

Regional Engagement Workshop Summary Report: Alaska Region

Table of Contents

Introduction	2
The Alaska Regional Engagement Process.....	2
Overview and Topics of Discussion	2
Key Takeaways	2
Results	4
About the NCA	4
Appendix A: List of Alaska Regional Chapter Authors.....	6
Appendix B: Alaska Flyer	7



Introduction

The Fourth National Climate Assessment (NCA4), currently in development, will assess the science of climate change and its impacts across the United States. It will document climate change-related impacts and responses for various sectors and regions, with the goal of better informing public and private decision-making at all levels.

To ensure that the assessment is informed by and useful to stakeholders, engagement workshops were planned for each of the 10 NCA4 regions. These workshops provided stakeholders an opportunity to provide input to and exchange ideas with the chapter author team on key message formulation, share relevant resources, and give feedback on issues of importance to their region.

The Alaska Regional Engagement Process

Alaska held two stakeholder engagement events in February 2017, each approximately one hour in length. The first was an in-person event during the weeklong Alaska Forum on the Environment (AFE) conference and the second was a regularly scheduled monthly webinar by the Alaska Center for Climate Assessment and Policy (ACCAP). Both events attracted participants from the entire region and across a wide range of professions including students, scientists, NGO staff, and local and state government staff. The AFE event included about 30 people and the ACCAP webinar about 75. In addition to these events, several hundred two-page flyers (Appendix B) describing the Alaska NCA4 chapter were handed out at the Alaska Marine Science Symposium, which was held 23-27 January 2017 in Anchorage.

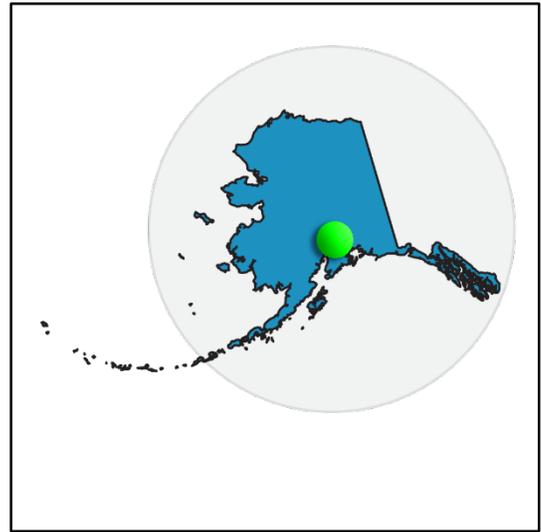


Figure 1. Map of the Alaska REW location: Anchorage, AK.

Overview and Topics of Discussion

Both events had a similar format. NCA staff member, Dr. Fred Lipschultz, presented an overview of the NCA process including the Key Messages from NCA3 for the region, followed by Alaska Chapter Lead, Carl Markon, describing the NCA4 draft focal areas. The speakers took questions about the presentation before posing a series of questions for the audience. In an open question-and-answer session, stakeholders were invited to provide comment to the author team and USGCRP staff on the report development process, as well as the substance of the Alaska chapter. To structure their responses and gain advice on targeted areas, stakeholders were asked a series of questions, detailed below.

Stakeholders were also given the opportunity to share thoughts on areas that were not covered by the previously-identified focal areas.

Key Takeaways

Stakeholders identified areas of opportunity and concern, case studies, and relevant regional information associated with each of the focal areas. This feedback was later distilled into key thematic takeaways for the chapter author team. These takeaways are summarized below.

What are the most pressing climate-related challenges or issues for your region that should be emphasized in NCA4?

- **What do we value/what is at risk?**
 - Recreational activities/tourism
 - Use of the ocean as a food source
 - Access to subsistence resources
 - Critical infrastructure: power plants, tank farms, water treatment facilities
- **What outcomes do we wish to avoid to these valued things?**
 - Reduced ability to fish and gather shellfish from cumulative impacts of ocean acidification/warmer temperatures/harmful algal blooms/productivity loss in plankton/warmer temperatures etc. on the larger ecosystem
 - Reduced size and catch size of salmon
 - Impacts that threaten subsistence resources: warmer ocean and air temperatures; northward movement of algal blooms; ocean acidification; changes to freshwater input; permafrost thaw; changes in sea ice extent, thickness, and timing; disease and contamination vectors changing; bottom-up effects on predator-prey interactions, prey availability; crossing ecological thresholds that would threaten subsistence food sources, etc.
 - Failure of critical infrastructure due to climate-related risk/events

What are some cross-cutting issues to consider for NCA4?

- Mental health is a critical issue; many variable impacts across the state and distinct aspects from what's been considered in the lower 48 (some on this in the Climate Change and Indigenous Peoples report)

Are there areas of concern (or opportunities) that are emerging, but are poorly understood?

- Terrestrial carbon: focus has been on the potential for carbon release from melting permafrost, but could other types of terrestrial carbon sequestration be an opportunity for Alaska? (will largely be considered in mitigation chapter, but could be a case study)

What types of information would be of most value to you when addressing these challenges or issues?

- Risks from cumulative impacts on ocean food webs are so big for coastal communities that it would be useful to have projections instead of just data on current impacts
- Soil profile of subsidence from permafrost melting along the North Slope; information on if/when these coastal communities will end up underwater
- Discussion of how existing ecosystems are expected to transition to new ecosystems as mapped by SNAPS
- Information on changes in patterns of important fish, such as Copper River red salmon
- Adaptation: specific guidance on engineering design specifications to meet changing temperature and precipitation conditions
 - Engineering societies, such as ASCE and ASME, as well as public works agencies (Corps of Engineers, Federal Highway Administration and State counterparts) are publishing guidance for engineers to incorporate climate change in planning and design of infrastructure

- Potential for increased flooding and erosion of major rivers (Yukon, Kusko, Susitna, Copper, Matanuska, Kenai) where they may impact communities
- Information on different timescales targeted to particular uses, e.g., the likely western deepwater port location in the next 50 years; loss of glaciers and change in precipitation for the 100+ year lifespan of a hydropower project; fisheries management plan over five years. Need support to justify engineering for future conditions and not just historical conditions.
- Energy transport in the northern Bering Sea
- NCA3 was light on actual on-the-ground adaptation actions; more case studies would be valuable

What (types of) case studies or examples would you like to see in NCA4?

- **Places where NCA3 was used to inform decisions**
- **Examples of successful adaptation or mitigation actions**
 - One of the Alaska Native corporations, through California’s cap-and-trade program, has preserved forested land for sale as carbon offsets; could be a large revenue source. (Chugach Alaska Corporation, December 2016 agreement: http://www.heraldcourier.com/news/business/alaska-natives-to-protect-land-for-california-carbon-program/article_7f80a790-c2e7-5662-a29a-d585a0fb5b6d.html)
 - Request for case study on assisted migration and ecological engineering that could protect subsistence lifestyles
 - Request for case studies of on-the-ground adaptation in practice rather than discussion of large-scale agreements/initiatives
 - Adaptation option: changing existing, prohibitive legislation for species releases or importation, as a potential climate change adaptation strategy, through ecological replacement or assisted migration (or at least discussion of current legal regime)
 - Activities undertaken by tribal entities, e.g. <http://www.forestadaptation.org/node/657> (this example is not from Alaska)

Results

The feedback provided during these two events serves as valuable input to the development of not only the Alaska chapter of NCA4, but of all chapters. This summary report is being shared with all NCA4 authors to inform the development of their chapters, as well. It will also be made publicly available on the NCA4 website (www.globalchange.gov/nca4). Over 100 stakeholders throughout the Alaska region participated in the two events, providing authors with a great deal of useful feedback – from concerns they face, to resources they use and specific case studies where communities are working to address the risks they face as a result of climate change. Responses from both authors and participants indicated that the workshop was not only positively received in and of itself, but it served to cultivate new relationships, research ideas and, hopefully, future collaborations across Alaska.

About the NCA

The National Climate Assessment is the U.S. Government’s premier resource for articulating the risks posed to the Nation by climate change, as well as what is being and can be done to minimize those risks. It is an inter-agency effort, bringing together experts from the 13 Federal agencies of USGCRP, the

broader Federal government, as well as hundreds of experts in the academic, non-profit, and private sectors.

Appendix A: List of Alaska Regional Chapter Authors

Coordinating Lead Author: Steven Gray, U.S. Geological Survey

Chapter Lead: Carl Markon

Authors:

Sarah Trainor, University of Alaska, Fairbanks

Molly McCammon, Alaska Ocean Observing System

Henry Huntington, The Pew Charitable Trusts

Matthew Berman, University of Alaska, Fairbanks

Contributors:

Robert Rabin, National Oceanic and Atmospheric Administration

Bruce Richmond, U.S. Geological Survey

David Driscoll, University of Alaska

Erin Whitney, University of Alaska

Heather Ward, U.S. Army Corps of Engineers

Harold Penn, University of Alaska

Jeremy Littell, U.S. Army Corps of Engineers

John Pearce, U.S. Geological Survey

Laura Eerkes-Medrano, University of Victoria

Lyman Thorsteinson, U.S. Geological Survey

Nathan Kettle, University of Alaska

Richard Thoman, National Oceanic and Atmospheric Administration

Jeff Hetrick, Alutiiq Pride Shellfish Hatchery

USGCRP staff:

- Fred Lipschultz, NCA Senior Scientist
- Alexa Jay, Science Writer

NCA4 Fourth National Climate Assessment Addressing Local and Regional Needs | Alaska

What is the National Climate Assessment?

Global Change Research Act (1990), Section 106:

...**Not less frequently than every 4 years**, the Council... shall prepare... an assessment which –

- **integrates, evaluates, and interprets** the findings of the Program (U.S. Global Change Research Program) and discusses the scientific uncertainties associated with such findings;
- **analyzes the effects of global change** on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and
- analyzes current trends in global change, both human-induced and natural, and **projects major trends for the subsequent 25 to 100 years.**

Our most recent National Climate Assessment was released in May 2014. Visit nca2014.globalchange.gov for more information.

Alaska in NCA3

View the full chapter:

nca2014.globalchange.gov/report/regions/alaska

Key Messages

1: Disappearing Sea Ice. Arctic summer sea ice is receding faster than previously projected and is expected to virtually disappear before mid-century. This is altering marine ecosystems and leading to greater ship access, offshore development opportunity, and increased community vulnerability to coastal erosion.

2: Shrinking Glaciers. Most glaciers in Alaska and British Columbia are shrinking substantially. This trend is expected to continue and has implications for hydro-power production, ocean circulation patterns, fisheries, and global sea level rise.

3: Thawing Permafrost. Permafrost temperatures in Alaska are rising, a thawing trend that is expected to continue, causing multiple vulnerabilities through drier landscapes, more wildfire, altered wildlife habitat, increased cost of maintaining infrastructure, and the release of heat-trapping gases that increase climate warming.

4: Changing Ocean Temperatures and Chemistry. Current and projected increases in Alaska's ocean temperatures and changes in ocean chemistry are expected to alter the distribution and productivity of Alaska's marine fisheries, which lead the U.S. in commercial value.

5: Native Communities. The cumulative effects of climate change in Alaska strongly affect Native communities, which are highly vulnerable to these rapid changes but have a deep cultural history of adapting to change.

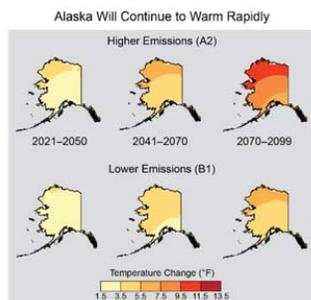


Figure: Northern latitudes are warming faster than more temperate regions, and Alaska has already warmed much faster than the rest of the country. Maps show changes in temperature, relative to 1971–1999, projected for Alaska in the early, middle, and late parts of this century, if heat-trapping gas (also known as greenhouse gas) emissions continue to increase (higher emissions, A2), or are substantially reduced (lower emissions, B1). (Figure source: adapted from Stewart et al. 2013).

Federal Coordinating Lead Authors & Regional Chapter Leads

Federal Coordinating Lead Authors (CLA) were nominated and selected through the Federal Steering Committee. CLAs coordinate with each other to ensure consistent treatment of their chapter issues throughout the assessment and liaise one-on-one with Chapter Leads.

Regional Chapter Leads (RCL) are non-Federal employees, selected by the Federal Steering Committee. RCLs select and direct regional authorship teams and are responsible for the development of each regional chapter.

The CLA and RCL for each chapter work in close collaboration and have complementary roles, ensuring that their topic is properly integrated horizontally throughout the report and vertically within their chapter.

Alaska Coordinating Lead Author

Steve Gray (sgray@usgs.gov)
U.S. Geological Survey

Alaska Regional Chapter Lead

Carl Markon (cjmarkon@gmail.com)

Alaska Region Points of Contact

Fred Lipschultz (flipschultz@usgcrp.gov)
Alexa Jay (ajay@usgcrp.gov)

Informing Local Decisions

While the National Climate Assessment primarily focuses on the needs of the Nation and individual regions, we recognize that adaptation often occurs locally. NCA4 will work to highlight examples of successful, local adaptation actions that can serve as case studies for the broader region or sector. NCA4 will also feature downscaled climate projections.

In addition, USGCRP contributes to several projects focusing on local information, resilience, and adaptation. For example, Climate Explorer, part of the U.S. Climate Resilience Toolkit (toolkit.climate.gov), allows users to explore historical and projected climate information at the county level.

Regional Workshops

We are working with our regional collaborators in each of the 10 NCA4 regions—including chapter authors, NCAnet member organizations, and regional science organizations—to develop a listening session in each region with a primary location and multiple satellite locations to minimize travel and maximize local stakeholder engagement.

Objective: To engage a broad array of regional stakeholders to understand what is of particular value in the region, how those things are at risk from a changing climate, and what can be done to minimize those risks

Feedback from Public Comment Period: Focus on risk, case studies, populations of concern (i.e., tribal & indigenous), adaptation actions, urban/rural considerations

Visit globalchange.gov/nca4 and follow us on social media to learn more about workshops in your region.



NCA4 Chapters

I: Overview

II: Our Changing Climate

III: National Analyses

- Water
- Energy
- Land Cover and Land Use Change
- Forests
- Ecosystems, Ecosystem Services, and Biodiversity
- Coastal Effects
- Oceans and Marine Resources
- Agriculture and Rural Communities
- Built Environment, Urban Systems, and Cities
- Transportation
- Air Quality **NEW!**
- Human Health
- Tribal and Indigenous Communities

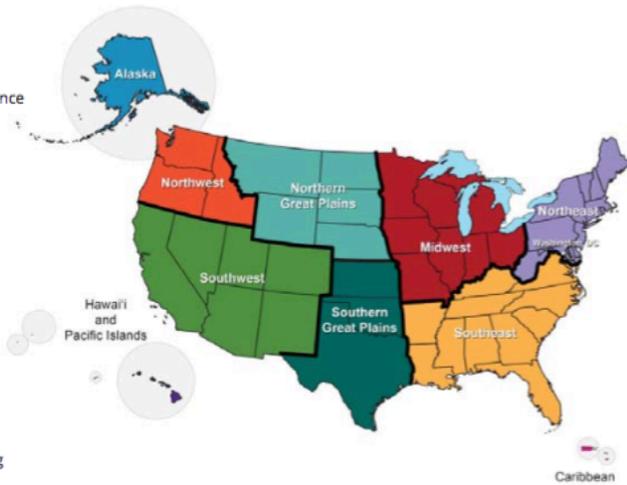
- North American and Other International Effects **NEW!**
- Sectoral Interdependencies and Compounding Stressors: The Science of Complex Systems **NEW!**

IV: Regional Analyses

- Northeast
- Southeast
- US Caribbean **NEW!**
- Midwest
- Northern Great Plains } **EXPANDED!**
- Southern Great Plains }
- Northwest
- Southwest
- Alaska
- Hawai'i and Pacific Islands

V: Response

- Near-term Adaptation Needs and Increased Resiliency
- Mitigation: Avoiding and Reducing Long-term Risks



NCA4 Milestones

All dates are tentative.

2017

- Jan 15** Technical inputs due
- Jan-Mar** Regional engagement workshops
- Jan-Sep** Drafting and initial reviews; author responses
- Sep-Jan 2018** Public and National Academies reviews

2018

- Jan-Feb** Responses to public and National Academies reviews; revisions
- Mar-Aug** Final reviews
- Sep-Dec** Layout and final production
- Dec 2018** NCA4 release

How to Contribute to NCA4

Public engagement plays a critical role in the entire NCA process. Here are some ways to participate:

Be a Technical Contributor

Chapter teams are already in place, but you may still be able to participate as a technical contributor. Contact the NCA4 team (see **Contact Us**) for more information.

Regional Workshops

We are working with our collaborators to develop a series of regional workshops. These workshops are expected to take place from January-March 2017, and are intended to gather information from local communities and stakeholders on topics of particular importance to the region. Please visit globalchange.gov/nca4 for updated information.

Be a Reviewer

A critical component of NCA4 success is a robust, inclusive, and transparent public review process. NCA4 is slated to be released for public comment in the Fall of 2017, but look for other opportunities to contribute along the way at globalchange.gov/notices.

NCAnet

We invite you to join NCAnet, a network of more than 190 organizations working with the NCA to engage producers and users of assessment information across the United States. Participants extend the NCA process and products to a broad audience through the development of assessment-related capacities and products. More information can be found at ncanet.usgcrp.gov.

Contact Us

Dr. David Reidmiller
Director, National Climate Assessment
dreidmiller@usgcrp.gov

Dr. Kristin Lewis
Senior Scientist, National Climate Assessment
klewis@usgcrp.gov

Tess Carter
Program Coordinator, National Climate Assessment
tcarter@usgcrp.gov

Dr. Fred Lipschultz
Regional Coordinator, National Climate Assessment
flipschultz@usgcrp.gov

More Information

- globalchange.gov/nca4
- contribute.globalchange.gov

- [@usgcrp](https://twitter.com/usgcrp)
- [@usgcrp](https://www.facebook.com/usgcrp)

