



State of Alaska
Governor's Climate Change Sub-Cabinet

**Adaptation Advisory Group Meeting
Meeting #5**

Natural Systems TWG

February 6, 2009




Natural Systems TWG

- Recommend policies and actions the State should implement to adapt to CC effects on Alaska's natural biotic systems and resources, and human uses of those resources.
- Commercial Fisheries, Wildland Fire, Water Management, Invasive Species, Fish and Wildlife, Forestry, Agriculture
- Capacity Building & Education ("cross-cutting")
- Research & Monitoring

Overview of NS Options

- NS-1 Incorporate CC into commercial fisheries management and assist fishing communities and users in adaptation.
- NS-2 Review and modify Alaska's wildland fire policy.
- NS-3 Manage CC impacts on watersheds and in-stream flows.
- NS-4 Reduce introduction and spread of invasive species, in context of climate change.
- NS-5 Review State regulatory process for wildlife harvest to assure timely adaptation.

Overview of NS Options

- NS-6 Prepare for adaptive management of fish and wildlife.
- NS-7 Develop capacity in new forestry and wood biomass opportunities.
- NS-8 Support local sustainable agriculture in Alaska.
- CC-1 *Establish Alaska Center for Climate-Change Solutions.*
- CC-2 *Promote climate change literacy through education/outreach.*

NS-1 Incorporate CC into commercial fisheries management and assist fishing communities and users in adaptation.

- Alaska's seas are responding to warming trends in ways expected to substantially affect fish species abundance, distribution and catch composition.
- Consider CC in commercial fisheries policy and management plans, including precautionary approach for new commercial fisheries and taking CC into account when considering rationalization of fisheries.
- Assist fisheries-reliant communities with adaptation.
- Robust monitoring of changes.

NS-1 Option Design

- 1 Review commercial fishing statutes, policies, management actions & programs to determine if and how CC can be considered. *State agencies, or independent commission.*
- 2 Analyze existing fish species & stock monitoring programs. *Agency & independent experts.*
- 3 Establish centralized source of information, tools, assistance re: CC effects on commercial-fishing (such as new Center for Climate-Change Solutions). *State, University and other support.*
- 4 Identify & support provision of modified/new infrastructure needs for communities & businesses. *State, federal, business & communities.*

NS-2 Review and modify Alaska's wildland fire policy.

- Address potential climate-induced increases in wildland fire, frequency, size and geographic location.
- Goals:
 - Reduce risks to human health and property.
 - Reduce emissions of GHGs by minimizing severity of wildland fire (particularly tundra ecosystem).
 - Maintain healthy ecosystems that support species, subsistence lifestyles and other values.
 - Engage local communities & landowners.

NS-2 Option Design

- 1 Increase capacity of communities to complete & implement Community Wildfire Protection Plans (CWPP). *Establish statewide CWPP coordinator – multiple agencies & communities involved.*
- 2 Review & revise Alaska Interagency Wildland Fire Management Plan, to consider response in tundra environment and other CC related issues. *Agencies, communities, landowners, University. Research needed.*
- 3 Develop comprehensive fuels management program in high-risk areas. *Wildland fire suppression agencies, in consultation with communities, land managers, landowners.*

NS-3 Manage CC impacts on watersheds and in-stream flows

- Ensure effective management of freshwater for Alaska's users – communities, industries, ecosystems, others.
- CC projections suggest surface water abundance could be more variable and may decrease.
- Affects on:
 - Community and industry water supplies.
 - Navigability & access.
 - Fish habitat.

NS-3 Option Design

- Develop State policy and effective strategies for water management in a changing environment.
- Immediate background research, with subsequent (<5 years) definition of water needs and priorities for regions with greatest potential shortages.
- Streamline adjudication process to provide flexibility to adapt to climate change in timely manner.
- Research needed – hydrologic baselines, range of predictive scenarios, assess vulnerability of regions using Arctic Water Resources Vulnerability Index.
- *State agency implementation.*

NS-4 Reduce introduction and spread of invasive species, in context of CC

- Combination of CC and increasing globalization has greatly increased rate and threat of introductions of non-native, invasive species to Alaska.
- All ecosystems threatened.
- Potential damage to economic sectors (fisheries, forestry), as well as altering fire cycles, subsistence, and other values.
- Prevention is essential (control is costly & difficult).
- Full State engagement needed – Build on existing groundwork and federal/private initiatives.

NS-4 Option Design

- Establish Alaska Invasive Species Council (HB 12) to set strategic priorities, coordinate, monitor progress.
- *Need to ensure State commitment, involvement, staffing.*
- Examples of actions:
 - Develop regulations (e.g., noxious weeds.)
 - Encourage expansion of native-plants-as-revegetation-materials markets.
 - Cross-boundary coordination with Canada.
 - Address marine invasives (e.g., shellfish sources, ballast water, hull fouling.)

NS-5 Review State regulatory process for wildlife harvest to assure timely adaptation

- Rate of CC effects is perceived to be disrupting historic patterns of movement and behavior by game animals and transportation options for hunters.
- Current State regulatory process not responsive in-season. Perception of lack of concern by managers.
- Hunting during inopportune seasons (e.g., warm fall):
 - Hinders access, hunt success and meat care.
 - May lead to illegal hunting, particularly where subsistence food sources are critical.

NS-5 Option Design

- Design wildlife hunting season and harvest quota system that is flexible in-season and informed by knowledge of local conditions.
- *Involve ADF&G, Alaska Board of Game and advisory committees, Federal Subsistence Board & advisory councils, hunters, tribal organizations.*

NS-6 Prepare for adaptive management of fish and wildlife

- Information and tools must be in place to implement adaptive management of fish and wildlife, as species abundance, distribution and composition change.
- Many, significant and varied effects and implications of CC effects on fish and wildlife:
 - Food supplies.
 - Cultural practices; individual & community health.
 - Economic sectors.
 - Biodiversity, fire regimes & other ecosystem processes.

NS-6 Option Design

- Coordination of a common structure for collecting, cataloguing and disseminating information on species status and distribution, and other CC effects on fish and wildlife.
- *Involve State and federal management agencies, University and other research institutions, tribal organizations, NGOs, citizen science efforts, private sector.*

NS-7 Develop capacity in new forestry and wood biomass opportunities

- CC stresses lead to tree mortality due to insects, fire and other causes of forest health decline.
- Develop technology, techniques and infrastructure to harvest damaged and underutilized sources of wood biomass. Goals:
 - Off-set fossil fuels with *local carbon-neutral fuels*.
 - Create local employment.
 - Actively manage changing forest lands.
 - Feasibility demonstrations of bioenergy technologies.

NS-7 Option Design

- Develop and demonstrate wood biomass technologies at different scales (e.g., wood chip boiler installation at public facility, community feasibility studies for additional installations).
- Develop and demonstrate harvesting and transportation systems.
- Establish wood-energy coordinator position.
- *Involve Alaska Energy Authority, Wood Energy Task Force, Division of Forestry, USFS State & Private Forestry, Tanana Chiefs Conference, others.*

NS-8 Support local sustainable agriculture in Alaska.

- Explore and pursue new opportunities for local food production.
- Address food security issues (e.g., due to changes in fish and wildlife availability, increased food shipping costs).
- Increase participation in community-based agriculture across Alaska, including major population centers.

NS-8 Option Design

- Implement through Alaska Division of Agriculture's (DOA) strategic plan.
- *DOA leadership of coalition of existing organizations (USDA, UAF Cooperative Extension, UAF Agricultural and Forestry Experiment Station, Denali Commission, others).*
- Analyze feasibility of communities with potential to develop community-based agriculture.
- Design strategy, actions, targets.

CC-1 Establish Alaska Center for Climate-Change Solutions

- Establish and fund Center to provide centralized source of information, adaptation tools, technical assistance and funding for communities, state agencies, NGOs and businesses to enhance capacity to adapt.
- Cross-cutting to all TWG areas.
- NS TWG utility: commercial fisheries adaptation, fish and wildlife adaptive management, wildland fire CWPPs, etc.

CC-1 Option Design

- *State-funded State-University partnership – integrate, coordinate and expand on existing entities*
- Four responsibilities:
 - Integrate Scenarios Network for Alaska Planning (SNAP), Alaska Ocean Observing System (AOOS), Geographic Information Network of Alaska (GINA).
 - Funding opportunities and technical assistance; Alaska Center for Climate Analysis & Policy (ACCAP).
 - Small competitive grants to develop long-term CC adaptation plans.
 - Database of AK-relevant CC adaptation programs.

CC-2 Promote climate change literacy through education/outreach

- Establish framework for K-12 education and public outreach about climate change:
 - State K-12 Science Standards
 - Increase coordination among existing programs & education entities that address CC.
 - Fund University development of courses to train teachers and resource managers.
 - Support development of outreach materials for State natural resource agencies.
- Cross-cutting to all TWG areas.

CC-2 Option Design

- Implement immediately – Aim for one to two years.
- *State Departments of Education, Natural Resources, Fish and Game and Environmental Conservation; University of Alaska.*



Thank you!

<http://climatechange.alaska.gov/>

Contact info:

Jan Caulfield, NS TWG Facilitator

janc@gci.net

(907)523-4610