

1 CHAPTER 8. COMMON THEMES

2 Across the sectors, a number of common themes emerged for types of actions that will be needed in order to
 3 assist Alaska in adapting to climate change. These themes included needs for improving access to data, for
 4 community assistance, for coordination, and for education. Most of these themes are as relevant to mitigation
 5 as they are to adaptation.

Overview of Common Themes		
	Option Name	Level of Support
CT-1	Establish an Alaska Climate Change Knowledge Network	Unanimous
CT-2	Coordinate Implementation of Alaska's Efforts to Address Climate Change	Supermajority*
CT-3	Community Climate Impact Assistance	Unanimous
CT-4	Promote Climate Change Science Through K-12 Education	Unanimous

*Supermajority reflects one objection. One AAG member voiced support for the option but felt it imperative that the State Coordination function expand beyond the coordination of internal state efforts to a more active and explicit role in providing communities with assistance. The suggestion was that CT-2 and CT-3 be combined, to avoid creating a new entity.

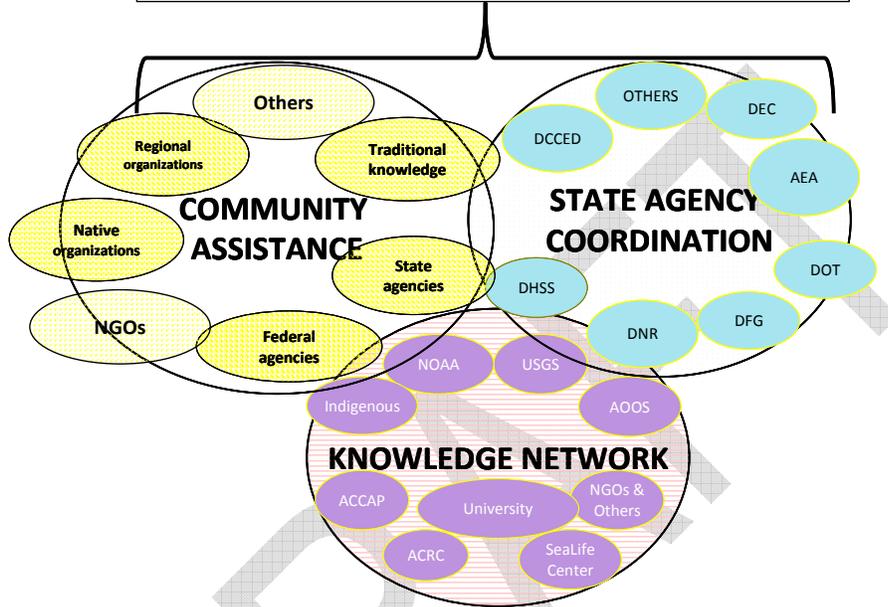
6 The recommendations fill a variety of needs that will greatly assist Alaskan efforts to address and respond to
 7 climate change, as illustrated in the figure below. In addition, the table below identifies how each of these
 8 recommendations helps to meet those needs.

Option	Short Option name	Type of option										Implementation				
		State interagency coordination	Community response and assistance	Data management	Access to data and "knowledge" sharing	Data collection (research, monitoring, observation, etc.)	Regulatory / programmatic change or addition	Assessment, evaluation, or planning	Capacity building, education, outreach	Direct or indirect financial assistance (e.g., tax incentives)	Capital improvements	Requires new institutions / government agency	Requires new staffing	Requires funding	Requires new legislative authority	Lead role for state government
CT-1	Establish a Knowledge Network	✓	✓	✓	✓			✓						✓		✓
CT-2	Coordinate Implementation	✓	✓					✓						✓		✓
CT-3	Community Climate Impact Assistance	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓

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Citizens, businesses, governments (local, state, federal, tribal), communities, associations, etc.

Information and Services to Aid in Responding to Climate Change



CT-4	Promote Climate Change Science	✓		✓			✓			✓		✓
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2 **Description of Common Themes Recommendations**

3 Box 8-1 provides an overview of the recommendations, which are described in more detail below. Research
 4 will be a critical part of these recommendations, as described in Boxes 8-2 and 803. The recommendations
 5 are also intended to build on existing public and private sector programs and activities as described in Box 8-4
 6 and 6-4. These boxes appear at the end of this chapter.

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Box 8-1. Overview of Common Theme Recommendations

CT-1 Establish an Alaska Climate Change Knowledge Network - This option recommends establishing an Alaska Climate Change Knowledge Network (ACCKN) to provide an effective collaborative means to manage data [and foster its use for adaptation](#). Where appropriate, the ACCKN would organize, consolidate, integrate, and archive data, information and knowledge related to climate change. They would serve as a point of coordination for NOAA's proposed Regional Climate Center in Alaska.

CT-2 Coordinate Implementation of Alaska's Efforts to Address Climate Change - This option recommends that Alaska's efforts to address climate change continue to be coordinated internally to ensure synergy among State agency efforts and unified and strategic interaction with federal agencies, and outreach and education.

CT-3 Community Climate Impact Assistance - An array of state, federal and regional entities are responsible for delivering services to Alaskan villages, rural communities, and urban centers, but specific policies and regulatory constraints produce conflicting directives that prevent the coordinated delivery of vital services that will enable endangered villages, traditional culture, and vulnerable communities to adapt in the face of climate change. Therefore, there is a need to establish a coordinating entity with the ability to navigate these multiple bureaucracies and to leverage their resources to support vulnerable communities in emergency response, relocation, subsistence concerns, and other priorities.

CT-4 Promote Climate Change Science Through K-12 Education - Promote development of curriculum and training to support climate change in education in grades K-12.

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2 CT-1 Establish an Alaska Climate Change Knowledge Network

3 Numerous activities are underway in various arenas to obtain data relevant to climate change in Alaska.
 4 Many agencies, organizations, and offices have responsibility for collecting, generating, and organizing data.
 5 Examples of these include: the Alaska Marine Ecosystem Forum, the Alaska Ocean Observing System
 6 (AOOS), the Alaska Center for Climate Assessment and Policy, the Alaska Climate Research Center, the
 7 National Oceanic and Atmospheric Administration (NOAA), the U.S. Geological Survey (USGS), the Alaska
 8 SeaLife Center, etc. Some of the existing data are maintained in online archives, while others are stored in
 9 file cabinets or boxes, with no easy way to access and integrate the datasets and research. Additionally,
 10 numerous forums, meetings, and events take place that generate information, knowledge, and ideas among
 11 the participants about specific geographic areas (e.g., the Arctic) or specific thematic areas (e.g., ocean
 12 acidification), but finding, integrating, and making use of this information is very challenging. Overall, there is
 13 a large amount of information that scientists, decision-makers and others need about climate change and its
 14 effects that could be more accessible, better integrated, and more valuable to communities, agencies,
 15 businesses, universities, and individuals. Option CT-1 presents one recommended strategy to improve this
 16 situation.

17 The recommendation is that the State of Alaska authorize establishment of an Alaska Climate Change
 18 Knowledge Network (ACCKN) to foster coordination among the various entities with responsibilities for
 19 collecting, interpreting, and using climate change data in Alaska. The ACCKN will build on existing efforts and
 20 responsibilities, to better integrate their data and information. The intent is to create a distributed network that
 21 leverages current efforts and supports the following functions:

- 22 • Organize, archive when needed, and inventory data and other resources pertinent to understanding
 23 climate change and its effects in Alaska.

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- 1 | • Promote enhanced online access to the above data, information, and knowledge in ways that facilitate
2 | use.
- 3 | • Identify and communicate (to data and information providers) the needs of communities for information
4 | to understand and plan for climate change.
- 5 | • Share information on specific geographic and/or thematic areas of concern.
- 6 | • Incorporate community and other entities' (e.g., private, non-profit, and citizen science efforts) data,
7 | information, and knowledge about the effects of climate change and feedback on adaptation efforts.
- 8 | • Integrate and analyze data and information for better understanding of climate change impacts and
9 | effects, including identifying gaps where additional data may be needed
- 10 | • Provide a point of coordination with federal efforts in Alaska such as NOAA's activities to develop a
11 | Regional Climate Service partnership and USGS activities related to their proposed Alaska Wildlife
12 | Climate Science Center.

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13 | This option would establish a focal point for organizing the many data collection efforts to improve access to
14 | and use of them. It is expected this focal point will consist of a staff that supports the many tasks outlined
15 | below. This staff may be established at a state-university funded site, a Non-Governmental Organization
16 | (NGO), within an existing agency or through some other entity. This staff will bring expertise in both
17 | technology to support the infrastructure of the ACKN and science to understand the content as follows:

- 18 | • A comprehensive inventory of organizations and programs collecting data relevant to climate change in
19 | Alaska.
- 20 | • Improved access to climate change data and information existing in current databases and centers.
- 21 | • Improved access to research papers and references, information about successful climate adaptation
22 | efforts, information on themes and geographies, etc.
- 23 | • Forum for integrating and analyzing data.
- 24 | • A Frequently Asked Questions and Answers list.
- 25 | • Identification of missing data (data gaps).
- 26 | • Means for communities and citizens to provide data and measurements [and to receive easily](#)
27 | [understood and locally relevant information for climate change adaptation](#).
- 28 | • Forums for discussion on topics of interest.

29 | Various existing data collection entities are interested in initiating this effort as soon as possible, and intend to
30 | take short term actions to coordinate with each other and seek funding. It is recommended that the State of
31 | Alaska invest resources and support for this measure which is so critical to establishing a foundation based on
32 | sound, shared science.

33 | CT-2 Coordinate Implementation of Alaska's Efforts to Address Climate Change

34 | The ability to implement the breadth of options recommended by the Advisory Groups without duplicating
35 | efforts requires coordination among state agencies. Coordination can promote efficiencies and effectiveness
36 | to address both mitigation and adaptation efforts on the following fronts:

- 37 | • Tracking climate change efforts across State agencies in Alaska.

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- 1 • Communicating between State of Alaska and other efforts (e.g. Federal activities).
- 2 • Responding to expected Federal initiatives on climate change.
- 3 • Providing access to information and education resources.
- 4 • Improving outreach to citizens and businesses on climate change.

5 To achieve the above, a coordinating entity is needed within the State. This could be an Alaska Climate
6 Change Coordinating Committee under the Subcabinet or a designated person or office that brings together
7 representatives of State agencies. The intent of this effort is to coordinate the implementation of the
8 recommendations of the Subcabinet among State agencies; ensure that the State agency development of
9 position papers, guidance documents, policies, procedures, and standards to establish and implement Federal
10 and state climate change programs are coordinated; provide for consistent outreach and information from
11 State agencies on climate change mitigation technology and regulatory guidance to industry and the public;
12 ensure the State's efforts are coordinated with other related initiatives such as Alaska Energy planning, the
13 Alaska Municipal League member actions, industry, the Western Climate Initiative, and advisory groups
14 working on climate change efforts in Alaska; and provide a primary point of contact for Federal agencies
15 addressing climate change in Alaska.

16 This coordination effort will provide support for various State agency responsibilities including a greenhouse
17 gas (GHG) emission reporting program and associated inventories; State government partnerships with
18 private citizens, businesses, and local governments; "lead-by-example" actions; and information outreach and
19 education to citizens and businesses on climate change efforts at the State level. This option was identified
20 and developed by the Cross-Cutting Issues Technical Work Group under the Mitigation Advisory Group but
21 also brought before the AAG for further endorsement, therefore it is included herein.

22 CT-3 Community Climate Impact Assistance

23 This option recommends establishing a permanent, high-level coordinating entity within Alaska to provide
24 tools and assistance to help communities adapt to a changing climate and its impacts on community and
25 individual health. Currently, an array of state, federal and regional entities are responsible for delivering
26 services to Alaskan villages, rural communities, and urban centers, but specific policies and regulatory
27 constraints produce conflicting directives that prevent the coordinated delivery of vital services that will enable
28 endangered villages, traditional culture, and vulnerable communities to adapt in the face of climate change. A
29 need exists to establish a coordinating entity with the ability to navigate these multiple bureaucracies to
30 leverage their resources in support of vulnerable communities to address emergency response, relocation,
31 subsistence concerns, and other priorities.

32 The objective of an entity is to create an integrated and coherent process by which state, federal, regional,
33 and local entities can provide rapid, coordinated, and effective relief to communities facing (and experiencing)
34 substantial cultural, health, economic, infrastructure, and subsistence impacts from climate change. The
35 proposed coordinating body will help communities navigate the complexities of requirements and mandates of
36 multiple bureaucracies. Evaluation of existing services and identification of gaps would enable the state to
37 operate as efficiently and effectively as possible. Likewise, inter-agency coordination among multiple state
38 and federal agencies, local governments, NGOs, and others is considered essential in supporting vulnerable
39 communities faced with the complex issues related to climate change.

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1 This policy option is similar to, but provides a slightly different perspective on the Immediate Action Workgroup
2 (IAWG) March 2009 Report recommendations. These options should inform each other to create the most
3 cost effective organization to address the problems facing communities.

4 The specific form and organization of a coordinating body is not specified, as those decisions require
5 additional political perspectives to create an effective coordinating body with the authority, expertise, and
6 community trust necessary to tackle the difficult issues currently threatening Alaskan communities. The
7 primary functions this coordinating body will need to tackle are:

- 8 • Develop a process for prioritizing and addressing climate challenged communities that is fair and
9 systematic. This may include meetings with at-risk communities, development of strategies under
10 various scenarios, identification of funding options, etc.
- 11 • Help communities adapt to flooding and erosion either by relocation or in-place protection. This will
12 include developing a mandate, clarifying responsibilities, identifying and establishing funding,
13 establishing a relocation strategy, addressing National Environmental Policy Act (NEPA) concerns, etc.
- 14 • Develop a community-based, flexible and responsive process to manage and promote traditional ways
15 of life, including subsistence access under changing climatic conditions.
- 16 • Develop principles to guide community climate impact assistance activities, including providing
17 resources to ensure cross-cultural communication and understanding within traditional languages;
18 reducing community burdens during sensitive times; and providing for local input and community
19 involvement.

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Box 8-2: Research Needs Specific to CT-3, Community Assistance

Additional research needs were identified specific to CT-3, Community Assistance, can be found in the Research Needs Work Group report under Health & Culture. They may also have applicability to other sectors.

HC/RN-1.6 Engage communities in social research on the cultural impediments and history of government.

HC/RN-1.7 Conduct social and education research to develop culturally appropriate curriculums for maintaining public infrastructure and community property.

HC/RN-1.8 Perform standardized social network research in select communities to understand potential impacts of relocation on social, sharing, economic and subsistence networks.

HC/RN-3.1-3 Perform regional Social Impact Assessments, including (1) assessments of existing social service infrastructure, staffing, budgets and delivery; (2) assessments to provide information for Section III of the NEPA process, description of the affected environment; and (3) detailed interviews and oral histories to provide narrative information

HC/RN-6.1 Community capacity assessment to identify effective cooperative mechanisms to support rural communities in dealing with multiple rules and requirements, and capacity to design and implement programs.

For additional information on each recommendation, and for a broader set of identified needs, see Research Needs Work Group (2009).. The numbering system above refers to the last two subsection numbers in the appropriate chapter in the report.

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CT-4 Promote Climate Change Science Through K-12 Education

Despite the critical and growing importance of climate change to Alaska's residents, there is a generally a low level of public understanding of the science and impacts of climate change. Successful adaptation to climate change in Alaska requires improved public understanding of these components of climate change. To address this essential need, the State of Alaska should increase emphasis, curriculum and training for delivery of climate-change science content in grades K-12 and increase coordination among existing programs and entities that address climate-change education in Alaska's schools.

This education will be provided under the framework of the existing Alaska Science Standards. The State will provide training and curricula to teachers on climate change, provide an education specialist to focus on science and climate change education, and increase coordination among existing programs and entities that address climate-change education in Alaska's schools. By emphasizing climate-change education, Alaska will provide adequate educational resources to its residents to enable them to make wise choices about how to minimize the costs and maximize the opportunities that may result from climate change.

Box 8-3 Common Themes Recommended Research Needs

The Research Needs Work Group identified eight overarching needs essential for providing the type of information needed for almost all planning efforts, both mitigation and adaptation. They are as follows.

1. Improve downscaled (local) climate models
2. Expand baseline environmental research and monitoring
3. Improve research infrastructure (computer systems, radar, ships, satellites, personnel, etc.)
4. Improve data integration and sharing
5. Develop multiple level decision-making tools
6. Adapt legal and policy frameworks to incorporate climate change and build in flexibility to address uncertainty
7. Improve baseline mapping
8. Education and Outreach

Additional research needs were identified specific to CT-3, Community Assistance, can be found in the Research Needs Work Group report under Health & Culture. They may also have applicability to other sectors. For additional broad research themes, see Chapter 3 of this report.

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Box 8-4: A Sampling of Relevant Current Activities

The examples presented below are not intended to be exhaustive, but rather to illustrate ongoing and proposed initiatives and activities.

Alaska Center for Climate Action and Policy (ACCAP) ACCAP is one of nine Regional Integrated Sciences and Assessments (RISA) programs nation-wide, funded by the Climate Program Office of NOAA (<http://www.uaf.edu/accap/>). Started in 2006, ACCAP operates as a collaboration between UA campuses and institutes to assist Alaskan businesses, agencies and citizens in adapting to a changing environment. ACCAP serves as a state-wide resource for climate change information exchange and research design and development. They work closely with the Scenarios Network for Alaska Planning (SNAP) to communicate scientifically credible information about climate change in a form that is useful and usable to decision-makers. [Recent projects have included development of tools for decision-making for At-Risk Communities and Fire Prediction; they have done a project to support Cross-Regional Dialog of Local and Indigenous Climate Knowledge and Adaptation and also hold monthly Climate Teleconferences/Webinars, ACCAP is presently working on a Sea Ice Information and Decision-Support Manual.](#)

National Climate Service

Congress is considering legislation to create a National Climate Service which would enable NOAA and its partners to provide timely production and delivery of useful climate data, information and knowledge to decision makers. The goal is to improve everyone's ability to understand, predict, and adapt to climate change.

Alaska Climate Services Partnership

NOAA intends to build on its cooperative efforts with multiple partners (all levels of gov't, Native communities & organizations, private and public business sectors, research entities, and international bodies) by fulfilling a vision of long-term planning for Alaska by establishing an Alaska Climate Service Partnership by 2015. Plans call for NOAA to identify and share applicable products and to harness existing services to support Alaskan customers in immediate action, adaptation, and mitigation efforts.

National Climate Change and Wildlife Center

The U.S. Geological Survey (USGS), science agency of the U.S. Department of the Interior, is in early planning stages of establishing a national Climate Change and Wildlife Center to inform adaptation or management of fish and wildlife in the face of climate change. The Center is being designed with input from Federal, State, and Tribal science and management agencies; NGOs; academia; and others. Mobilization of existing assessment and monitoring capabilities, and coordination of interagency and inter-organizational efforts will be tapped for timely forecasting of responses at multiple spatial and temporal scales.

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