Designing and Implementing a Governance Framework for Community-Led Planned Relocation: Interdisciplinary Research Supporting Community-based Adaptation and Policy

New Brunswick Environmental Network
February 2019

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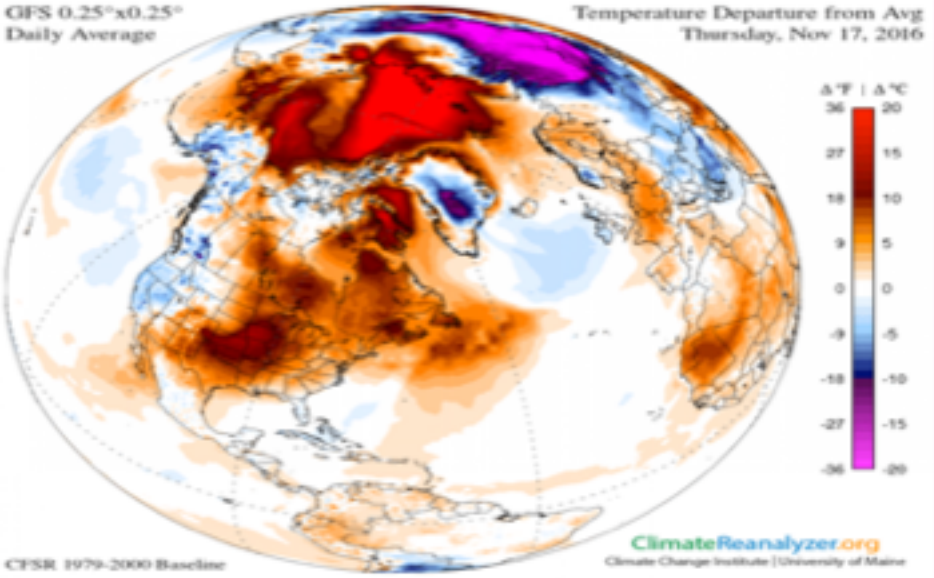
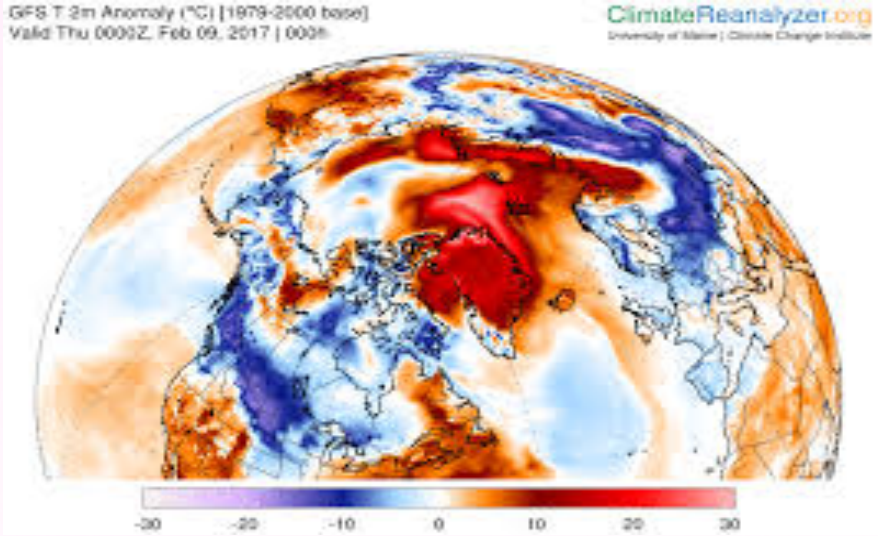
- ***Climate Change Research & Policy Institute****:* a boundary organization that strives to increase the adaptive capacity of Alaska Native communities experiencing climate change.

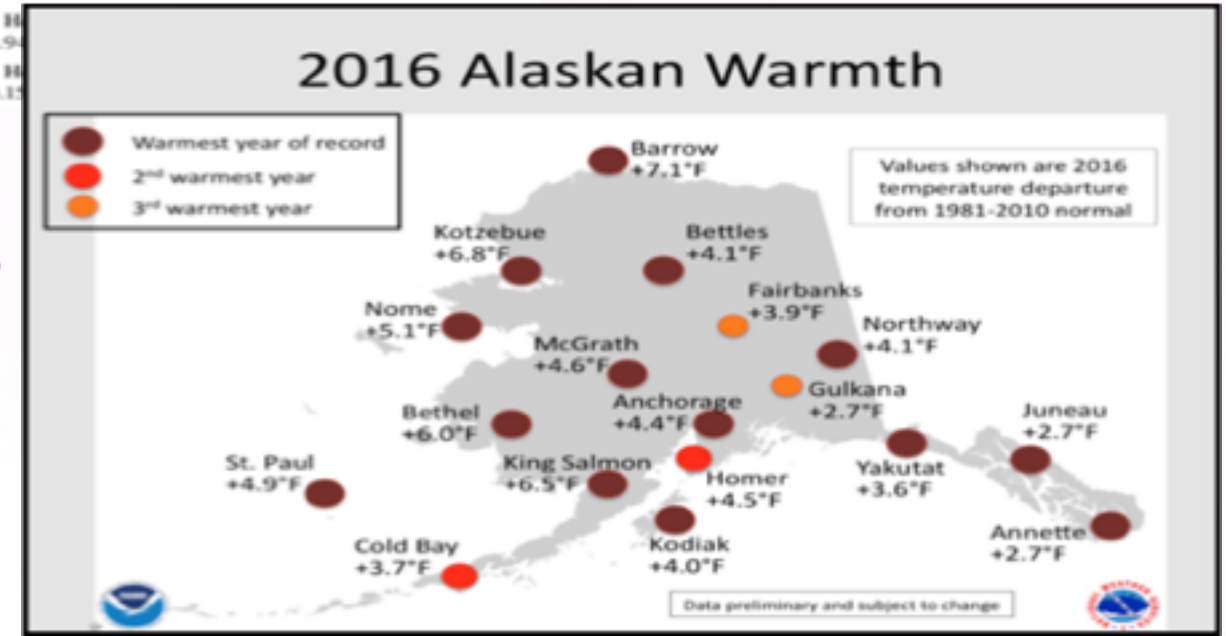
POLAR AMPLIFICATION



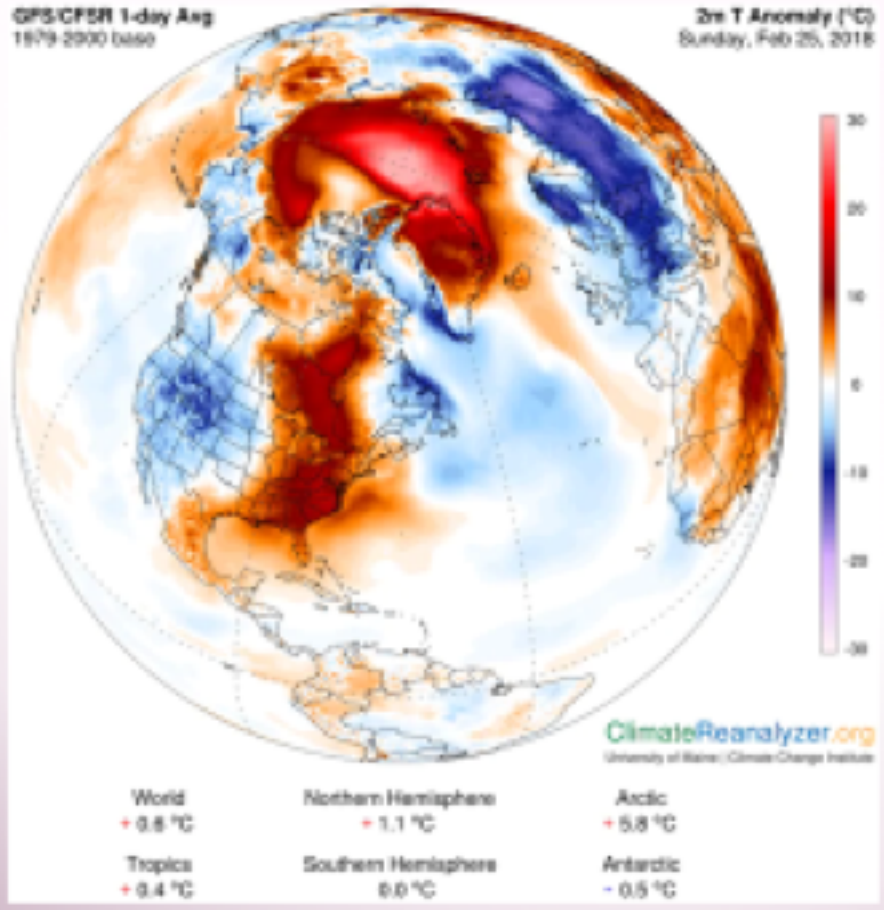
November 2016



Feb. 2017



2018



January 1 – February 28 2018: 61 hours above freezing temperatures

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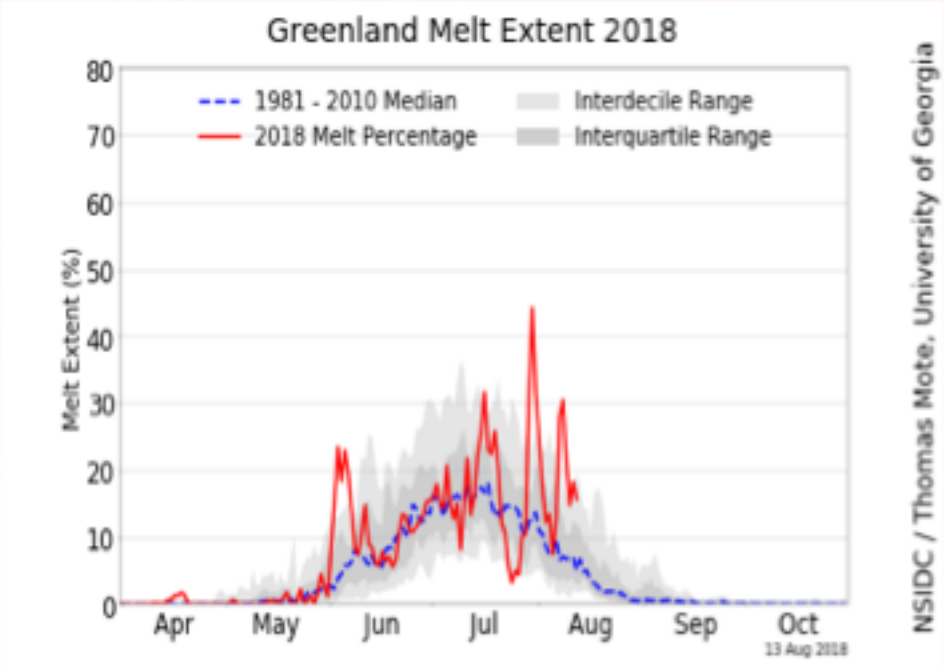
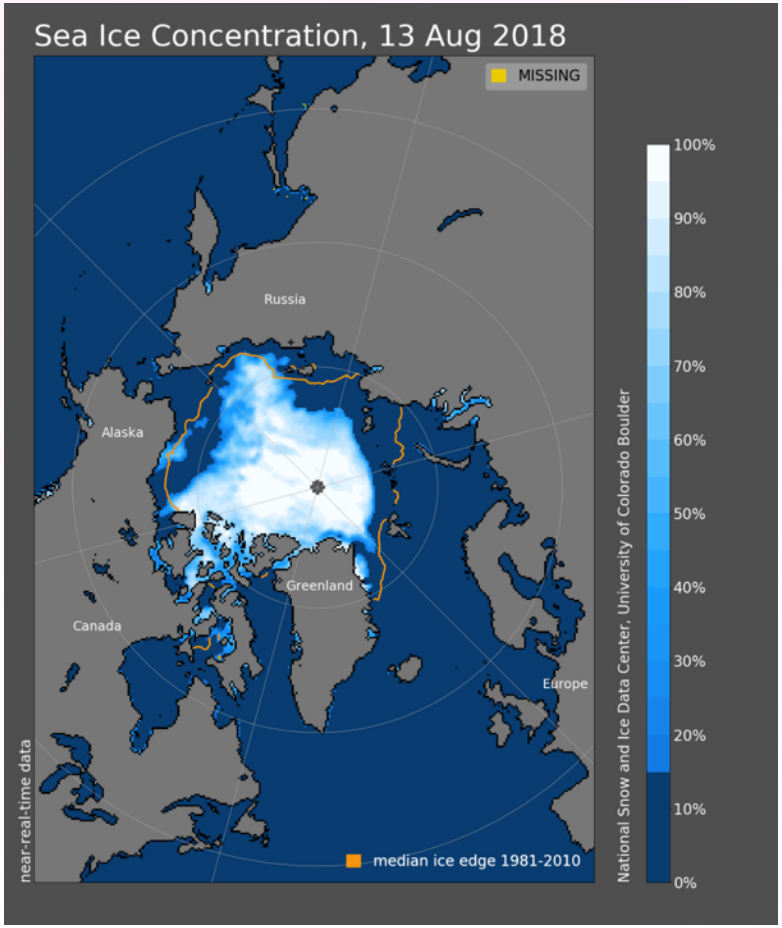
ARCTIC ICE





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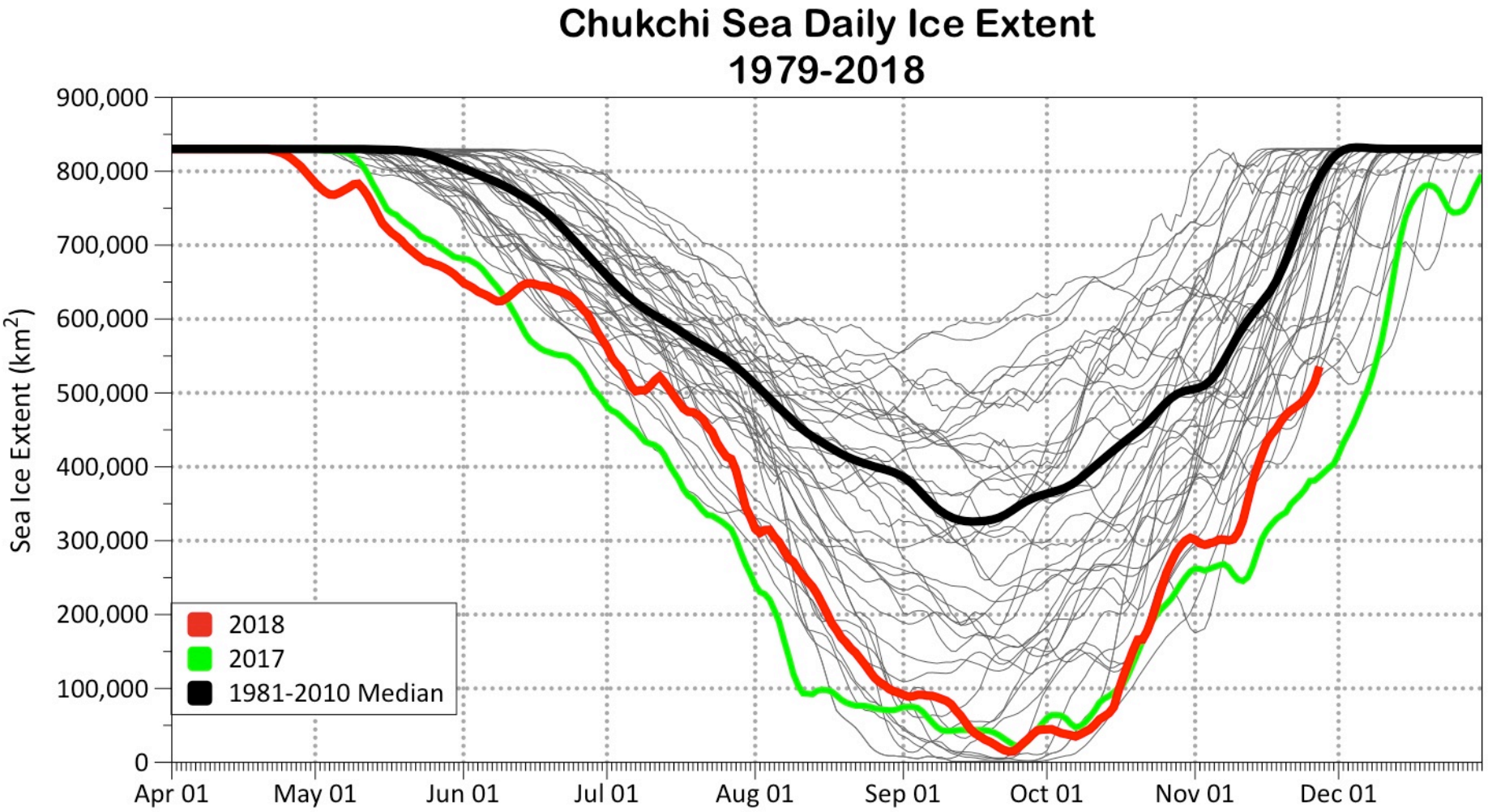
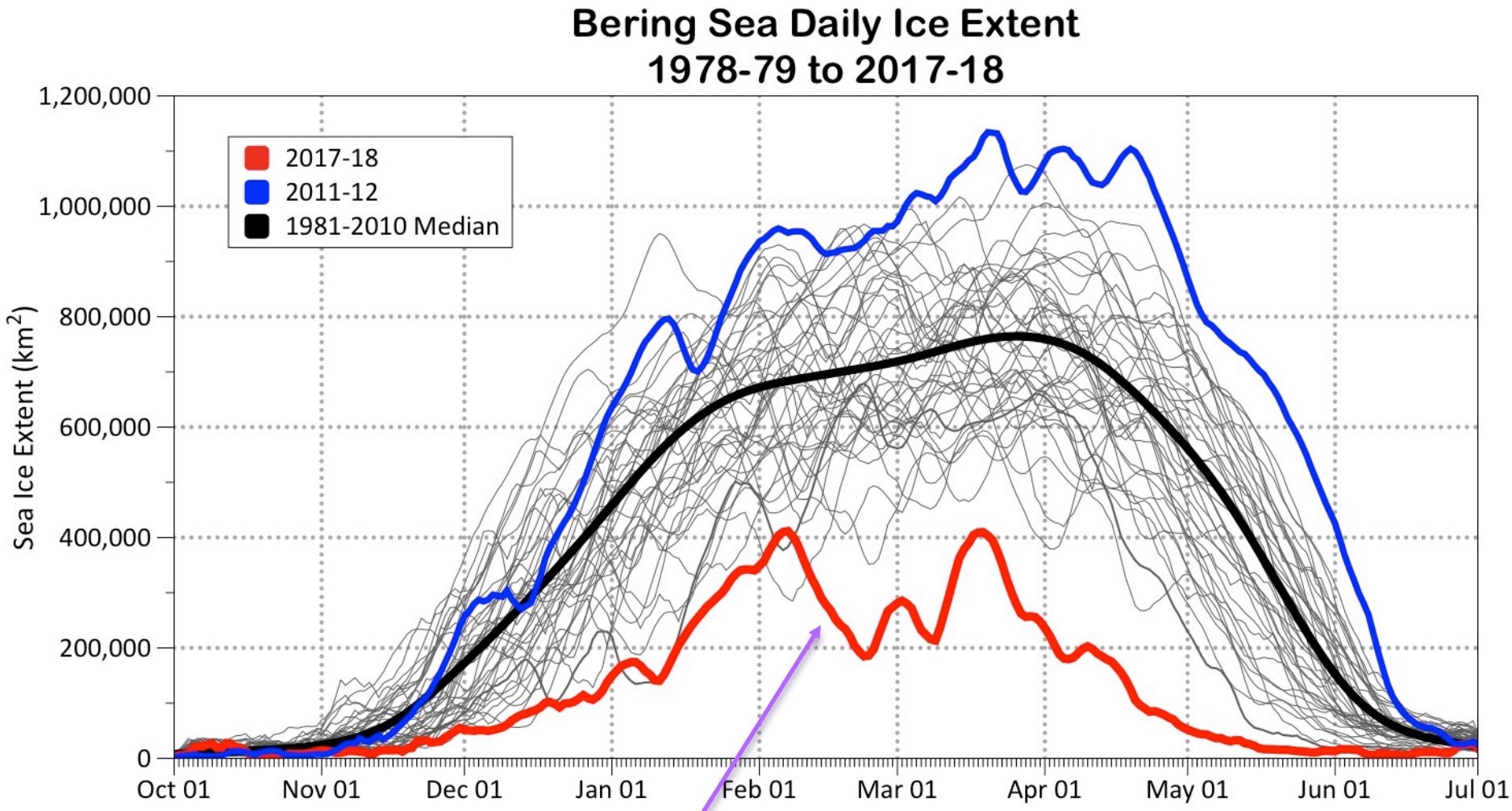
Chukchi Sea: Ice extent



ACCAP Alaska Center for Climate Assessment and Policy

Data source: NSIDC Sea Ice Index, Version 3
Updated through November 27, 2018

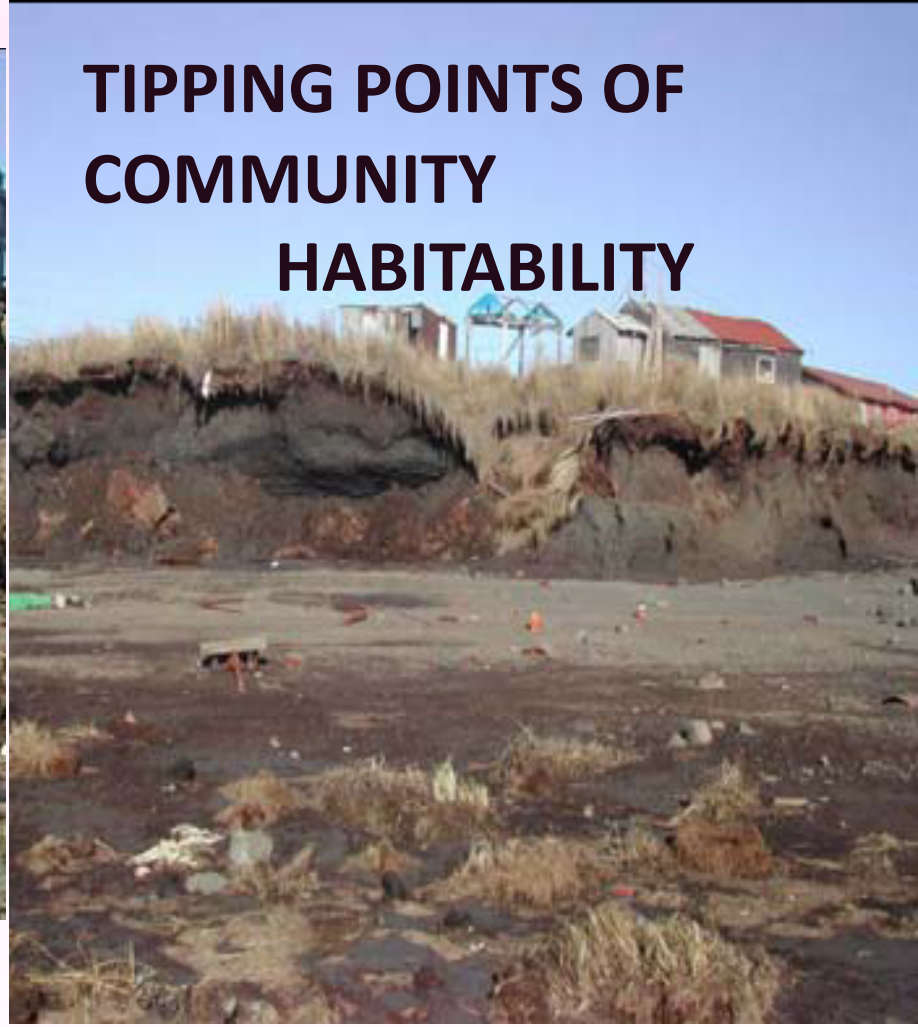
Bering Sea Ice Extent



At or near lowest all winter

Data source: NSIDC Sea Ice Index, Version 3
Updated through July 01, 2018

ACCAP
Alaska Center for Climate Assessment and Policy
A NOAA RISA TEAM



Photos: Frank Myoumick-Kawerak

Combination of repeated and frequent extreme weather events and slow-ongoing environmental change: decreased arctic sea ice, thawing permafrost and accelerated rates of erosion

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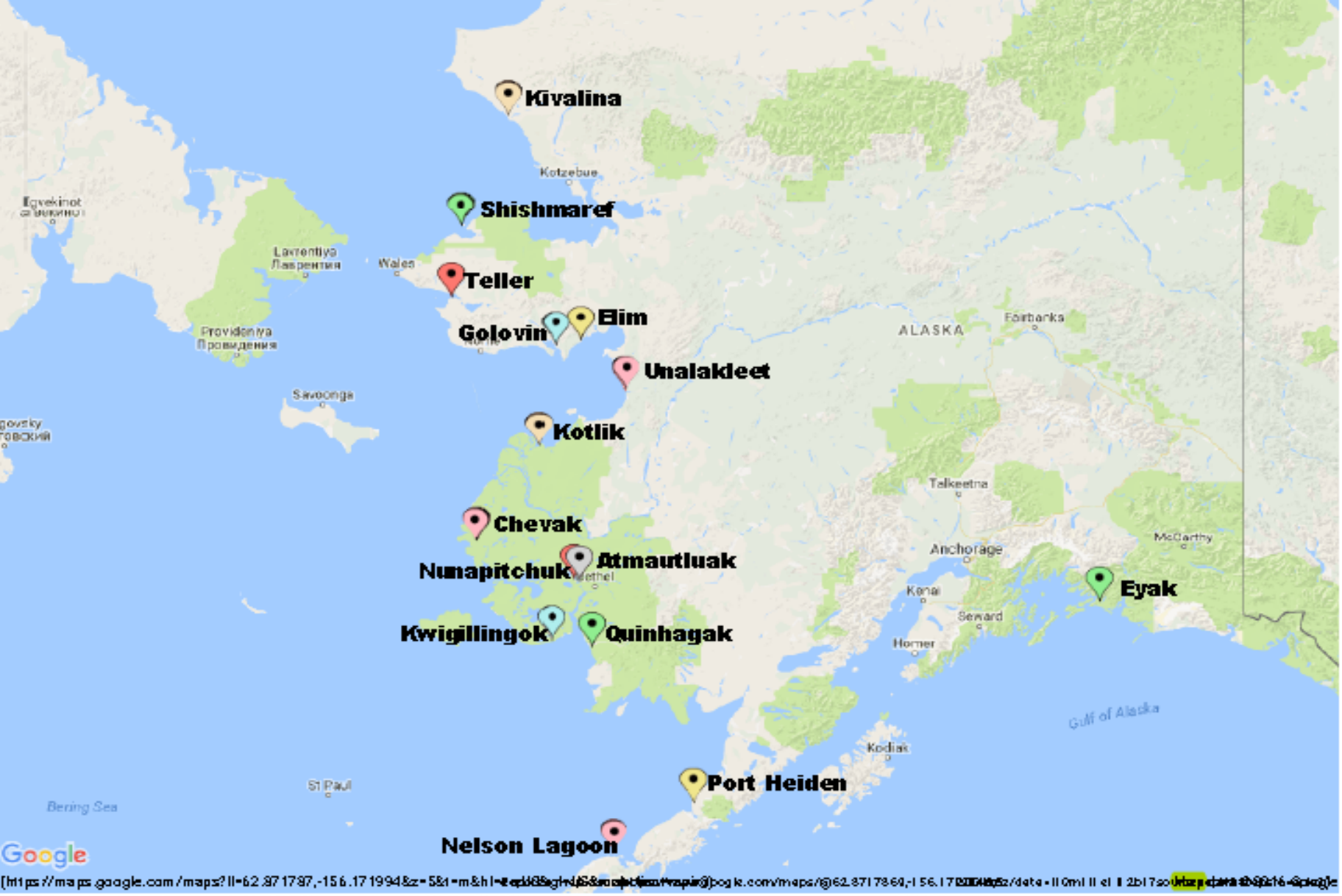

All imminently threatened by flooding and erosion.

Two made the decision to relocate

WHAT IS PLANNED COMMUNITY RELOCATION?

- **Voluntary**
- **Disaster Risk Reduction– prior to displacement of populations caused by extreme weather event**
- **Planned – long-term process**
- **Community**
- **Rebuild homes, infrastructure and livelihoods**
- **Maintain social and kinship connections**

FOUR GOVERNANCE ISSUES

- **NO government agency has the mandate or funding to relocate a community**

- **WHO makes the decision?**

- **WHEN: No institutional framework to determine the point in time when relocation needs to occur**

- **HOW can relocation occur prior to the occurrence of an extreme weather event that displaces people?**

- **HOW can human rights be protected?**

ADAPTIVE RELOCATION GOVERNANCE FRAMEWORK
HUMAN RIGHTS PROTECTIONS

Protection in Place

Community Relocation

Relocation Indicators

Relocation Governance Design

Four Components

1. Federal Legislation
2. Good Governance
3. Social-Environmental Monitoring
4. Funding

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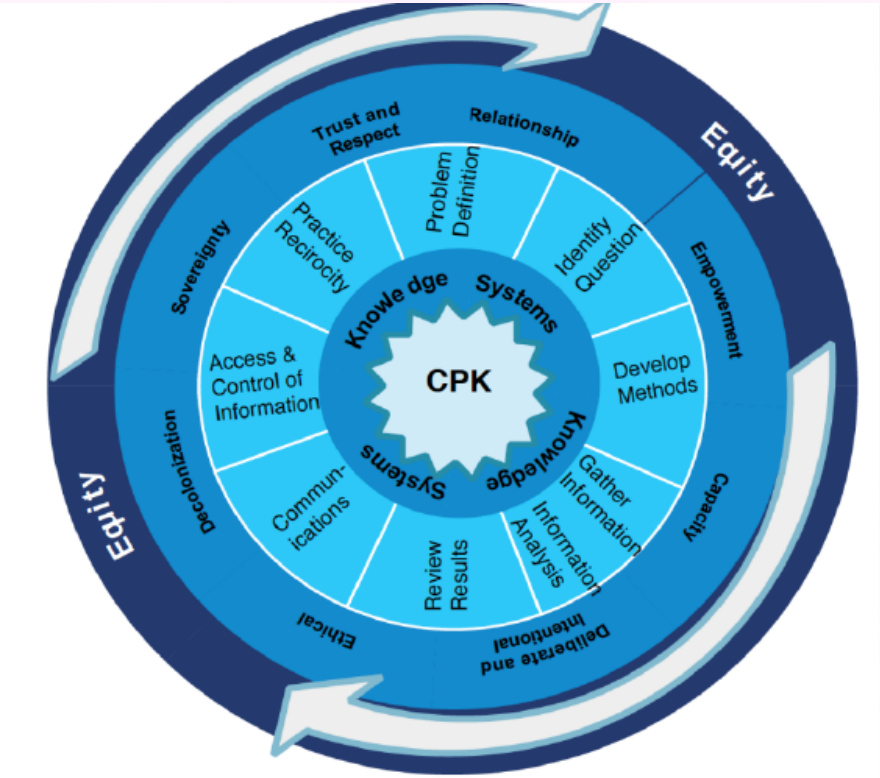
Integration of Indigenous Knowledge with Atmospheric and Physical Science

- Storm Forecasting
- Documentation of flooding and erosion events
- Install erosion and shoreline change monitoring time lapse cameras in 5 communities

Kwigillingok: Erosion along barge landing site on Kuskokwim Bay in 2011. Yellow plastic poles are placed along the bank to measure rates of erosion.

1985 Bank erosion protection
Kotlik: Victor Tonunchuk

Research Methods for the Co-Production of Knowledge

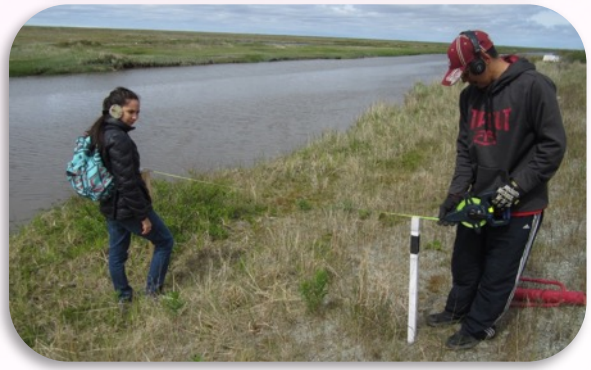


Graph presented by Carolina Behe, Raychelle Daniel, & Julie Raymond Yakoubian

Alaska DGGS: Community-based erosion monitoring

Providing local individuals with scientific protocols and training for collecting data

Tide staff at installation and during flood event, surveyed to vertical reference frame.



Denise Pollock (AIJ), Lewis Amik III (Kwigillingok), and Emmett Matthias (Kotlik) working to install and monitoring flooding and erosion.

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AIJ Compiles Storm Narratives

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November 2017 Storm and Weather Narratives

National Weather Service (NWS) storm alerts impacting Alaska Native coastal communities in November 2017

Nov. 7, 2017	The National Weather Service (NWS) issued coastal flood advisories for Kivalina, Shishmaref, Golovin, Unalakleet, and Kotlik.
Nov. 11, 2017	The NWS issued an alert that a long fetch of moderate west to northwest winds would affect Port Heiden and Nelson Lagoon.
Nov. 18-19, 2017	The NWS issued a high surf advisory was issued for the Yukon Delta, a forecast of strong winds in the Alaska Peninsula, and a forecast of rain north of Chevak and south of Bethel.
Nov. 22, 2017	The NWS issued a coastal flood advisory was also issued for Shishmaref, Kivalina, Golovin, and Kotlik.
Nov. 23, 2017	The NWS issued a coastal flood advisory was issued for Nelson Lagoon and Port Heiden.

This storm narrative report provides these 5 NWS forecasts and storm observations for communities in Golovin, Kotlik, Unalakleet, Kivalina, Shishmaref, Nelson Lagoon, and Port Heiden. Also included are weather updates, ground failure events, and wind storm events for communities of Atmautluak, Eyak, Elim, Chevak, and Kwigillingok. As a result of the coastal flood advisories, high surf advisories, strong wind alerts, and minimal to no sea ice formation many of these communities experienced erosion and flooding impacts.

November 20, 2017

Forecast: The National Weather Service issued a coastal flooding alert November 22 through November 23 in Golovin.

Observed Storm Details: In the evening of November 19, Golovin experienced waters a little higher than high tide. Wind gusts stayed under 30mph. On November 20, southeast winds occurred during the day and died down at 5pm, when the wind switched to south winds until 2am. The tide was way out and the beach tripled in width. There was a bunch of slush and young ice in Golovin Bay and in the lagoon, and heavy snow for most of the morning. On November 21, south winds at 20mph shifted to northwest winds. Flooding does not usually occur with southeast winds. The wind died down after 11:30pm and stars became visible in the SE part of the sky, and as it calmed later, more stars were visible in the sky.

At 5pm on November 22, west winds brought the tide into Golovin fast until the wind got stronger and switched more from the northwest direction. By 7pm the wind was coming from the west. Before 11:30pm, the snow squalls stopped and wind subsided until there was no wind. There was little wave action on the beaches because of the slush ice and thin ice formed on the Golovin Bay side.

Observed Storm Impacts: On November 22, the surge went up and covered 3/4 or more of the old airport. The water reached almost the same height as the October 11-12 event (Toby Anungazuk Jr., AIJ personal communication, November 22, 2017).

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November 2017 Storm and Weather Narratives

Flooding of the old airstrip on November 22, 2017 (Toby Anungazuk Jr)

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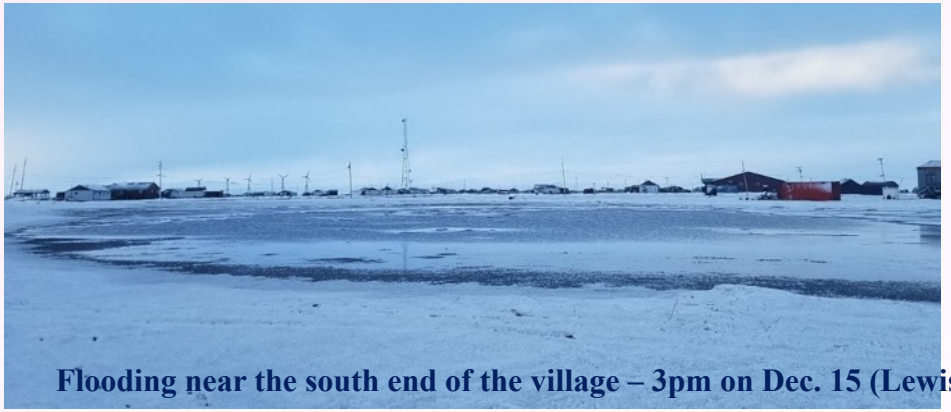
Impacts: Multi-level understanding of risk

Flooding below 20 unit housing – 11pm on Dec. 14 (Lewis Amik III)



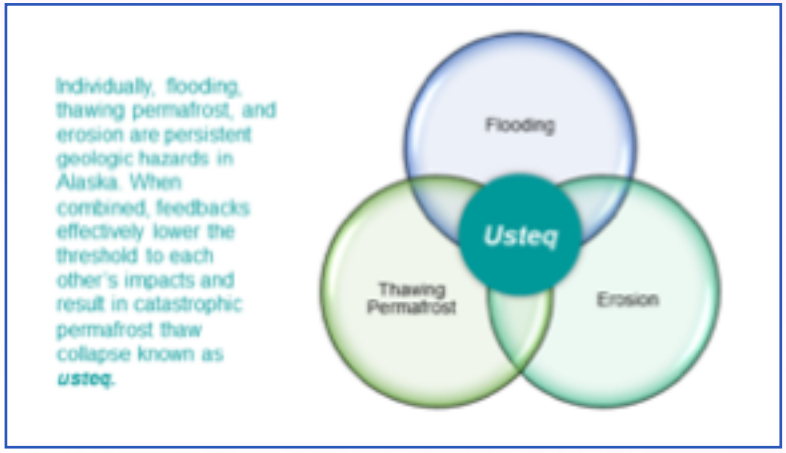
Flooding near the south end of the village – 3pm on Dec. 15 (Lewis Amik III

Flooding near the boardwalk leading to the school – 3pm Dec. 15(Lewis Amik III)

Environmental Monitoring to Create Policy Change

usteq: surface caves in, erodes

uste- ***to erode; to chip; to cave in***



Usteq in Elson Lagoon – Utqiagvik (Ben Jones UAF)

Usteq in Nunapitchuk, Alaska (Robin Bronen AIJ)

- **Usteq is specific to Arctic Alaska**
- **Stafford Act does not recognize erosion as a hazard, nor is it eligible for funding**

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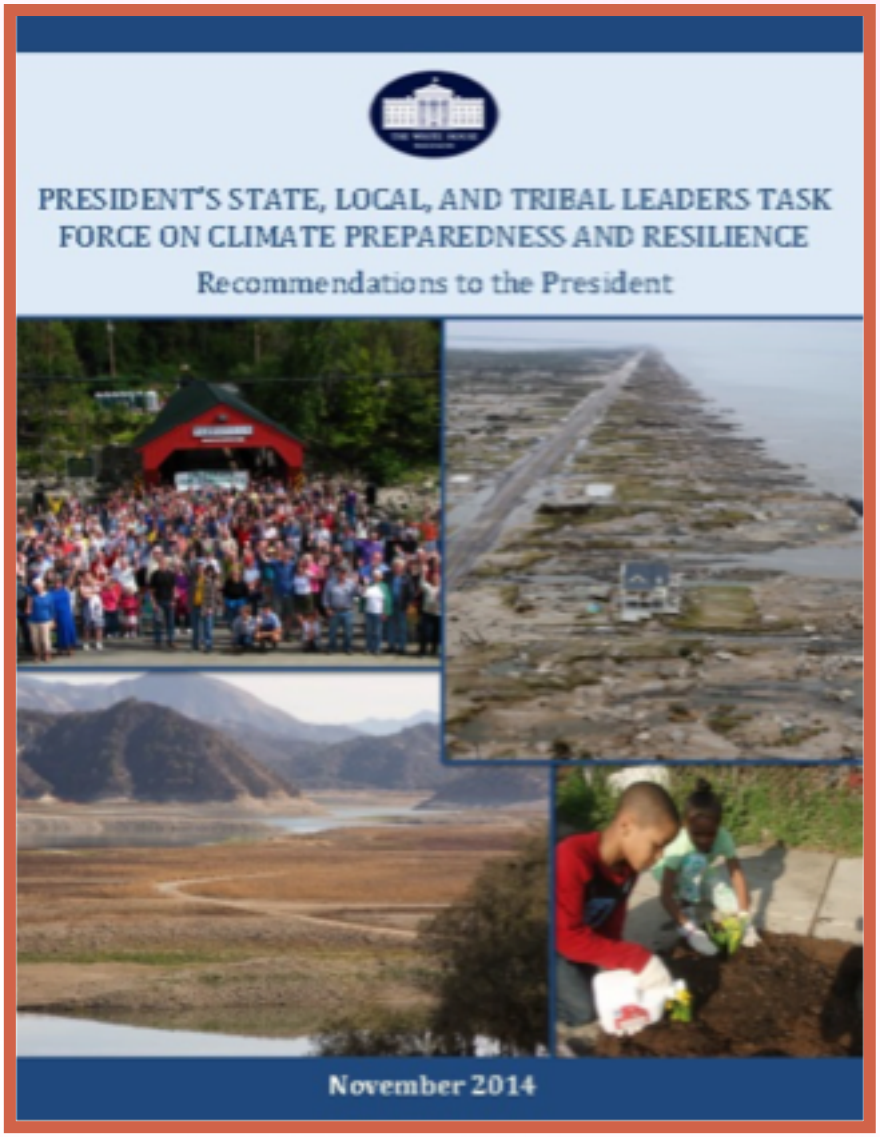

Engage U.S. Federal Government:

WHITE HOUSE:

Explore Federal role in addressing climate change-related displacement, needs of affected communities, and institutional barriers to community relocation.

US CONGRESS:

Bicameral Task Force on Climate Change

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Relocation Legislation

US Federal Disaster Relief and Hazard Mitigation

- **Amend definition of a disaster**
  - **include erosion and sea level rise**

- **Amend Hazard Mitigation Planning Process:**
  - **Foster community empowerment and capacity**
  - **Implement on-going environmental monitoring**

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Relocation Institutional Design

- Good Governance:
  - Identify governance design at each level of governance
  - Which agencies need to be at the table to design the institutional framework
  - Involve Affected Communities in Design
  - Identify steps Affected Communities need to take to determine relocation is best adaptation strategy

- Social-Environmental Monitoring
  - Identify Government and Non-governmental agencies doing environmental monitoring ; and
- Funding
  - Identify programs that can provide technical assistance and funding for planned relocation.

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Future

- **Documentation of Usteq**
  - **Continue compiling storm narratives;**
  - **Support and strengthen environmental monitoring;**
- **Identify Social and Environmental Relocation Indicators**
  - **Multi-level understanding of risk**
- **Policy Changes to create governance framework**

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Acknowledgements

- Native Village of Kwigillingok
- Native Village of Nelson Lagoon
- Native Village of Nunapitchuk
- Native Village of Port Heiden
- Native Village of Kwinhagak
- Native Village of Shishmaref
- Native Village of Teller
- Native Village of Unalakleet
- Chinik Eskimo Community
- Native Village of Elim
- Native Village of Eyak
- City of Kivalina
- Native Village of Kivalina
- Village of Kotlik