

# 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.

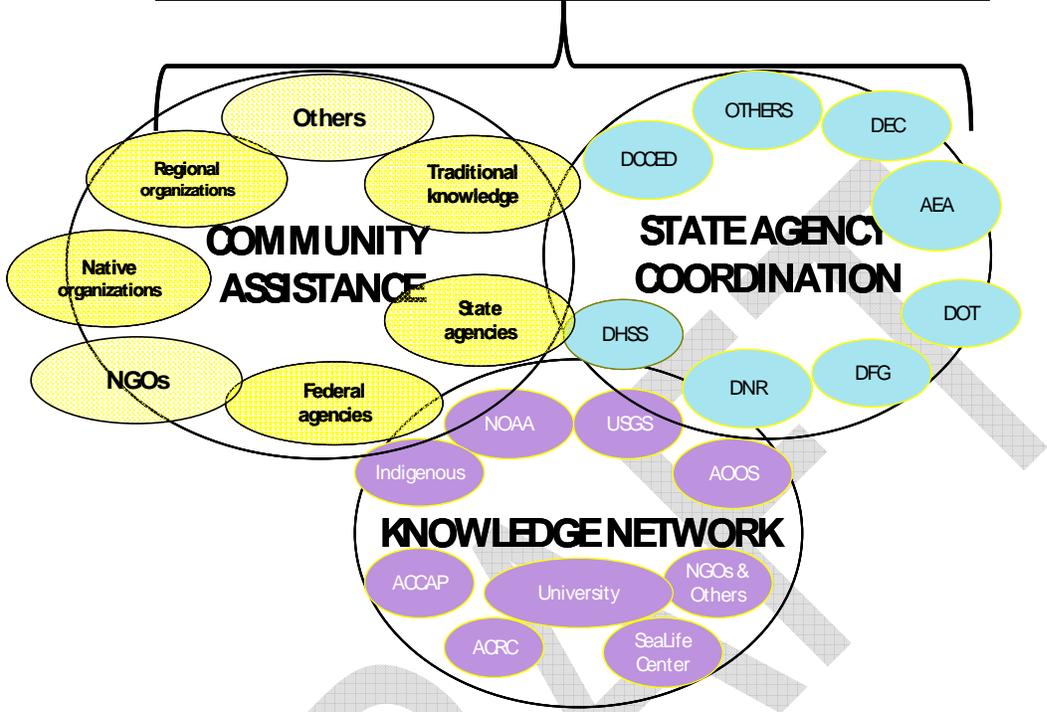
Overview of Common Themes		
	Option Name	Level of Support
CT-1	Establish an Alaska Climate Change Knowledge Network	Unanimous
CT-2	Coordinate Implementation of Alaska's Efforts to Address Climate Change	Supermajority
CT-3	Community Climate Impact Assistance	Unanimous
CT-4	Promote Climate Change Science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

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	✓		✓	✓	✓	✓		✓	✓	✓			✓	✓	✓
CT-4	Promote Climate Change Science	✓			✓				✓					✓		✓

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

**Information and Services to Aid in Responding to Climate Change**



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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 Box 8-2. The recommendations are also  
 5 intended to build on existing public and private sector programs and activities as described in Box 8-3 and 6-4.  
 6 These boxes appear at the end of this chapter.

### 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. 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.

- 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.

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 ACCKN 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.
- 27 • Forums for discussion on topics of interest.

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

### 32 CT-2 Coordinate Implementation of Alaska's Efforts to Address Climate Change

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

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

- 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.

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.

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

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

28 This education will be provided under the framework of the existing Alaska Science Standards. The State will  
29 provide training and curricula to teachers on climate change, provide an education specialist to focus on  
30 science and climate change education, and increase coordination among existing programs and entities that  
31 address climate-change education in Alaska's schools. By emphasizing climate-change education, Alaska will  
32 provide adequate educational resources to its residents to enable them to make wise choices about how to  
33 minimize the costs and maximize the opportunities that may result from climate change. The University of  
34 Alaska should partner with the Department of Education and Early Development to develop curricula and  
35 ensure that existing climate change education programs will be better utilized.

**Box 8-2. Relevant Current Activities**

*(This list is not exhaustive; it presents a limited number of examples 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. We connect scientists and stakeholders in disseminating state-of-the-art scientific research and bringing the expertise of University of Alaska scientists together with state and federal land and resource managers, industry, the private sector and non-profit organizations (see Box 8-3)

**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 interorganizational efforts will be tapped for timely forecasting of responses at multiple spatial and temporal scales.

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**Box 8-3. ACCAP's List of Selected, Past, Current & Future Projects**

- Decision-making for At-Risk Communities in a Changing Climate
- Fire Prediction Tool
- Cross-Regional Dialog of Local and Indigenous Climate Knowledge and Adaptation.
- Monthly Alaska Climate Teleconferences/Webinars
- Sea Ice Information and Decision-Support Manual (upcoming)
- Hourly Weather Tool (upcoming)

**Box 8-4. Common Themes Recommended Research Needs**

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

CT/RN-1 Improved downscaled (local) climate models

CT/RN -2 Need for baseline environmental research and monitoring

CT/RN -3 Improved research infrastructure

CT/RN -4 Improved data integration and sharing

CT/RN -5 Multiple level decision-making tools

CT/RN -6 Adaptable legal and policy frameworks

CT/RN -7 Improved baseline mapping

CT/RN -8 Education and Outreach

CT/RN-9 Provide communities with social research on the cultural impediments and history of government.

CT/RN-10 Conduct social and education research to develop culturally appropriate curriculums for maintaining public infrastructure and community property.

CT/RN-11 Perform standardized social network research in select communities to understand potential impacts of relocation on social, sharing, economic and subsistence networks.

CT/RN-12 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

CT/RN-13 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, see Research Needs Work Group (2009).*

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