

Option No.	Adaptation Policy Option	Votes	Significance	Benefits	Feasibility	Costs	Notes
HC-1	Overarching Issues						
1.1	Require Health Impact Assessments be conducted for adaptation and mitigation options to ensure that they promote population health. To support such assessments, work with local and regional entities to develop uniform indicators, data systems, and community monitoring programs to monitor climate change-related health and culture impacts. Develop educational programs as part of these assessments focused on public awareness, outreach, training, and capacity building for the general public, indigenous communities, and relevant professionals to increase understanding of the health and culture risks of and appropriate responses to climate change.	9	H - 8	H - 7 1 M -	H - 6 - 2 M	H - 2 M - 3 L - 2 ? - 1	General Notes for all sections. Assessments will be needed to establish status and needs. Educational outreach will be of greatest importance in our state due to the dispersion of the population. It will be local surveillance that will be critical to the success of any program or initiative. :: This recommendation has over arching application to all adaptation activities :: Health impact assessments n monitoring r critical n caring for the health of our people. :: Public Health Impact Assessments encompass many issues covered in many of the categories in other options in the catalog. :: Policy option is all encompassing of educational programs and impact assessments will be a necessity to understanding effectiveness of implemented policies. :: Lot of good stuff, but overreaches. :: Imperative on every level. If not performed, resources can be wasted as eventually the population health impact will override any other considerations. :: Majority of the options in this table are policy related, a HIA is an exercise in futility without any rational conclusions. I would be more likely to support this if it didn't include the wording in the first sentence. HIA's are extremely subjective and based on a political agenda not sound science. Results are qualitative not quantitative.
1.2	Establish or augment community-based monitoring networks that sample environmental variables like ice thickness, monitor ongoing health issues such as mental stress, and other health, cultural, and environmental variables that are likely to be introduced, or become more common or widespread due to climate change. When working with indigenous communities, the parameters should be developed first with appropriate regional entities and then refined with the individual community.	3	H - 3	H - 3	H - 3	M - 3	I think climate change will have the most dramatic impacts at the local level. Therefore monitoring what is happening at the local level is a priority. Additionally, monitoring for variables such as ice thickness could potentially assist with injury prevention activities by preventing deaths due to drowning. :: Some mechanisms are already in place which only need to be adapted or enhanced. It may help to standardize this policy option for all communities to simplify implementation and to provide consistent data across the state from which to make decisions. Cost could be supplemented by state, local and federal sources. A locally-driven monitoring effort could help focus attention and awareness locally and enhance community cohesion and resilience. :: Highly Significant and beneficial but Unclear whether state is best entity for this when it comes to rural areas. Concern is that resources would be devoted to rural hubs and not isolated villages, where needs and circumstnaces differ, so that the picture is inaccurate. Ice thickness being monitored by noaa and wx monitoring such as ice and flooding is of extreme importance to culture and health, but this is being carried out by noaa.

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1.3	Augment surveillance and control programs for vector-, water-, and foodborne diseases as well as infectious and zoonotic disease likely to become greater threats because of climate change. E.g. Strengthen and enforce watershed, water protection, and water quality programs; develop educational programs for the public, health care providers, environmental staff, and others on the risks of an appropriate behaviors to reduce emerging disease threats.	7	H - 6	H - 6	H - 4 M - 2	H - 2 M - 2 L - 1 ? - 1	Let's keep track of how diseases r moving in the state. :: This option is a combination of all other items that address infectious diseases include water, food and vector borne diseases :: Surveillance and control of potential infectious/communicable disease will be key in protecting population health. :: Costly to implement but data could save lives. May addressed in part elsewhere. :: The need to be prepared for emerging diseases is paramount-- without effective surveillance programs we will not have the forewarning and data necessary to implement effective prophylactic and other measures and thus risk outbreaks of severe consequences, some which would have cost relatively little to guard against. :: Based on expert assessments, pandemics are likely
1.4	In partnership with local communities, conduct an assessment of the capacity of communities to design and implement programs and activities to prepare for the health (including mental stress) and culture risks of climate change, ensuring that the vulnerability of indigenous populations is explicitly addressed and identifying actions to address gaps in and constraints to adaptive capacity, as well as multi-agency strategies to address them.	7	H - 6 1 M	H - 5 M - 2	H - 6 M - 1	H - 2 M - 2 L - 2 ? - 1	This recommendation focuses on local capacity and which will be critical to climate change adaptation. :: One of my first priorities is that that vulnerability of indigenous populations is adressed early in this process. :: If targeted communities lack capacity to design and implement programs time/money may be wasted. :: Explicitly identifying and documenting vulnerabilities of rural communities and how to address them is necessary to mitigate the more severe impacts to rural AN villages. Without this, we risk allowing whole populations to fall through the cracks, perhaps irrevocably on a host of levels, as the many of the forces at work take years to manifest as well as undo. :: Vulnerabilities of indigenous peoples have not systematically been assessed except for infrastructure issues.
1.5	Identify a central ombudsman agency, as well as responsible individuals, to support rural communities in dealing with complex issues requiring coordination among multiple state and federal agencies, local governments, NGOs, and others. For example, the complexities of navigating the rules and mandates of multiple bureaucracies that must be engaged to deal with flooding, community relocation, infrastructure development, and other issues. Explore the development of Letters of Agreement or Cooperation between federal and state agencies that specify how they will be responsive to the ombudsman agency.	7	H - 5 M 1	H - 4 M - 2	H - 5 M - 1	H - 1 M - 2 L - 3	Talking with leaders in communities that are having to move one of the biggest frustration is not knowing which agency to go to get help or permission to do some aspect of the move. We need one office at the state level that can coordinate all this. :: This seems like a good idea and an important one, but may be costly and unwieldy. Also what communities will be included and what ones won't? Could create multiple layers of staff for every different community without reducing the bureaucracy of the problem. :: This is needed to provide all communities fair and effective access. Isolated small rural AN communities particularly do not have the lobbying or human resources to jump through the hoops and take on the multiple learning curves. Dealing with agency processes can be overwhelming and agency personnel unused to working with remote traditional villages often can be overwhelmed by the cultural miscommunication that inevitably occurs. :: Low cost :: There is no central coordinating system for dealing with impacts on sizeable numbers of communities and large costs

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1.6	Identify mechanisms and strategies to increase cooperation and collaboration across all appropriate agencies, institutions, and organizations involved in preparing for and responding to extreme weather events	2	H-2	H-2	H-2	M-1 L-1	should be done anyway - will be done anyway, and would waste resources. NOAA, FEMA, others have programs in place that would work best for this. Likely won't be followed particularly well anyway if history in this state has any bearing and institutional motivation persists. ∴ A systematic process is needed to ensure multi-agency cooperation in different institutions and systems
HC-2	Waterborne diseases						
2.1	Develop educational programs for the public, health care providers, environmental staff, and others on the risks of and appropriate behaviors to reduce waterborne diseases, including developing specific programs targeting those most at-risk	1	H	H	H	L	Duplicates preceding monitoring/education policies ∴ Educational materials will likely be developed as they are now, via a variety of entities. These are important, but any good effort towards reduction of disease would include this as an outcome.
2.2	Strengthen the ADEC watershed contamination protection laws and source water protection programs to include assessments and reporting mechanisms for climate-related impacts such as new pathogens or increased contaminant infiltration/runoff from waste impoundments/storage areas due to thawing permafrost, erosion, and increased flooding. Assess sanitation and solid waste disposal infrastructure and practices at risk from flooding, melting permafrost, and other risks, or that is otherwise subject to changed conditions that significantly reduce performance in environmental health protection and modify, rebuild, or move so as to maximize protection of human and environmental health	8	H - 7	H - 7	H - 5 - 2	M H - 3 M - 1 L - 3	We need to do all we can to keep drinking water clean and safe. Laws may be easy and least costly compared to infrastructure construction. ∴ Water is a necessity to life and must be protected, ensuring safe water for all populations should be a priority. ∴ This policy has strong benefits for a wide range of communities from large to small. Costs savings from avoided contamination are high. ∴ Proper sanitation and environmental protective infrastructure and practices is essential to a community's public health. It is through this venue that emerging diseases would be most helped or hindered at spreading. Additionally, modification of designs can protect against exposure to toxics- and to vector borne diseases. In surveys, some three-quarters of the population of rural isolated villages change their subsistence practices due to concerns regarding the performance of sanitation/wastewater infrastructure and the potential for pollution of nearby waterways. Poor performing infrastructure is also cited as a reason for out-migration as well as mental stress. Thus this option hits upon a wide gamut of health and cultural issues.
HC-3	Vectorborne diseases						
3.1	Develop public educational programs on the risks of vectorborne diseases, emphasizing identification, avoidance, and appropriate responses	2	H - 2	H - 1 M - 1	H - 1 - 1	M L - 2	The CDC's Division of Vector-Borne Infectious Diseases serves as a national and international reference center for vector-borne viral and bacterial diseases.
HC-4	Food Security, Food Safety, and Foodborne Diseases						
4.1	Conduct a capacity needs assessment of regions at greatest current and future risk for food security and foodborne diseases in partnership with appropriate regional entities. In conjunction with regional organizations, develop monitoring programs to determine changes in food security, including developing specific programs ensuring the delivery of fresh foods targeting those most at-risk of nutritional deficiencies, and strengthening programs to address food safety and food security for subsistence hunting, fishing, and gathering.	4	H - 4	H - 4	H - 3 - 1	M H - 1 M - 1 L - 2	Food safety in rural communities will be key as climate change takes away or modified available food items. Please add to fishing, hunting n gathering. A bad berry year has a high impact on health and culture. ∴ Climate change events are already significantly affecting food security in rural areas and it is highly likely to get worse but no assessment or monitoring systems are in place

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4.2	Increase the capacity throughout the State for self-sustaining agriculture, including the use of greenhouses and hydroponics. Provide public education about new gardening opportunities and also about new pests and control measures, to minimize, if possible, their spread.	2	H	H	H	L	This is also a combined option from several others that deal with agriculture. :: Fosters resilience and independence as well as economic opportunities locally. Strong no-regrets benefits. :: critical, but maybe economics and desire for quality of life will begin this process on its own until resources are available :: This is critical
4.3	Develop public educational programs on the risks of and appropriate actions to prevent foodborne illness from food not kept under temperature control. Support development of surveillance programs in rural communities to ensure safe temperatures in ice cellars, and safe conditions for fermentation of traditional foods.	1	H	H	H	L	Costs are low relative to lives and health preserved :: Isn't this (first sentence) already being done? What are we talking for surveillance, thermometers? Fermentation of foods is inherently high risk. Education is critical because self monitoring will be required.
4.5	Safeguard subsistence resources through management of important species (e.g. increase monitoring of fish and animal health for emerging pathogens and introduction of new species). In partnership with appropriate regional and local entities, develop surveillance programs to identify changing range, densities and health of subsistence food species to ensure food safety and sustainability.	7	H - 4 1	M - 1	H - 3 - 2	M - 2 L - 1	Very important issue to rural residents of the state :: This very broadly addresses all subsistence issues that could be impacted by climate change. :: Food is essential to survival in rural Alaska proper management/monitoring must be conducted to ensure availability. :: Address through 13.2 :: Migratory patterns of fish, birds, and marine mammals are already occurring and expected to intensify as environment changes
HC-5 Flooding & Other Extreme Weather Events							
5.1	Develop flooding early warning systems where possible, focusing on effective response actions and preventive strategies. Identify mechanisms and strategies for increased coordination and collaboration across all actors involved in preparing for and responding to extreme weather events.	5	H - 4	H - 3 1	M - - 1	M - 3 L - 1	Costs are low relative to those of life and property saved. With proper state direction, could be addressed through local emergency planning committees (LEPCs). :: flood warning being done by nws :: This should already be a work in progress for those villages in incorporated borough's along the coast. :: Most coastal communities will be at increasing risk of flooding as storms intensify, ice disappears, and water levels rise
HC-6 Thermal Extremes							
6.1	Develop educational programs regarding the risks of and effective responses to thermal extremes, including thinning sea, lake, and river ice, more dangerous hunting and fishing conditions, and increased prevalence of ichthyophonus.	2	H	H	H	M	rural residents that rely on subsistence (AN) are already familiar with these risks cited, other than increased risk of ichthyophonus, which will likely be addressed by fisheries entities as it is such a devastating disease for commercial species as well as subsistence species. NWS does ice safety.

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6.3	Develop statewide or other protocols for emergency deliveries of (1) fuel; (2) food where there are insufficient supplies for the winter; and (3) medicines for new climate-related diseases. Reassess what is defined as an emergency level of fuel.	4	H - 3 - 1 M	H - 4	H - 3 - 1 L	H - 1 M - 1 L - 2	Food and Fuel safety in remote communities will have a huge positive impact on health n culture. The protocols are low cost delivering the food and fuel is high cost in an emergency. Better to deliver in the summer by barg than to fly it in the winter. :: Again necessities of life must be a priority. "The Right to Life" :: We are not prepared to address these kinds of emergencies and we need to be. However, may not qualify as a strict climate adaptation policy. More economic and geopolitical. :: This is a safety net guarding for acute health needs that needs to be firmly in place. We have seen critical issues already and it is clear that coordination and procedures need to be explicitly reviewed and addressed. :: Subsistence food sources will continue to be compromised due to wildlife population declines and shifts, and river ice stability and duration will continue to be affected by temperature changes.
6.4	Assess current rescue and health response capabilities and improve, as needed, these capabilities	1	H	H	M	H	Costs are low relative to those of lives and property saved.
6.6	Create and designate "Cool Community Centers" for people who do not have access to air conditioning, including systems for transporting elders and others to those centers without easy access to transportation	1					Doesn't require creation of new centers, just identify an existing community center for installation of air conditioning
6.7	Modify the built environment, promulgate regulations, or provide incentives to promote reduced heat creation and exposure, including white roofs, more trees, improving building insulation, less asphalt, etc.	1	H	H	H	H	
6.9	Increase the medical response capacity for heat stress, particularly in rural areas	1					I've recently seen an example of where the village medical response unit was unprepared to respond to heat stress effects.
HC-7	<i>Air Quality and Wildfires</i>						
7.1	Assess the composition of emergency fire-fighting crews to ensure sufficient local capacity for fires, develop educational programs on how to avoid injuries and death due to wildfires, and develop evacuation response plans with key stakeholder involvement	1					I chose this as important but rated it low because I believe it is addressed in other work groups.
7.2	Research the respiratory impact of single and multiple respiratory irritants, including smoke from volcanic emissions, wildfires, dust, pollen, and other allergens.	2	H - 2	H - 1 M - 1	H - 2	H - 1 M - 1	
7.3	Develop a process for changing/improving subsistence food availability and access to hunting and fishing during off seasons when wildfires result in insufficient food during the winter	1	M	H	H	L	Inadequacy of subsistence foods affects culture, societal well-being, adequate nutrition, out-migration. Subsistence during off-season can affect supplies if carried out by villages with lack of data due to fear of retribution.
HC-8	<i>Toxic Exposures</i>						

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8.1	Assess areas at greatest risk of exposure to toxics. Conduct regular surveys of the extent of exposure to toxics, including from waste management and food contaminants. Expand biomonitoring for toxic exposures, including of humans, animals, and fish.	5	H - 4 1	M - 3 2	H - 3 M - 1 - 1	L - 4 1	Assume this policy points primarily to POPs, and especially as they are released through climate warming :: Assuming this includes as equal or greater focus isolated rural villages - this is where our data is most lacking and most likely to be different from values in literature or conventional wisdom. We have significant and in some cases substantial differences in health between rural and urban populations, some of which might be attributed at least in part to toxic exposure mechanisms and magnitude. On a more general note, Toxic exposure will change tremendously in the years to come and while some large-scale or widespread mechanisms have been identified, it is not at all clear these will hold and to what extent or in exactly which regions.
8.2	Advocate for prompt action by responsible parties to clean-up toxic sites, and to minimize the spread of toxic chemicals before clean-up	1					Commercial activities should already be covered under DEC, but I would like required monitoring by DNR after issuing of state permits to ensure compliance
HC-9	Mental Stress						
9.1	Develop a mental health plan in collaboration with appropriate federal, state, and local health professionals for communities expected to experience major impacts or dislocation	1	H	H	H	M	
HC-10	Health Care and Emergency Response Systems						
10.1	In cooperation with organizations involved in emergency response, conduct a capacity needs assessment for health care after major evacuations or extreme weather events. Develop emergency response plans with the flexibility to incorporate future climate change risks.	1	H	H	H	L	Important and likely relatively easy to do.
HC-11	Traditional Knowledge, Ways of Knowing, and Subsistence Culture						
11.1	In partnership with appropriate local, regional, and statewide organizations, develop on-going forums or dialogues between elders, scientists, health professionals, policy-makers and others to discuss current and projected changes in the climate and the impacts of these changes on culture, economy, and subsistence, including new subsistence opportunities and ways to reduce health risks in a warming climate. Ensure that information is provided regularly about measured and (updated) projected changes. In cooperation with the appropriate regional and statewide entities, methodically develop communication strategies and protocols, including the use of proactive forms of communication commensurate with the community such as radio, Native corporation newsletters, etc	10	H - 6 M - 2	H - 7 M - 1	H - 7 M - 1	H - 1 M - 2 L - 5	This will go a long way to outreach and collaboration with indigenous peoples who are on the front line of climate change. :: This item and 13.2 below cover subsistence issues related to climate :: Communication on all levels will be essential to implement potential programs :: May already be in progress through other entities, programs (ACCAP, ACIA), but could be used as a means to address other issues throughout this catalog. :: this gets done (although should be improved upon) at statewide native conferences :: Utilize existing forums such as AFN and regional conferences :: Cross regional, cross cultural and cross-jurisdictional information exchanges will become increasingly paramount as challenges increase over time but no such process exists today

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11.2	Strengthen state public health programs and rural community and cultural-based counseling services through capacity building, including financial support and training (that involves a two-way dialogue with community elders and others) to identify, target and reduce the mental stress that results from change or loss of traditional ways of life, such as the impaired ability to practice subsistence.	4	H - 3 - 1 M	H - 4	H - 4	H - 2 M - 2	Addresses non-quantifiable impacts on culture and community that otherwise may fall through the cracks. ∴ Local help in isolated villages (versus hub) is needed even now as communities deal with climate change related stresses. These services will only increase in demand. Suicide, dependency, and violence are not diseases that we can afford to allow to increase in rural areas, as they are so high already. Cultural-based and local programs allow on-going and ready assistance to populations to prevent escalation to issues that impact community resiliency in addressing climate change.
HC-13 Diminishment or Change of Subsistence Diet							
13.1	In partnership with appropriate regional and local entities, provide educational pamphlets and other materials to educate young subsistence hunters, fishers, and gatherers about the risks of disease, parasites, etc. Educate about the benefits of eating raw meat as well as alternatives to eating raw meat such as cooking and freezing. Because many food practices are generations old, education and encouragement of safe practices are the only realistic alternatives.	1	H	H	H	L	Education and awareness essential to prevent disease. ∴ AN health organizations
13.2	Form a state advocacy commission on subsistence activities and ways of life with the necessary expertise and authority to deal with state, federal, and international regulatory bodies such as the Federal Subsistence Board, the Marine Mammal Commission, ADEC, DNR, and the Alaska Department of Fish and Game. As part of that commission, create a citizen-based reporting system to document, potentially on-line, changes observed in rivers/lakes/aquifers, fish, bird, and animal numbers, locations, and conditions as well as berry and other gathered food conditions.	8	H - 6 - 1 M	H - 6 1 M	H - 4 - 2 L	M M - 3 L - 4	Need for field surveillance of ecosystem changes ∴ As a state we have had very little success coming together on subsistence. Maybe climate change will bring us together to insure the health and culture of our people is protected. ∴ Citizen based reporting can be very low in cost, reliable and diverse. ∴ Absolutely critical to address changing timing, location, and distribution of subsistence species and other resources as well as the equitable sharing of the resource with sport and commercial groups. ∴ on-line monitoring for subsistence - state may not be best vehicle as there may be concerns regarding enforcement motivation ∴ As fish, wildlife and habitat experience adverse changes, it is likely that there will be increasing competition between sports/subsistence hunters and fishers, making it increasingly difficult to deal with urban majorities who may not understand the subsistence ways of life
HC-12 Archaeology and History							

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12.1	<p>In cooperation with appropriate local, regional, and statewide entities, complete an assessment of archaeological sites most at risk; convene archaeologists, anthropologists, Alaska Native elders, and others to discuss how best to respond to and prioritize sites at risk; develop a plan for the protection or recovery of the sites most at risk. Complete a statewide assessment of the gravesites most at risk; assist in identifying and opening new gravesites; convene a respectful discussion about grave sites and explore best practices; provide assistance for the relocation of existing at-risk gravesites. Secure funding at the federal, state, foundation and corporate levels for the protection or recovery of archaeological sites.</p>	6	<p>H - 3 M - 1 L - 1</p>	<p>H - 2 M - 3</p>	<p>H - 2 M - 3</p>	<p>H - 1 M - 3 ? - 1</p>	<p>This is a very important activity but I have placed it last on my list because it does not, in my mind, directly impact human health :: While a complex issue protecting achaeology sites is important to maintaning culture. :: I could rate this as important as other categories but it is important enough to list. :: Knowledge of history can predict future events not to mention if these sites are lost they are impossible to get back. :: Incorporate into existing state policy/programs at little or no additional cost. :: The loss of culture is mourned always in hidsight and recognized as irreplaceable. Here we have a chance to not repeat mistakes of the past by proactively recognizing those tangible aspects that make us Alaskan, make us Native, make us human.</p>
HC-14	Winter Sports and Recreation						
HC-15	Summer Sports and Recreation						