnson singing during Training Two.

Presenter: Hajo Eicken
Director of International Arctic Research Center (IARC), University of Alaska Fairbanks
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Hajo Eicken presents to BRT participants.

In his welcome, Hajo highlighted the increasing interest in the Arctic at the international scale. He acknowledged the importance of collaborating with communities in the Arctic, emphasizing the increasing need to look towards rural communities for better understanding on how to serve the Arctic as a whole.

Facilitating Training Two - Group Process

To facilitate group learning, Training Two started by:

- **Reviewing Group Agreements:** An overview of group agreements adopted from First Alaskans Institute
- **Acknowledging different Learning Styles:** Different learners have different preferences in how they take in new or complex information (see sidebar in Training One Report).
- **Emphasizing the Significance of Stories:** Stories are a traditional way of teaching among Alaska Native and other Indigenous people. Storytelling has also been identified as a best practice in climate communication. Training Two incorporated three Alaska Voices mini-audio recordings.
- **Identifying the Different Languages in the Room:** Training participants, guest presenters and facilitators participated in a listen-pair-share icebreaker to encourage introduction and share their thoughts around the languages in the room. The purpose of this activity is to acknowledge and be aware that there are several "languages" used in working together, and to help each other understand concepts and ideas that not everyone involved may be familiar with. These languages include:
    - Native or ancestral language, which may be actively used, or used as a second language learner
    - Commonly-used language - English
    - Academic language
    - Climate science language
    - Language related to technology


BRT participants during the listen-pair-share icebreaker.

Individual and Community Strengths and Resilience

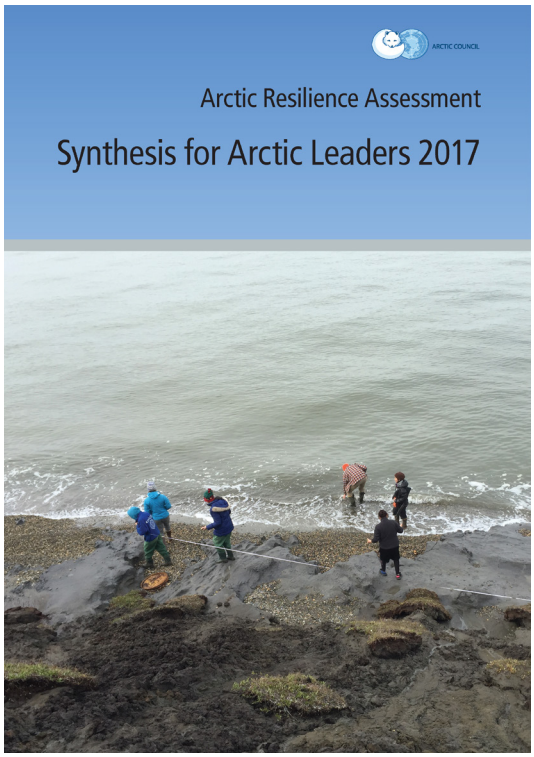
Resilience

We all have an idea of what resilience means, despite the many different definitions. We probably all can agree on a core definition –that resilience is the ability to bounce back from changes or stressors. We will face challenges within the next few decades. We need to look back and look forward to address these challenges. Past experiences have taught us how to be resilient. Everything we are bringing to the table is going to help us prepare to be resilient.

– Jeremy Littell, USGS BRT Project co-lead

Jeremy Littell works with BRT participants.

Arctic Leadership and Resilience – Key Messages



Presenter: Malinda Chase, Deg Hit'an Tribal Member
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https://mediamanager.sei.org/documents/Publications/SEI-2017-Arctic-Resilience-Synthesis.pdf

In 2017 the Arctic Council wrote a report for Arctic leaders called the *Arctic Resilience Assessment: Synthesis for Arctic Leaders 2017*. This report provides recommendations for Arctic leaders and policy makers to consider that will increase resilience and capacity to *effectively navigate rapid, substantial, and potentially disruptive changes in the Arctic.*

To harness changes that support the well-being of northern peoples, this report emphasizes the critical importance of local leaders whose active engagement is central for *building resilience.* Based on the recommendations from this report BRT participants were asked to reflect on the following question as they went throughout the adaptation training:

How are you, as local leaders (including staff), going to help strengthen, maintain, or increase your community's ability to manage change and stay together as a distinct People?

Arctic Resilience Assessment: Synthesis for Arctic Leaders 2017 Report:

- Integrates key findings from the 2016 Arctic Resilience Report.
- Aims to inform Arctic leaders at different scales; local, regional, national, and Arctic Council.
- Identifies where action can be taken to build resilience at different scales.

The report names three key actions to enhance Arctic resilience:

1. *Integrate social and ecological monitoring using a systems perspective.*
2. *Strengthen knowledge integration.*
3. *Increase the capacity of Arctic people to engage with, respond to, and shape change.*

Planting the Seeds: Historical Trauma and the Influence of Culture on Resilience, Hope, and Wellness

Presenter: Dr. LaVerne Demientieff, Deg Hit'an Tribal member

Associate Professor, School of Social Work, University of Alaska Fairbanks

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Alaska Native Peoples have experienced tremendous change, cultural decimation, and profound upheaval through contact and colonization. These changes have included disease, land dispossession, exploitation of resources, loss of spiritual and family practices, and an imposed governance and education system. These collective experiences have resulted in trauma experienced broadly among individuals, communities, and generations. The impact of this trauma on individuals and communities can result in internal stress, self-imposed isolation or addiction, and a general lack of engagement or contribution to the community.

Trauma disconnects us from these circles. How can we rebuild connections?

Figure courtesy of LaVerne Demientieff.

To address underlying trauma, LaVerne's presentation explored the influence of strong culture on resilience, hope, and wellness. Honoring the strength and resilience within yourself, community, and culture is a way to move forward into healing and wellness. Healing and wellness influence a community's capacity to have difficult conversations and make challenging decisions. This capacity is all the more important when facing challenges like climate change with resilience. LaVerne shared the following strategies for building resilience that are rooted in strong culture:

- Honor relationality - Relationality is to understand what relationships are important and valued for the people and communities you work with. Strive to see and draw connections with the people and the natural world. Honor and call attention to the reciprocal relationships we are in, rather than disconnecting to protect ourselves from the trauma we may be managing.

- Highlight and build on strengths - Recognize and acknowledge the strengths in one another. Focus on the positive contribution of individuals and groups in the community.
- Create feelings of safety and construct safe spaces - Ask yourself, as a community member and leader, *"How do I or we create safe spaces to have hard and needed conversations?"*
- Share self-regulation and co-regulation tools - Seek tranquility or inner peace. Self-regulation is using skills to help calm your nervous system such as deep breathing, walking, or reflective thought, like meditation. Co-regulation is when we help others calm their nerves by the way we relate to them and the activities we do together. In order to have calmness on the outside, there has to be calmness internally. Watch for signs from the animals or natural world, like *The Quiet Duck*, which is a story of noticing the duck nestled and asleep in the middle turning lane of a busy city street. This duck chose to trust and to take care of itself, right where it was, even amidst all the noise.
- Start from a place of ancestral knowledge and values - Maintain, strengthen, or intentionally re-introduce traditional practices and knowledge in daily life.

Dr. LaVerne Demientieff presenting to the participating communities.

To heal trauma and disruption, nurture the Five C's in your work:

Compassion, Curiosity, Connection, Community, Ceremony

How do these play out in the work that you do?

Compassion –

The practice of compassion and love are often missing or underused in daily work. When the impacts of trauma on the brain, body, and behavior are understood, it is easier to have more compassion and patience, which builds a sense of safety and trust. Love is an essential part of that process. Indigenous Elders often show a deep love for people, even if they don't know them. Including Elders in public events and spaces like classrooms can have a significant impact. Elders can express love and care, and that can transform a group or experience. Self-compassion and self-love are something to learn and may require time. The more we learn to do this, the more patience we have. Once learned, we can even extend that compassion to others and to the land.

Curiosity –

People are constantly learning and asking questions. It is easy to focus on the negative by asking, what's wrong with you. Try instead to ask, what's *strong* with you? This can be done with a sense of curiosity. Curiosity is about understanding the whole person; individuals are multifaceted and complex human beings, who are influenced by the world, including the past, the present, and the future. We have to be critical thinkers and explorers as we work toward healing and wellness with individuals and communities. Elders often highlight the importance of education and lifelong learning, which is important for this process.

Connection –

All of the social challenges we face, like addiction, anxiety, anger, fear or suicide, create disconnection in our lives and in our world. With trauma, we often pull away from our families, communities, our culture, our bodies, and ourselves. We numb ourselves in order to not experience grief or loss. For Indigenous

people the health of the land is connected to the health of the people, and conversely the health of the people is intertwined and significantly connected to the health of the land. There is a lot of disconnection in the challenges we and the earth are facing today. People are not at the table because they do not have a relationship with the natural world. How do we begin to help people connect to one another and the land?

Community –

When Elders talked about community, there was a beauty about it. They talked about going eeling together and all the times they would get together for different reasons. Elders want to continue bringing the community together. Healing happens within relationships.

Ceremony–

Wilson Justin, a prominent Elder from the Ahtna region, said Indigenous people would not be here today without ceremony in our lives. Ceremony helped us stay in balance, and connected us to spirit, bringing us together, even in grief. Dealing with intense emotions is difficult but can be learned. Self-regulation and co-regulation practices can help regulate our emotions and bring us back into balance that enhances self-awareness, self-care, and community-care. Ceremony links us to spirit, our ancestors, and generations coming. We can incorporate ceremony in multiple ways and all types of work.

Considering Climate Impacts on One Species: A Berry Scenario

Katie Spellmen leads the berry exercise.

Presenter: Dr. Elena Sparrow, Education Outreach Director, IARC

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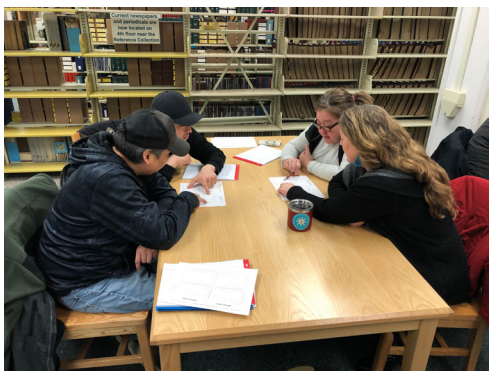
Presenter: Dr. Katie Spellman, Research Assistant Professor, IARC

klspellman@alaska.edu

Scenarios in our daily lives

People use scenarios all of the time in daily life when we decide to pursue an activity, like berry picking. Planning for the future is a skill. We regularly consider different scenarios we may encounter and bring along items that we may need in case we encounter those conditions. For example, if we go berry picking we may think to ourselves, "What do I bring with me?" In Alaska, we may bring a gun because of bears or bug dope in case we encounter mosquitos. We may also bring buckets, lunch, rain gear, and our children. Just like we use scenarios to consider things we might need or encounter while berry picking, we can use scenarios to consider how we might respond to a different climate future.

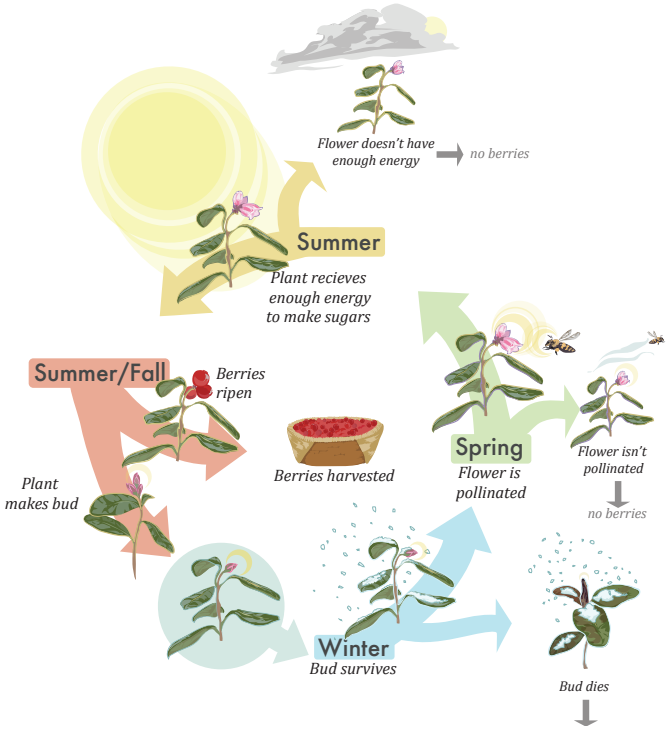


BRT community teams participate in the berry exercise. Photos: Malinda Chase

Scenario question

Elena and Katie worked through a single-species scenario focused on berries with BRT participants to explore the impacts of a changing climate on species of concern (e.g. plants, animals, fish, and birds that Alaska Native communities rely on). They started the exercise by asking,

"What might happen to my favorite berry if the temperature and amount of rain or snow increased?"



[1] *Megan Perra, designer.*

Considering Science Data

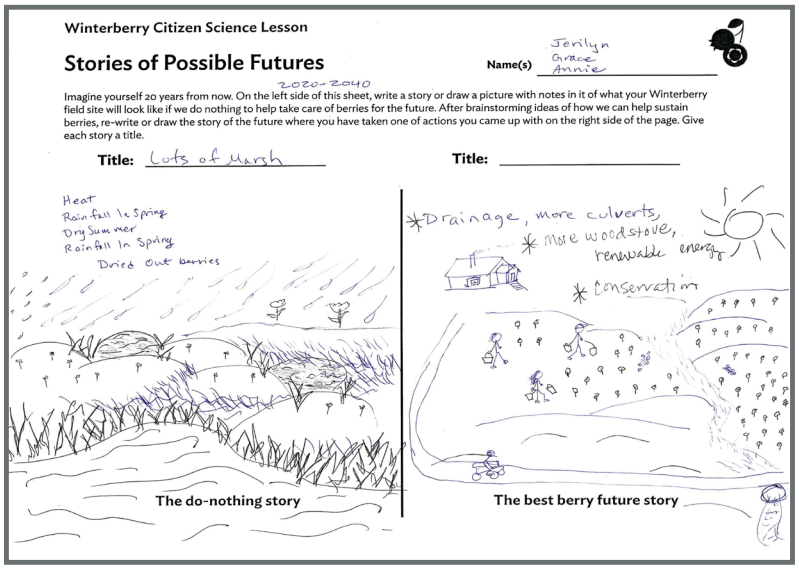
Participants looked at and compared Alaska blackberry graphs in Scammon Bay, St. Paul, Shageluk, and Shishmaref. They were encouraged to consider the importance of interpreting the graphs and the need for stories to help understand the changes they saw in the data. For example, the data in one community showed a decline in total berries. However, this was a result of migratory birds passing through and eating berries.

Scenario Activity

Imagine two possible future scenarios for berries:

1. Imagine the future if we do nothing to respond to the impacts of climate change and draw a picture of the do-nothing story.

2. Imagine the best berry future story where there are berries for your children, grandchildren, and great grandchildren, and draw a picture of that future.


Winterberry Citizen Science Lesson

Stories of Possible Futures

Name(s) Jerilyn Grace Annie

2020-2040

Imagine yourself 20 years from now. On the left side of this sheet, write a story or draw a picture with notes in it of what your Winterberry field site will look like if we do nothing to help take care of berries for the future. After brainstorming ideas of how we can help sustain berries, re-write or draw the story of the future where you have taken one of actions you came up with on the right side of the page. Give each story a title.

Title: Lots of Marsh

Title:

Heat
Rainfall In Spring
Dry Summer
Rainfall In Spring
Dried Out berries

*Drainage, more culverts,
* more woodstove, renewable energy
* conservation

The do-nothing story

The best berry future story

Results of the Scenario Activity from the Quinhagak community team.

Scenario to Adaptation Action: List three things you can do, to work towards the best berry future. BRT Participant ideas included the following actions:

- Move to higher ground
- Create a greenhouse just for berries
- Making some kind of space in community for berries
- Find new sites to gather berries
- Save and gather information from Elders of where berries are
- Habitat protection and conservation/education; today you see damage from ATVs
- Stop using the claw berry pickers
- Utilize renewable energy
- Drainages, more culverts

[1] *This infographic was developed in collaboration with Lindsey Parkinson, for her dissertation work titled, "Resource limitation and trade-offs in blueberry and low-bush cranberry production in Interior Alaska"*

Introduction to Climate Projections

Presenter: Dr. Jeremy Littell, Lead Scientist, U.S. Geological Survey Alaska Climate Adaptation Science Center

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Considering The Climate We Know Versus The Climate We Need to be Prepared For

Quinhagak, AK.
Photo: Jeremy Littell

Climate varies naturally, in some years it is warm, in other years it is cold. There can be wet years and dry years. Warming or cooling trends can last for decades, and then change. The climate is different from place to place. Closeness to the equator, elevation, the influence of the oceans, mountains, or big lakes all influence the climate of an area. We all have experience with and an intuitive feel for these variations.

The climate is changing most places in the world. We know that it is changing faster in Alaska than many other areas. However, we don't know exactly how it will change, especially for a specific place at a specific time in a place as big, variable, and diverse as Alaska. Recent experience tells us we can't assume the future climate will be like the past. For adaptation planning, we need something that will help us understand the potential rapid change in the future that can serve as a warning sign and provide guidance for making-decisions.

Climate Models and Climate Model Output

Climate models put together the main parts of the climate system on Earth to simulate the climate using computers. That's where the climate projections provided in the BRT Community Reports come from.

Often, more than one climate model is needed to determine the range of conditions that could occur in the future for a region. Some models are the best at simulating precipitation for a region, while others may be better for projecting temperature changes. The Intergovernmental Panel on Climate Change Fifth Assessment Report published in 2014 relied on more than 40 models from the World Climate Research Program. In order to simulate the average climate conditions in Alaska, we need five to eight models that do a good job of representing this region.

Jeremy Littell presents climate projections for Quinhagak.

Future Climate Scenarios

Representative Concentration Pathways

Even if the climate models perform well, there are uncertainties in future climate projections. For instance, we don't know how much carbon dioxide and methane will end up in the atmosphere. One approach is to use our best guesses about how global policy and economies will change and estimate a higher amount and a lower amount and an intermediate amount to get a reasonable range. These are called Representative Concentration Pathways, or RCPs. Using the RCPs, climate models can project what conditions would be like under each scenario. These scenarios cover a range of risks, from a moderate rise in global average temperature compared to now (known as RCP 4.5) to a much higher increase in average temperature (known as RCP 8.5).

Risk

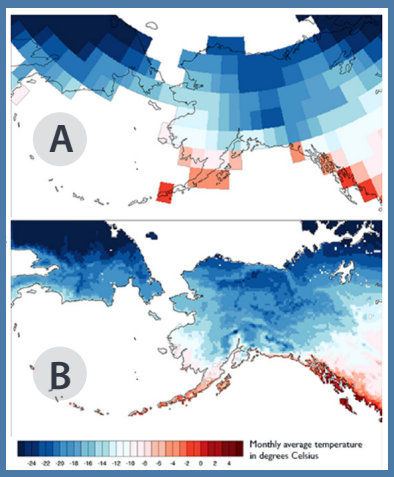
Preparing for the scenario in which there's a greater amount of temperature increase is what is called "risk avoiding." It means trying to prepare for, or avoid, the higher risk impacts from that amount of change. Preparing for the low end, with less warming and smaller impacts, is known as "risk tolerant"; it means accepting the increased risk that more change could occur than was planned for.

We can choose future climate scenarios to address these different levels of risk. We might choose a model under a higher emissions scenario to represent the largest impact we want to prepare for, and a model under a lower emissions scenario to represent the lower end of impacts we can expect. To get an idea of what is most likely, we could use a range of several models under both the higher and lower emissions scenarios. This presentation highlighted how the five climate models and two RCPs (4.5 and 8.5) were combined to illustrate the projected changes in the community regions.

Uncertainty in Climate Projections

Projected changes due to climate change are sometimes less and sometimes more than the natural variability in climate that we're familiar with. There will always still be natural climate variability, so we need to plan for the projected trends in temperature increase and the year-to-year variability!

In all cases, these changes are large compared to the natural climate variability we've observed between 1976 and 2005. A process called downscaling has been used to make these projections more relevant to areas important to Alaska communities, and all the map projections provided in the BRT Community Reports and the SNAP tool on community climate changes make use of the downscaled projections.



What is downscaling?

Downscaling is a process of taking coarse, global scale climate models (A) and using historical climate observations to refine them to a local scale (B). A single grid cell of a global climate model can span 60 miles, which can be ineffective for local-scale planning efforts and decision making.

The process of downscaling makes projections more locally relevant, but it introduces more uncertainty. For example, historical climate in Alaska was measured at far fewer weather stations than a comparable area in the lower 48 states, and so there are larger areas with no actual historical measurements. The observed climate for these places is developed from the data from the nearest weather stations and any other available environmental information needed to simulate temperature and precipitation.

Tools and Resources Covered in BRT Training Two

The training provided an opportunity for the BRT participants to practice locating and exploring various tools and resources available online from ELOKA (Exchange for Local Observations and Knowledge of the Arctic), SNAP (Scenarios Network for Alaska and Arctic Planning) and the National Weather Service while working in groups at a computer lab. Participants also had the chance to review their specific community climate projection data.

Exchange for Local Observations and Knowledge of the Arctic (ELOKA): Managing Community Information and Data

Presenter: Noor Johnson, Research Scientist, ELOKA
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Presenter: Matthew Druckenmiller, Research Scientist, ELOKA
druckenmiller@nsidc.org
https://eloka-arctic.org/

As Arctic communities increasingly develop or participate in gathering local knowledge and establish their own community-based monitoring efforts, the need to store, manage and access the information arises. ELOKA promotes collaboration between Arctic People and researchers that recognizes and respects Indigenous Knowledge and data sovereignty; builds capacity and networks; and, partners with Indigenous communities to develop custom data management systems to create usable tools like websites and atlases for the community. Collaborating with ELOKA includes: 1) a partnership, 2) community ownership of information and data, and 3) increasing community capacity to manage their own data.

ELOKA websites and atlases can be used for:

- Documentation and preservation
- Education, storytelling and sharing information
- Planning, decision making, and management
- Land negotiations, designations, or claims
- Local practical uses

Dr. Noor Johnson presenting to participating communities.

As communities plan for and address environmental change, they may want to consider how to arrange, represent, and make accessible that information. Questions to consider include:

- What kind of information would be helpful to have in a digital atlas that would support adaptation planning and decision-making?
- What information resources exist that could be used?
- Who in your community might find an atlas useful? How might they use it?
- What kinds of skills and training would be useful for community data management and/or digital atlas development?

Scenarios Network for Alaska and Arctic Planning (SNAP) Online Tools

Scenarios Network
FOR ALASKA + ARCTIC PLANNING

Presenter: Dr. Nancy Fresco, SNAP Network Coordinator and Associate Director
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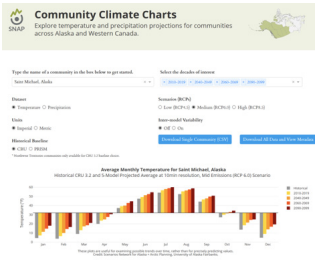
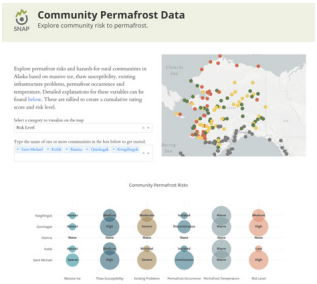
https://www.snap.uaf.edu/tools



Community Climate Charts: Temperature and Precipitation

This tool has historical observations and modeled future temperature and precipitation projections by decade for every community in Alaska. SNAP data shows that temperature changes tend to be greatest in winter. However, later freeze-up and earlier thaw may prove to have the greatest impacts on Alaskan communities.

https://snap.uaf.edu/tools/community-charts



Community Permafrost Data

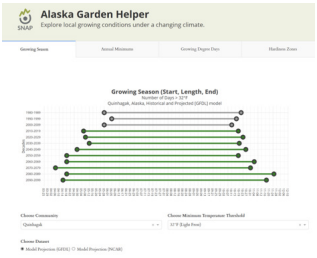
This tool allows users to select one or multiple communities. This tool shows where permafrost occurs, its temperature, areas that are susceptible to thaw, and where existing problems are located. Many of these variables are linked, which inform the overall risk level. For example, where permafrost has already been lost, risks are generally considered low. This may be the case for Kotlik.

https://snap.uaf.edu/tools/permafrost

Historical Sea Ice Atlas

This online map and animation tool shows historical sea ice extent for every month and year from 1850 to the present. It can be animated to show change over time by month or by year. Notable declines in sea ice extent began and have continued since the 1970s.

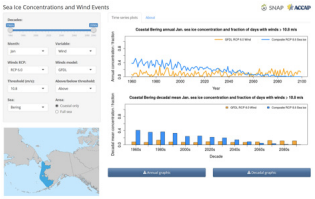
http://seaiceatlas.snap.uaf.edu/explore



Alaska Garden Helper

Although designed for gardeners and farmers, this tool provides useful projections of warm season length and extreme winter cold – variables that also affect natural ecosystems. Users can select their community and can view several tools and temperature thresholds. Summer season length will continue to be highly variable but on average will expand into the shoulder seasons. The coldest winter temperatures are projected to become much warmer.

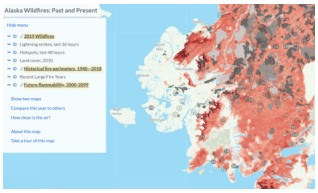
https://www.snap.uaf.edu/tools/gardenhelper/



Sea Ice and Wind

This tool explores the interactions of wind and ice. Users can select a sea, like the Bering Sea, and generate graphs for selected months and time periods. Outputs for wind are highly variable and may not indicate clear patterns of change. Outputs for ice show obvious severe declines that are ongoing and expected to continue into the future.

https://uasnap.shinyapps.io/sea_ice_winds/



Wildfire in Alaska

This tool explores past and future fires statewide. You can zoom into specific areas and turn different map layers on and off. Map layers include fire scars from the past 80 years, wildfire activity from the past year (2019), and modeled map layers of future flammability. Fire models show that in the future, tundra areas that have had little or no history of fires will see an increase due to hotter temperatures and expansion of shrubs and trees. Smoke from fires can affect areas that are not themselves fire-prone.

http://mapventure.org/#/map/fires

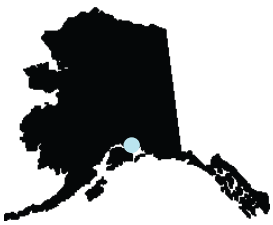
National Weather Service Forecasting Centers

Presenter: Rick Thoman, Alaska Climate Specialist for the Alaska Center for Climate Assessment and Policy

rthoman@alaska.edu

Rick Thoman presents during Training Two.

Anchorage Forecast Office



The Anchorage Forecast Office is responsible for weather forecast (now to 7 days) and warnings area south of the Alaska Range except for the Panhandle, the Bering Sea coast south of Scammon Bay, including lower Kuskokwim, Bristol Bay, Alaska Peninsula, Pribilof Islands, and Aleutians. The office also provides marine forecasts for Bering Sea from St. Matthew Island southward and western Gulf of Alaska.

https://www.weather.gov/afc/

Email: anchorage.weather@noaa.gov

Fairbanks Forecast Office

The Fairbanks Forecast Office is responsible for weather forecast (now to 7 days) and warnings area north of the Alaska Range, including the Bering Sea coast Scammon Bay northward, including lower Yukon, Seward Peninsula, Northwest Arctic, North Slope and all of the Interior. The office also provides marine forecasts for the Bering Sea north of St. Matthew Island, Bering Strait, U.S. portions of Chukchi and Beaufort Seas.

https://www.weather.gov/afg/ email: fairbanks.weather@noaa.gov

National Weather Service Mobile (NWS)

NWS has a mobile (phone) friendly webpage. The user can add a specific location and then bookmark on your phone. Note: It is best to type the community name. Zip codes may or may not give the expected location.

https://mobile.weather.gov/

Climate Prediction Center (part of NWS)

The Climate Prediction Center provides outlooks from two weeks to one year in the future. Unlike weather forecasts, outlooks provided are relative to normal (below, near, and above).

https://www.cpc.ncep.noaa.gov/

Community Climate and Impacts Projections

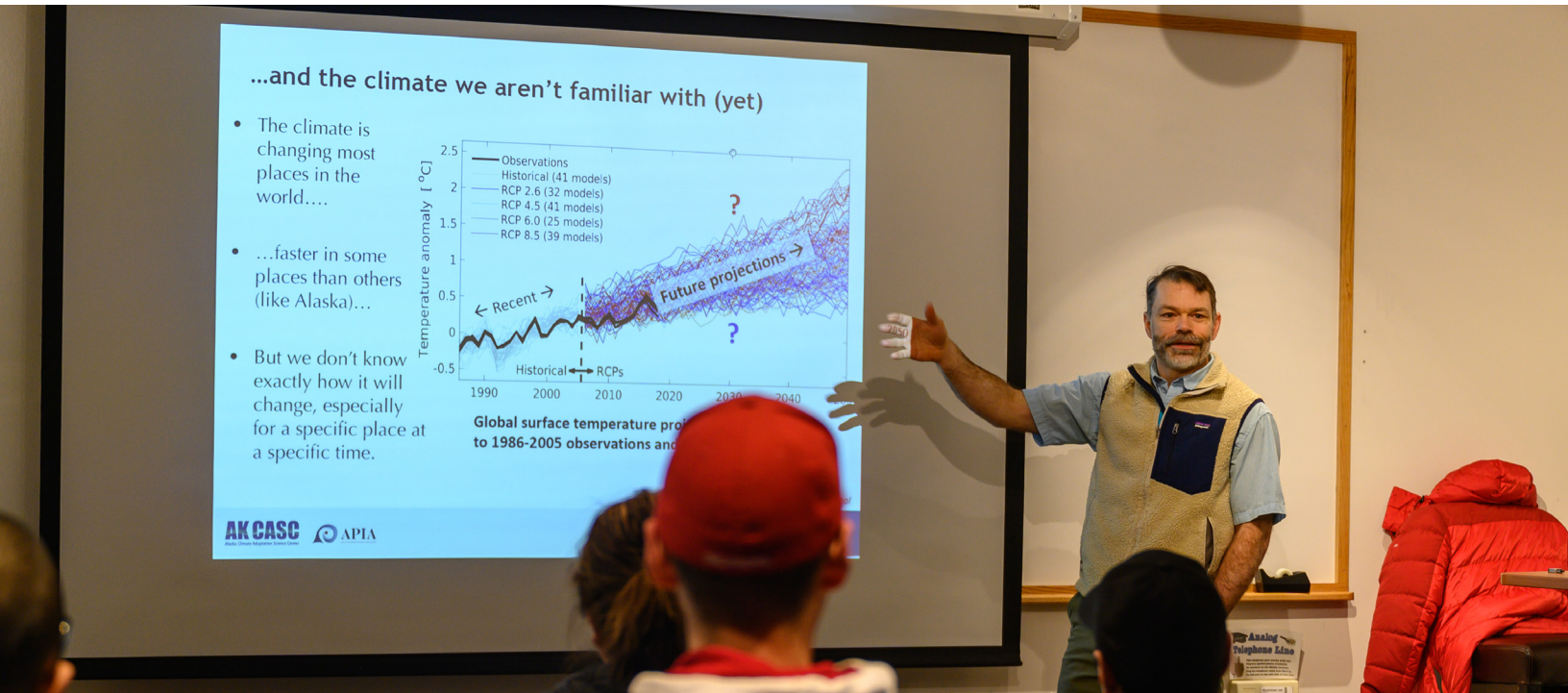
Presenter: Dr. Jeremy Littell, U.S. Geological Survey Alaska Climate Adaptation Science Center

jlittell@usgs.gov

Future climate projections for the regions of interest and/or Traditional Use Areas of each community were mapped and summarized for Iliamna, Kwigillingok, Kotlik, Quinhagak and St. Michael prior to Training Two. These projections were assembled with brief narratives of the likely changes in climate (annual and seasonal temperature, precipitation, and snowpack) and ecosystem (permafrost thaw, fires per century, vegetation changes) impacts from the Alaska Integrated Ecosystem Model. Projections for multiple climate models and emissions pathways were provided.

Communities were invited to review the maps and projections and provide feedback as well as ask questions about the underlying information. The maps and summaries in the BRT Community Reports incorporate these suggestions where possible.

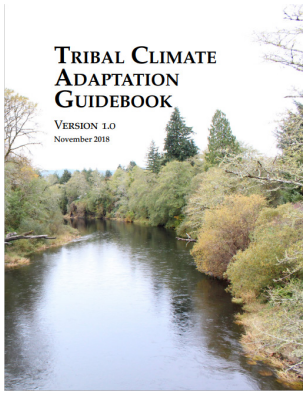
Jeremy Littell gives a presentation on climate models.



Iliamna participants review adaptation plans.

Considering Approaches to Adaptation Planning

There are several ways that Tribes can approach adaptation planning. The *Tribal Climate Adaptation Guidebook* provides a detailed table of the approaches, along with the advantages and disadvantages, and examples of each approach. An overview of various types of adaptation plans followed by a planning approach activity gave participants the opportunity to analyze and identify the type of approach being taken in existing tribal plans.



Overview of Climate Plans, Tools, and Strategies

Presenter: Danielle Meeker, Research Assistant

Alaska Center for Climate Assessment and Policy

demeeker@alaska.edu

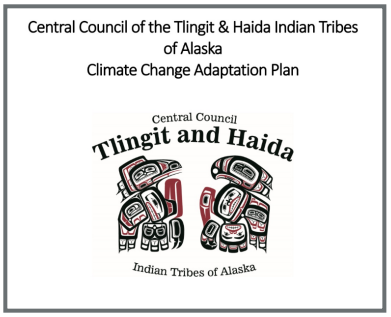
Pektayiinata = We are Resilient
Oscarville Tribal Climate Adaptation Plan
Oscarville Traditional Village, Oscarville, Alaska

Oscarville Tribal Climate Adaptation Plan

This collaborative planning effort between communities and agencies is an example of a holistic approach to sustainable northern communities. This plan is divided into three main sections that include: where we are from, where we are now, and where we are going. The planning process included community-led discussions, gathering data including maps and histories, analyzing data, setting goals, developing strategies, and determining implementation steps. A list of priorities was included in the Oscarville plan. High priority planning areas focused on those impacting food, water, and shelter. Priority projects identified included integrating wind and solar, building an incinerator, constructing a multi-use building, and a boardwalk.

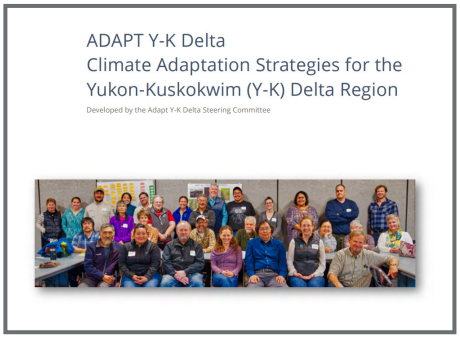
Central Council Tlingit and Haida Climate Change Adaptation Plan

This plan includes planning priorities that affect 16 Tribes between Yakutat to Ketchikan. The first planning workshop was held in 2015. During this planning process 12 important cultural resources and areas of concern (salmon, shellfish, cedar, forage fish, seal, seaweed, etc.) were identified. The ease of implementation, community support, timing of action, partnerships required, and the cost were all considered for species and areas of concern identified during the planning process. In 2019, the executive council approved the plan and template. Central Council Tlingit and Haida hope to host an annual workshop to update the goals in their plan.



Adapt Y-K Delta

This planning effort included 56 Tribes in the Yukon-Kuskokwim Delta Region. This plan lays out a 100-year vision for three focus areas including food security and harvest practices, community infrastructure, and trails and transportation. Specific climate change impacts that are identified include flooding, thawing permafrost, sea level rise, and loss of sea ice.



Planning Approach Activity

Five community adaptation plans, such as Oscarville, Nome, and others, were handed out. Each community group was asked to convene and discuss the plan they received and answer the following questions:

- What planning approach does this plan use?
- Does the plan invest in tribal members to carry out the work?
- What planning actions does this plan use that you might be interested in?
- Do they identify partners and/or funding sources?

Adapt Alaska Website

The Adapt Alaska website outlines an adaptation process and an evolving collection of Alaskan adaptation plans and resources, including the plans highlighted during BRT Training Two.

https://adaptalaska.org/

A Tribal Climate Adaptation Menu

Presenter: Sara Smith, Oneida Nation

College of Menominee Nation and Northeast CASC, Midwest Tribal Liaison

ssmith@menominee.edu

Tribes across the US are developing their own adaptation strategies based on tribal knowledge, language, beliefs, values, and worldview like the plan developed by Anishinaabe called *Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu*. This menu is a collection of climate change adaptation actions for natural resource management. While many of the existing solutions to climate change reflect dominant cultural paradigms, this tribally-developed tool builds upon the Tribe's original instructions about the importance of human and non-human relationships. The actions in the menu are based on the strengths of the Anishinaabe. It can be used as a framework for other Tribes to create their own climate change strategy menu.

https://toolkit.climate.gov/reports/dibaginjigaadeg-anishinaabe-ezhitwaad-tribal-climate-adaptation-menu

Building Tribal and Individual Capacity

With Alaska's climate warming at least twice as fast as other areas of the world, Alaska Native communities are experiencing rapid and profound change. Elders and local leaders recognize the need to develop, maintain, and strengthen local capacity to respond and adapt. Many tribal communities that are implementing adaptation strategies are faced with making difficult decisions related to relocation and complex natural resource management contexts. Tribes that cultivate and retain long-standing environmental or natural resource staff, develop their own expertise, knowledge, and capacity. This results in strong partnerships, realistic action, and solutions that increase local sustainability and resiliency. Tribal communities can actively support individuals willing to participate in resource management decision making that impacts food security. Tribes can also identify the workforce needed to implement actions in tribal adaptation plans.

NCAI Tribal Workforce Development: A Decision-Framing Toolkit

Presenter: Adelheid Hermann, Village of Naknek, Post-Doctoral Researcher

Alaska Center for Climate Assessment and Policy

acherrmann@alaska.edu

The National Congress of American Indians developed a Workforce Development Toolkit to assist tribal communities in their education and training efforts to help community members gain the skills and experience necessary to meaningfully contribute to their community. This toolkit is a resource that outlines common workforce challenges for Tribes, along with key discussions, questions, and policy recommendations. This document can assist Tribes with writing project and proposal development language.

http://www.ncai.org/ptg/workforce-development/toolkit

Tribal Fish and Wildlife Management

Presenter: Carrie Stevens, Associate Professor

Tribal Management Program, University of Alaska-Fairbanks

cmstevens@alaska.edu

The University of Alaska Fairbanks, Tribal Management Program offers degree programs and courses in Indigenous Self-Governance and Tribal Management, with concentrations in Environmental and Natural Resource Management, Tribal Governance and Law, Tribal Planning, Tribal Transportation, Community and Economic Development, and Community Health and Wellness. The Tribal Management Program partners with entities that seek to build the capacity of their tribal and community members to actively address fish and wildlife resource management issues and tribal land stewardship, which impacts food security. Courses are available that focus on increasing the capacity of tribal members to participate and have a voice in the State of Alaska Board of Game and Board of Fish and Federal Subsistence Board planning and decision-making processes.

https://uaf.edu/tribal/

Building Coalitions of Individual and Collective Action – A Just Transition

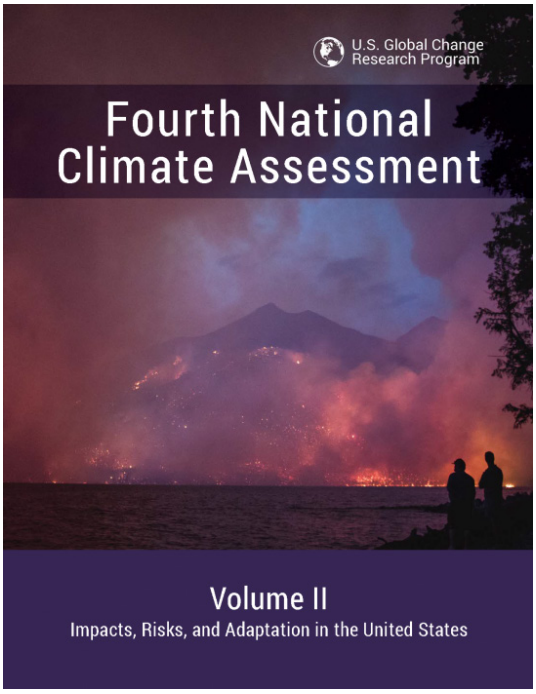
Presenter: Enei Begaye, Diné & Tohono O'odham, Executive Director Native Movement

Just Transition is a grassroots people movement that recognizes the need to work with individuals and groups, such as Tribes, businesses, faith-based groups and others to create coalitions of dynamic change. In January 2020, Alaska had its first statewide *Just Transition Summit*. Native Movement, which is a Native non-profit that supports people to build coalitions for broad change, coordinated the summit with other partners. The summit brought together people from across the state including educators, union workers, government, and tribal leadership. Discussions focused on bridging work across sectors, and building individual strength and collective action to ensure that people who have been marginalized are at the forefront of shaping change and proactively transitioning to a new renewable economic model. https://www.nativemovement.org/

Key Messages:

1. Transition is inevitable since fossil fuels are finite; a just transition needs to be intentional to address systems of power and inequity.
2. Work with individuals and create partnerships with Tribes, organizations and entities to build broad coalitions for collective action and change.

Addressing equity, justice, culture and other critical areas in adaptation is a key message in the Fourth National Climate Assessment.



Adaptation Chapter 28, Key Message 4:

Proactive adaptation initiatives—including changes to policies, business operations, capital investments, and other steps—yield benefits in excess of their costs in the near term, as well as over the long term. **Evaluating adaptation strategies involves consideration of equity, justice, cultural heritage, the environment, health, and national security.**

How Can Information in the BRT Community Reports be Used?

Planning is a process that supports community decision-making that is based on shared values. In addition to plans that specifically focus on climate change adaptation, there are a range of plans that focus on assessing, mitigating, and responding to natural hazards. There are also a wide range of planning activities that cities and Tribes actively engage in that may or may not include climate considerations.

The *Building Resilience Today* Community Report documents traditional areas of interest, key subsistence species, community observations of environmental changes, and climate projections based on modeled data. While the information compiled through the BRT project does not represent a complete planning process, it can be used within a variety of planning activities, proposals, and public comment.

Integrating into Existing Plans or Assessment Activities

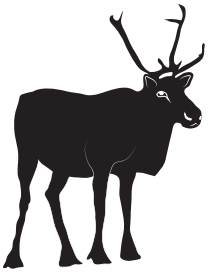
Presenter: Krista Heeringa, Coordinator for Community Partnerships for Self-Reliance

kmheeringa@alaska.edu

Local Plans

Many communities or organizations have existing community, programs, or business plans. These plans are guiding documents that often need regular updates. Community leadership can review existing plans for areas that may be impacted by current or future climate impacts. This is referred to as mainstreaming climate considerations into existing plans. This does not require the community or tribe to go through a full and new planning process, but to integrate the climate projections for the local area and community plans that already exist.

BRT participants analyze adaptation plans.



For instance, the City of St. Michael has an existing community plan that includes a section on local reindeer herding. The City of St. Michael may review their community's climate projections and consider how current climate impacts, like extreme weather or rain-on-snow-events, may impact local decisions about food security and management of the herd. The city can then proactively plan and respond to these potential impacts. The city can consider what the city's role is in supporting local food security in relation to any future climate-related stress on reindeer herding in the future.

Regional Plans

Alaska is naturally and politically divided into many regions and subregions. Regional and sub-regional Alaska Native tribal entities that share a landbase, watershed, culture, or political ties, are collectively planning to address common adaptation concerns. Central Council Tlingit and Haida Climate Change Adaptation Plan and the YK Energy, Environment, Economy are examples of regional planning efforts. The BRT communities may want to explore ways to link their local adaptation plans and actions with existing regional plans and strategies.

St. Michael BRT participants.

State and Federal Plans

State and federal programs frequently require that specific planning documents are created in order to access federal funding. Incorporating climate considerations in existing program planning templates can help your community move climate adaptation priorities forward, even if a climate change adaptation plan has not been completed. Examples of plans where climate change adaptations can be moved forward include the EPA Tribal Environmental Plan (ETEP), Hazard Impact Assessment, FEMA Hazard Mitigation Plan, and Small Community Emergency Response Plans.

Philomena Keyes

Develop an Adaptation Plan or Climate Impact Assessment

Presenter: Philomena Keyes, Resilience Coordinator

Native Village of Kotlik

pkeyes82000@gmail.com

The Kotlik Adaptation Plan was funded through the Tribal Resilience Program under the BIA. The community of Kotlik documented Traditional Knowledge and worked with other partners to assess the impacts to their community of Querriluk (Kotlik). The Kotlik Adaptation Plan combined with the BRT Community Report provides a strong foundation for a climate change adaptation plan or climate impact assessment. Each section of the BRT Community Report (Traditional Use Area, Subsistence Calendars, Local Observations, and Community Climate Projections) can be used in a local adaptation plan or climate vulnerability assessment. The Kotlik Adaptation Plan is an example that integrates this compiled information in their plan. The *Tribal Climate Adaptation Guidebook* provides further direction on the process of developing and writing an adaptation plan.

Develop a Vulnerability Assessment

The BRT Community Report highlights *areas of concern, species of concern, and observations of environmental change*. The BRT Community Report identifies the land area and plants, fish, birds, and animals that are important for subsistence activities and cultural connections. This document may provide a useful starting point for exploring which species or harvest areas are most susceptible to impacts from a changing climate. Like many places in Alaska, each of the communities involved with BRT has limited historical climate data. Therefore, community observations of environmental change can provide powerful qualitative data that describe areas for which there is no historical climate data. Observations of environmental change, such as the community members' observations documented by the BRT Community Report, also provide powerful, and perhaps more relevant or understandable descriptors of changes in physical parameters such as temperature or precipitation.

Develop a Food Security Assessment

Food security and sovereignty are of increasing concern in a rapidly changing climate. The BRT Community Report can be a useful starting point for a food security assessment. A food security assessment includes strategies for how your community will respond to changing environmental conditions that impact local and traditional foods. The Ruby Food Security and Sovereignty Assessment is a recent example completed in 2019.[1]

Use for Public Comment

Regulatory and policy decisions are frequently made at the state and federal level that directly impact Tribes and their traditional territories. Speaking on behalf of tribal concerns and priorities during these rule-making processes is important for ensuring traditional lands can sustain communities well into the future. Examples where public comment might be needed include: Bureau of Land Management (BLM) Land Use Planning and Permitting processes, Environmental Impact Statements affecting your area, and Board of Game and Board of Fish Management Decisions.

Kotlik and Kwigillingok BRT participants. Photo: Malinda Chase

[1]Ruby Food Security and Sovereignty Assessment provided to BRT participants in their LFLB BRT Training Two Community Binder. Also available by contacting the University of Alaska Fairbanks, Community Partnership for Self Reliance: https://www.snap.uaf.edu/projects/community-partnerships-self-reliance

Reference and Include in Project Proposals

Project proposals can be made more compelling by referencing and including specific climate impacts, projections, and documented local observations when applying for resources or funding for specific projects. Consider using the projections included in your BRT Community Reports in proposals such as the Bureau of Indian Affairs, Tribal Resilience Program Funding.

Additional Ways to Manage Community Information or Data

If BRT communities continue to plan for climate impacts and adaptation, they may want to consider how to store and manage community information. Traditional and local knowledge may exist in a variety of places as shown in the list of Places to Seek Traditional Knowledge in Training Report One. Tribes can continue to gather additional local and traditional knowledge, but will need to consider ways they will keep, store, and organize information so that it is accessible for planning and decision-making purposes.

Continue to Add to the Information Gathered

BRT partner community teams can continue to collect local observations and Indigenous Knowledge. Consider adding new observations with the date they were observed to the existing list of observations in your community report document. The community report can be a working document that includes new observations that can assist Tribes in evaluating climate impacts and change. In addition, Traditional Use Areas can always be redefined or remapped by the community. Subsistence Calendars can always be revisited to refine or look for changes over time to subsistence activities.

Develop a Community Database

Work with partners like ELOKA to develop a data management system for your community.
ELOKA's mission is to assist Arctic communities in storing, accessing, and retrieving their data or information in a system that works for them. ELOKA is willing and able to partner with Arctic Indigenous communities, so don't hesitate to reach out.

Kwigillingok participants look for available local information.

Ways to Keep Working on Climate Issues and Adaptation Planning:

- Form a community-wide planning team with representatives from each entity and key groups like Elders and youth to determine next steps or a direction to take.
- Hold quarterly meetings among all local entities in your community to discuss concerns and coordinate around common issues and planning goals. Decide to pursue or complete an adaptation plan or integrate climate considerations into existing plans.
- Post climate information and community concerns related to climate change on a community social networking page or organizational website.
- Raise concerns and revisit climate issues on a semi-annual basis.
- Establish working groups at the community or organizational level to address certain issues, like: food security; community-wide awareness of climate impacts; youth education on climate issues; or Elders', women's, men's, or artists' groups.
- Ask the BRT presenters for guidance in working with your community.
- Invite presenters to be a guest via audio conference during a regularly held community or council meeting.
- Partner with regional or statewide organizations, like the regional Native non-profit or statewide youth or community climate coalition, to link local adaptation plans and action to regional and statewide efforts.

BRT participants and leaders work through activities.