

Climate Change Impacts In Alaska



Mike Black

Center For Climate and Health (CCH)

Department of Environmental Health and Engineering (DEHE)

the mission

Identify health effects associated with climate change and develop strategies that will help protect community health.



Photo courtesy A. Parkinson

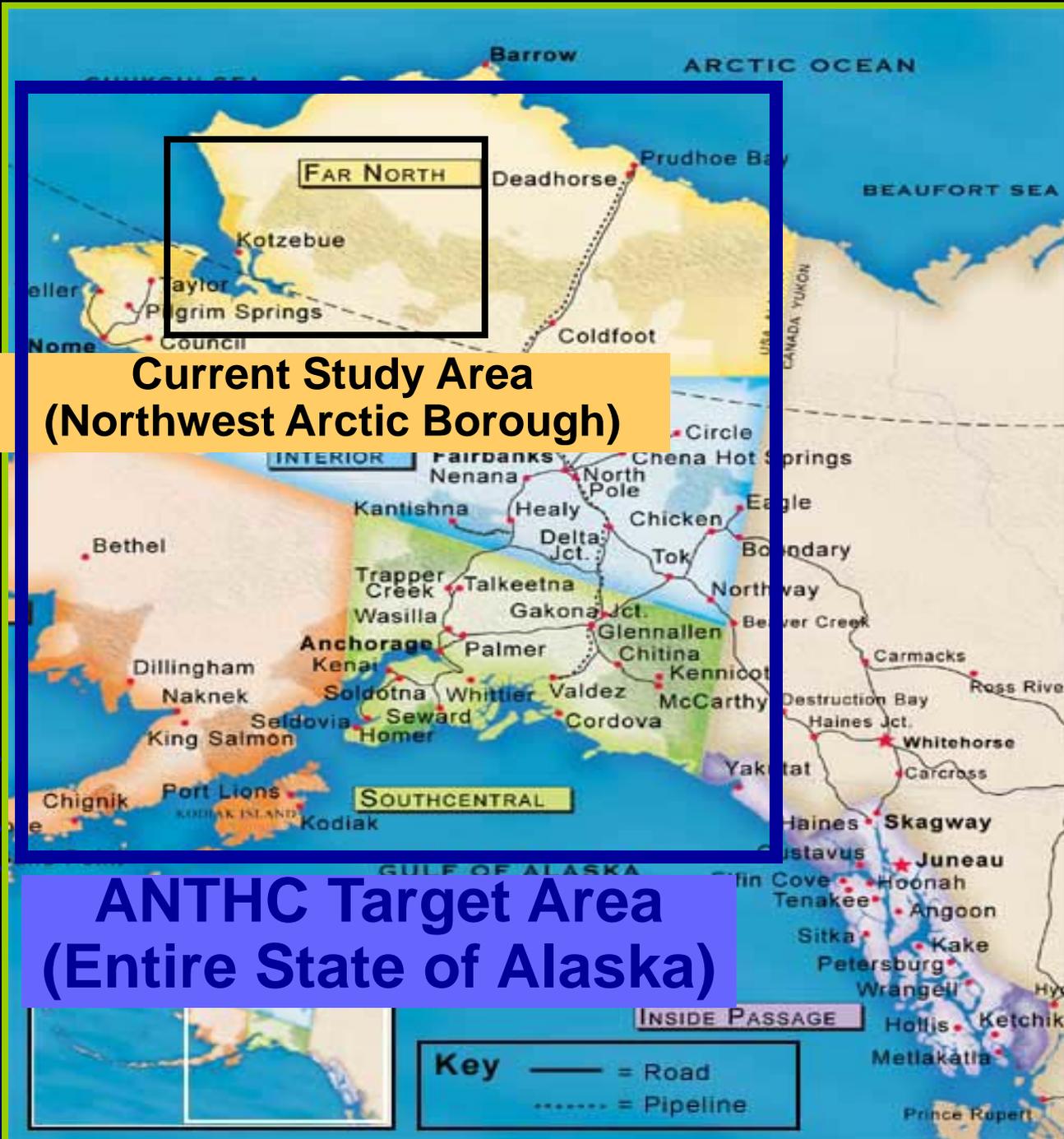
Objective:

develop a process for working with communities to determine health effects of climate change at the local level to provide assist local and regional leadership in adaptation planning.

develop Alaska Atlas for Engineering Parameters projected over design life of facility (~30 years)

Funding: U.S. Indian Health Service

Partners: Maniilaq Association, Northwest Arctic Borough, Tribal Governments, City Governments, Universities, State and Federal Agencies

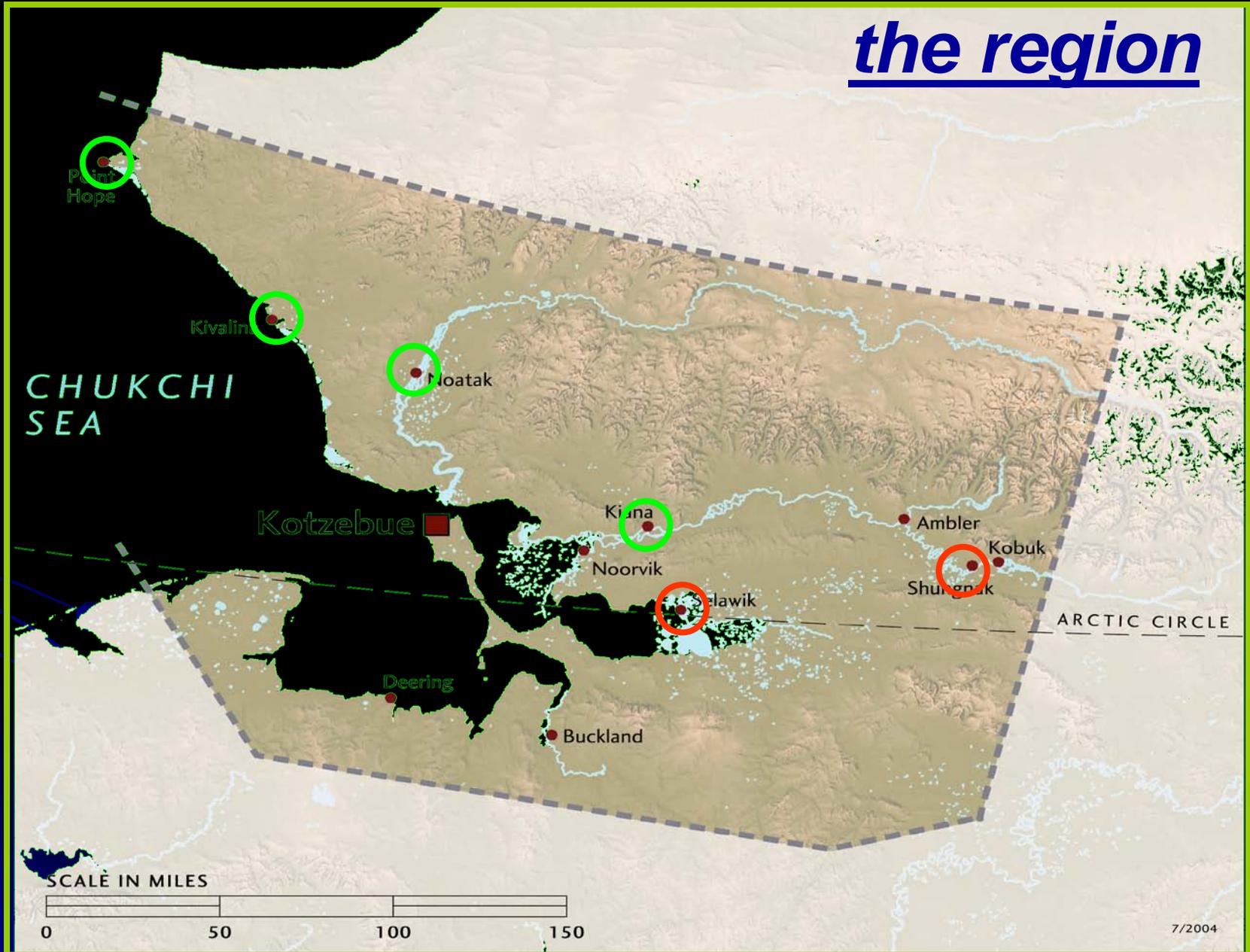


**Current Study Area
(Northwest Arctic Borough)**

**ANTHC Target Area
(Entire State of Alaska)**

Key — = Road
..... = Pipeline

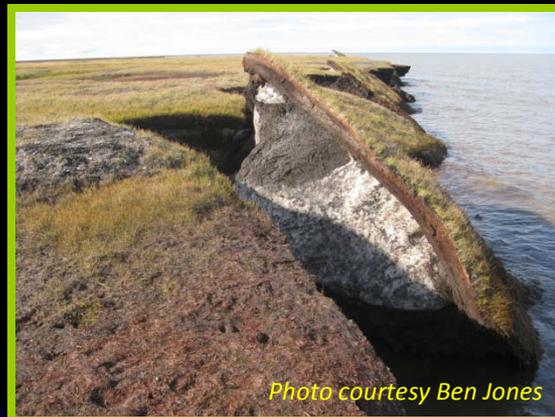
the region





the purpose

- Raise awareness about climate – health and water connections.
- Record local observations about climate change.
- Identify health risks and benefits.
- Explore health protective adaptation strategies.
- Recommendations for design and construction of Sanitation Infrastructure.



the problem

- Climate impacts not well understood.
- Health effects are not well understood.
- Climate information is largely focused at regional level.
- Communities need local information for planning.
- Complexity requires an inter-disciplinary approach.



the process

- **Scoping:** describe general regional climate / health condition
- **Surveying:** local visit, interviews (>25), and data collection
- **Analysis:** review climate and health trends
- **Planning:** provide information for informed decision making



the people

Health: clinic, behavioral health,

Water and Sanitation: operators, RMWs, Env. Health managers

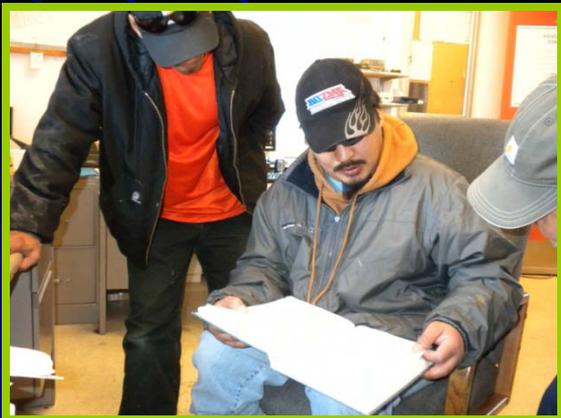
Education: teachers, students, counselors

Environment: natural resource and environmental managers

Governance: city and tribal councils, staff and leadership

Public Safety: police, fire, search and rescue

Traditional Knowledge: subsistence experts, elders



“We used to have frozen meat and blubber in summertime, but they’re not frozen no more.”

Joe Towksjhea - Elder



Impact: thawing cellars

Effect: food insecurity

Adaptation: permafrost surveillance, adaptive design



“In summer the lake water is getting really warm, we are seeing a lot of larvae in the water”

Andrew Frankson – Water Operator



Photo Courtesy Vladimir Romanovsky



Photo Courtesy Alex Whiting

Impact: changing lakes

Effect: water insecurity

**Adaptation:
surveillance & filtration**

“There have been beavers in the river the last few years.”

Rodger Hawley

Impact: Invasive species

Effect: Zoonotic Disease

**Adaptation: Surveillance
& Prevention**



“The ice is no good for haul out and butchering of bowhead. Too thin.”

Ray Koonuk Sr. – Whaling Captain

Impact: unsafe ice

Effect: injury, nutritional?

**Adaptation: ice surveillance & improved
emergency response**



Photo Courtesy Charles Wohlforth

“The ocean is coming and eroding the beach, real fast. Some of the food cellars are gone.”

Joe Towksjhea. – Elder

Impact: storms / erosion / flooding

Effect: injury, stress, infrastructure

Adaptation: emergency preparedness



Photo courtesy Millie Hawley

the deliverables

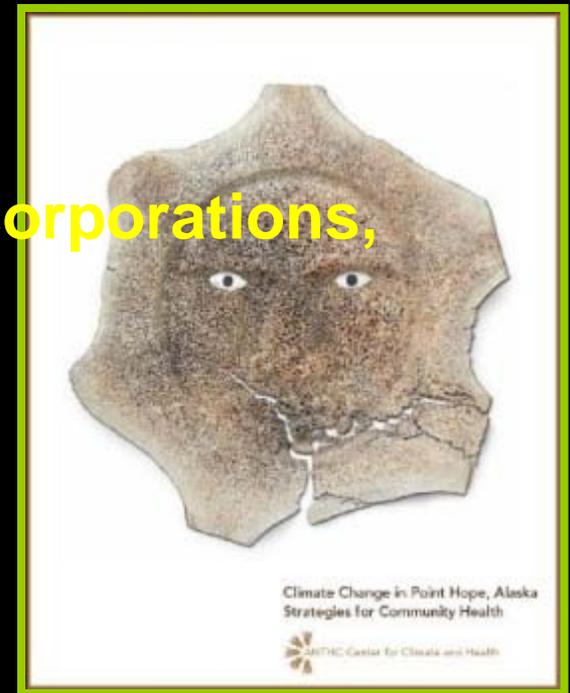
Final Report – includes findings, observations, results, recommendations, and adaptation strategies

Typical Outline of Report:

Summary, Introduction, Community Profile, Temperature and Precipitation, Sea Level, Erosion, Permafrost, Snow and Ice, Water and Sanitation, Food Safety and Security, Conclusions, and Adaptation Strategies

Presentations: to communities, regional corporations, funding agencies, Climate Summits

**Web based Alaska Atlas –
Engineering Design parameters**



Government Policies for Imperiled Communities Affect Public Health
excerpt from IMMEDIATE ACTION WORKGROUP
RECOMMENDATIONS TO THE GOVERNOR'S SUBCABINET IN
CLIMATE CHANGE MARCH 2010

“o Community in Peril: Newtok finds itself in a Catch-22, or a no-win, situation.

Plans to relocate, combined with the imminent threat of flooding and erosion, has rendered Newtok ineligible for capital funding for improvements to existing infrastructure (e.g., water and sewer, bulk fuel tanks, power plant, and clinic) to meet needs at the current village until the relocation is complete or substantially complete.

The ability to divert designated resources to the new village site is hampered by policies that create barriers to investment in non-existent communities.

Any upgraded facilities or new facilities must be protected against imminent environmental threats, such as flooding and erosion, consistent with Administrative Order No. 175.”



General Recommendations

The development of an engineering feasibility study that will address the need for improved sanitation conditions in the community with follow on funding to construct the required improvements.

The development of an engineering feasibility study to address water treatment alternatives with follow on funding to construct the required improvements.

The need for improved monitoring of environmental conditions in impacted communities to enhance the ability to understand what is happening in the changing Arctic and improve our ability to adapt to these changes.

The development of a study to address public safety concerns in the event of storm surge flooding due to increasingly severe weather patterns in combination with the increased ice free season.

Questions?



ANTHC (Website: <http://www.anthc.org/>)

DEHE (Website: <http://www.anthc.org/cs/dehe/>)

CCH (Website: <http://www.anthc.org/chs/ces/climate/>)