Climate Change Planning in Alaska's National Parks.

Webinar #2 Southwest Alaska Inventory and Monitoring Network (SWAN).

"The Institutional Dimension."

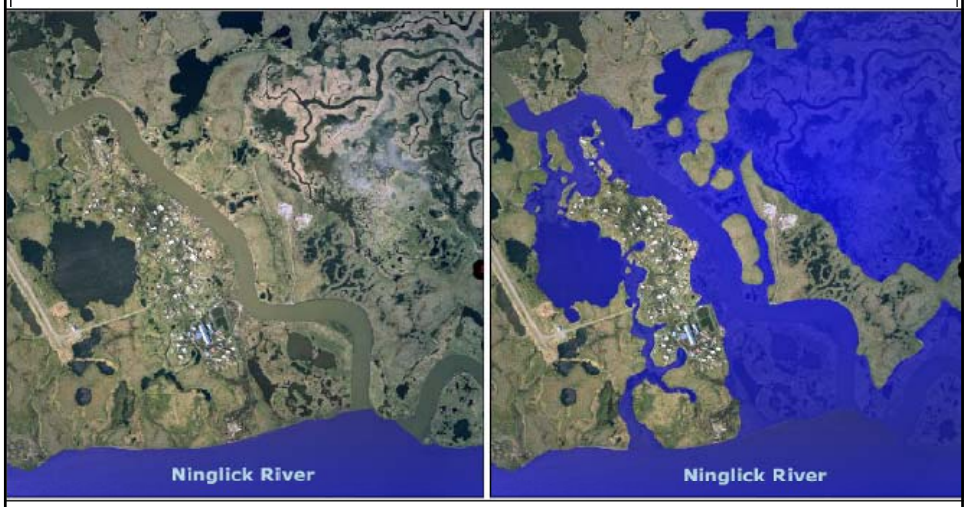
Don Callaway

Newtok

Bering Sea Coastal Community

Newtok – The First Casualty

Aerial view of the village of Newtok, August 2006. The Ninglick River is in the foreground and the Kealavik (Newtok) River meanders to the east (right of village in photo).
Photo: Jon Menough, ADEC, Village Safe Water Program



Newtok Flood – September 22, 2005. *Source: Newtok Traditional Council and USACE*

Major Problems:

Flooding has eroded dock - bulk shipments of fuel can't be delivered.

Photo: Jennifer Payne, ADCCED

Photo: Jon Menough, ADEC Village Safe Water Program

Remains of barge landing. Photo: Rich Sewell, ADOT/PF

Major Problems:

Solid waste disposal can only be accomplished by boat.

The old landfill eroded away in 1996. The new landfill is accessible by boat at high tide only.

Major Problems:

Complete community infrastructure – diesel storage, homes, school, clinic are eroding

Major Problems:

Flooding is causing problems with sewage disposal and may have serious health consequences.

Newtok – Major Bureaucratic Problems

- Stanley Tom of Newtok says one of the biggest obstacles is the lack of a single agency or group to be in charge of planning.
  - DOT can't build an airstrip unless we have a post office.
  - School has to have 25 students.
  - Land swap with USFWS requires lengthy and expensive EIS
  - FEMA regulations for emergency funding only allow for rebuilding on site, not for relocation.

Participants in Newtok Planning Group

Native Village of Newtok
- Newtok Traditional Council (NTC)
- Newtok Native Corporation (NNC)

State
- Alaska Department of Commerce, Community, and Economic Development (DCCED), Division of Community & Regional Affairs
- Alaska Department of Environmental Conservation/Village Safe Water Program (VSW)
- Alaska Department of Transportation and Public Facilities (DOT/PF)
- Alaska Department of Military and Veterans Affairs/Division of Homeland Security and Emergency Management (DHS&EM)
- Alaska Department of Education and Early Development (DEED)
- Alaska Department of Health and Social Services (DHSS)
- Alaska Industrial Development and Export Authority (AIDEA)/Alaska Energy Authority (AEA)
- Alaska Governor's Office

Federal
- U.S. Army Corps of Engineers (USACE), Alaska District
- U.S. Department of Commerce, Economic Development Administration (EDA)
- U.S. Department of Agriculture, Rural Development
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)
- U.S Department of Housing and Urban Development (HUD)
- U.S. Department of the Interior, Bureau of Indian Affairs (BIA)
- U.S Department of Transportation, Federal Aviation Administration (FAA).
- U.S. Environmental Protection Agency (EPA)
- Denali Commission
- Senator Lisa Murkowski's Office

Regional Organizations
- Association of Village Council Presidents (AVCP), Housing Improvement Program (HIP)
- Coastal Villages Region Fund (CVRF)
- Lower Kuskokwim School District (LKSD)
- Rural Alaska Community Action Program (RurAL CAP)
- Yukon-Kuskokwim Health Corporation

Newtok Implications of Relocation Alternatives.

- Newtok:
  - 65 houses $50-100 million to relocate.
  - Lost 4,000 ft. to erosion & loses 90 ft shoreline per year.
  - Land under village will erode in next 5 years.
- Relocate to Bethel/Hooper Bay?:
  - Lose ready access to subsistence
  - Lose history & sense of intact community
  - May lose extended kin support integral to survival

Challenges to Village Relocation

Sally Russell Cox, Newtok Planning Group

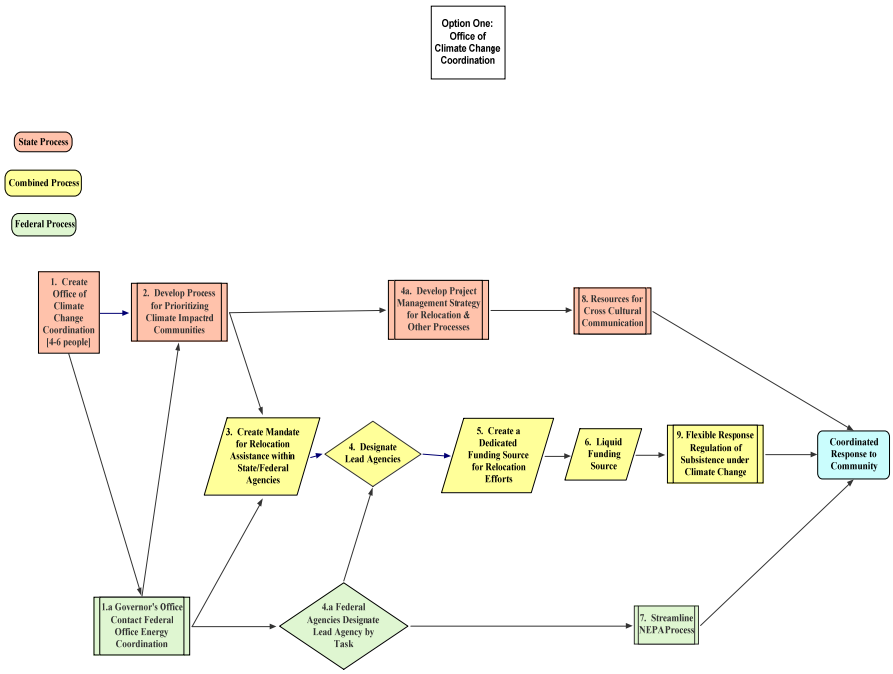
- No Mandate for Relocation Assistance
- No Designated Lead Agency at State and/or Federal Level.
- No Strategy for Relocation Process.
- No Dedicated Funding Source for Relocation.
- Uncertainty in Fulfilling NEPA.
- Barriers to Making Infrastructure Investments in Threatened and Unpopulated New Communities.
- Strained Local Capacity and Resources.

What are the real possibilities of paying for relocation and/or erosion control projects?

- State legislature apportions more & more $'s to sustain urban infrastructure, e.g., roads in Fairbanks.
- Less $'s, even before this issue to maintain rural infrastructure (e.g., school maintenance)
- Fewer $'s and programs from State & Federal entities for local construction, services and transfer payments.
- Why "money is going to be tighter than ever before".

Summary: Threats to Resilience

- Loss of subsistence species beyond community's ability to adapt.
- Relocation to urban areas destroys traditional local networks.
- Cost of living rising beyond ability to sustain infrastructure, heat houses or purchase gas/technology for hunting.
- Long term cultural, social and psychological cost of "settlements without prospects".



Option 1. Central Ombudsman Agency: Option design

1. Create Climate Change Ombudsman Office.
2. Develop process for prioritizing impacted communities.
3. Create mandate for relocation assistance within State and Federal entities.
4. Designate lead agencies when agency responsibilities overlap.
5. Create dedicated funding source for relocation efforts.
6. Create Immediate Assistance Fund.
7. Streamline the NEPA Process.
8. Insure cross-cultural communication
9. Streamline regulatory response to subsistence seasons and bag limits.

Transitions & Tipping Points in Complex Environmental Systems

(NSF Advisory Committee)

- With Respect to climate change NSF place a high priority on research that integrates behavior & live sciences, earth and atmospheric sciences, social sciences and mathematical, physical, engineering, and informational sciences.
- Interdisciplinary priorities for NSF and other agencies will not achieve all they could achieve if the institutional practices within the research and education communities are not adapted to facilitate interdisciplinary action. (p.5)

Institutional Practices that Impede Interdisciplinary Research.

- Current practices in academic and government institutions, with their traditional disciplinary funding and evaluation mechanisms, often inhibit the truly innovative and integrative science and education the nation needs.
- NSF needs to insure that programs funded for interdisciplinary activities have the longevity necessary to attract scientists to work collaboratively across the disciplines.

Tipping Points.... Continued.

- "Rapid development and growth of human populations are causing changes to natural ecosystems and biodiversity loss of a magnitude and scale not seen before in human existence."
- "As these socioeconomic systems have become more globally connected and interdependent so too have their interactions with environmental systems. These changes in environmental and social systems represent serious threats to our economy, security, and human health"

Tipping Points .... (continued)

- "Environmental science must move beyond identifying issues and toward providing sound bases for the development of innovative solutions, effective adaptation, and mitigation strategies. To accomplish this goal we urgently need to expand our capacity to study the environment as an integrated system that includes the human dimension."
- "To understand this coupling of natural and human social systems, we must advance general concepts such as ecosystem services and describe the processes that link natural systems from local to global scales with human systems from individuals to collectives."

Tipping Points .... (continued)

- "Incorporating the human component will require long-term regional-scale research that addresses how individual behavior, demography, and social systems respond to changes in the functioning of environmental systems. While scientists from every discipline can make significant contributions, studying the components of environmental systems in isolation from each other is neither adequate nor meaningful."

Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change.

(Cole & Yung 2010 Island Press.)

- Mgt. Policies, e.g., "Restoration of Naturally Functioning Ecosystems."
  - "Our world has entered an era in which keystone environmental drivers – those that define the possible range of characteristics of a protected area – simply have no analog in the past, no matter how distantly we look." (p. 50)
  - "Furthermore, at the spatial and temporal scales relevant to protected area management, the ability to predict future ecosystem conditions and outcomes of management actions is, at best, qualitative. (p. 50)

Beyond Naturalness … (continued).

- Mgt. Policy – Invasive species:
  - "Thus, maintaining historic species assemblages may not be the only valid management goal in protected areas. Novel species assemblages arising through species migration and invasion are increasingly inevitable as climate change and species movement increase; some of these novel assemblages might be desirable." (p. 44)
- Mgt. Policy – "Preserving natural and healthy ecosystems".
  - The traditional notion of restoring past conditions is often inappropriate because many of the changes in ecosystem state (e.g., climate change) that demand intervention are irreversible. (p. 38).
  - Restoration of past conditions may be a recipe for disaster if climatic conditions of the future are unfavorable for those ecosystems (p. 23)

Beyond Naturalness …. (continued).

- Mgt. Policy – "Preservation of wilderness".
  - The authors, in citing William Cronon, argue "for a need to move beyond couching our conception of wilderness and the values it embodies so firmly in a dualistic vision of humans apart from nature." "In particular, it is time to articulate goals and objectives for parks and wilderness that are founded in a perspective that views humans as part of, rather than apart from, nature." (p. 26)