



# Climate Change and Public Health: Alaska on the Front Lines



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ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM

hot topics  
in practice

[www.nwcphp.org/hot-topics](http://www.nwcphp.org/hot-topics)

**Northwest Center**  
FOR PUBLIC HEALTH PRACTICE

# Question for the Viewers

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*How would you describe your knowledge of the impacts of climate change on Alaska's rural and indigenous populations?*

- A. Very knowledgeable
- B. Somewhat knowledgeable
- C. Not at all knowledgeable
- D. Other (please type in chat)

# Alaska Tribal Health System Overview

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# Community Impacts

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# Finding New Ways to Respond

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# Alaska Tribal Health System Overview

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# Alaska Tribal Health Compact

Agreement with U.S. Department of Health and Human Services (HHS)

26 Tribes /THOs Co-signers

**Guiding principles:**

- Government to government relationship
- Consensus
- Transparency
- Unity
- Access to Information



# ANTHC: Operation Areas



- Environmental Health and Engineering
- Community Health
- Alaska Native Medical Center
- Support Services (IT)

# Environmental Health and Engineering

- Health Facility Support
- Sanitation Facilities
- Utility Management Support
- Rural Energy Initiative
- Environmental Health Support







- Climate Initiatives
- Emergency Preparedness
- Tribal Capacity & Training
- Air & Healthy Homes
- Contaminated Sites
- Field Services



# Climate Initiatives

Advocate for Climate Equity

Support:

- Center for Climate & Health
- Center for Environmentally Threatened Communities



# Select ANTHC Climate Change Activities

Participation in Arctic Council Working Group

First Climate Impact Assessment

2003

Creation of Center for Climate & Health

Creation of LEO Network

Northern Climate Observer newsletter begins

2008-2010

Rural Energy Initiative

Engagement with USARC

Creation of One Health Group

Remote Monitoring Program for Sanitation Facilities

2011-2014

Innovative sanitation design and engineering

Partnership with Denali Commission by placing staff at the Commission

\$30 million for planning, design and project management for relocation of Newtok to Mertarvik

Creation of Center for Environmentally Threatened Communities (CETC)

2015-2018

PASS and MINI PASS

Partnership with APU for Center for Climate& Health

Kivalina Master Plan for Relocation

Response to U.S. House Appropriations request

Unmet Needs Report

2018-Present

## Climate Initiatives



## Center for Environmentally Threatened Communities CETC



## Center for Climate and Health CCH

Jackie Qatalina Schaeffer, Director

Max Neale, Program Manager

Sarah Yoder, Program Manager

Climate Initiatives Program coordinates activities across ANTHC to support the Alaska Tribal Health System in finding healthy ways to adapt to our changing world. CIP assesses the unique community environment and assists in planning for adaptation, mitigation, relocation and future climate-related initiatives.

144 Alaska communities face infrastructure damage from erosion, flooding, and permafrost degradation. CETC supports communities to protect-in-place, retreat, and relocate to new community sites.

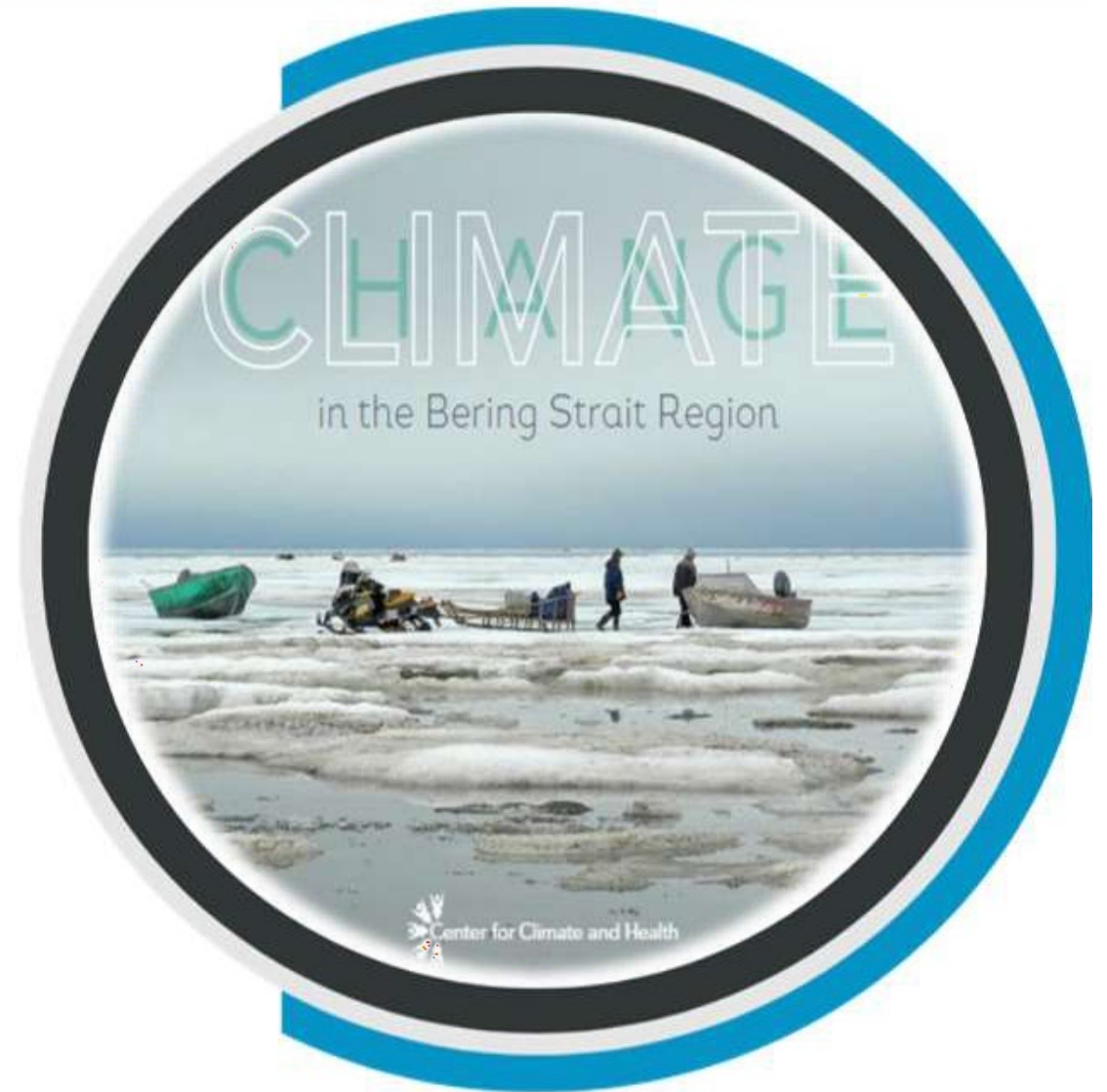
- Risk Assessments
- Planning
- Community Development
- Funding Acquisition
- Project Management
- Building Capacity

CCH mission is to increase understanding and raise awareness about the connections between climate change and community health. A further goal is to identify adaptive strategies that support health and wellness.

- APU Partnership
- One Health Group
- Northern Climate Observer Newsletter
- LEO Network



- One Health
- Northern Observer Newsletter
- Climate Assessments
- Adaptation Plans
- Publications
- LEO Network





# What is One Health?



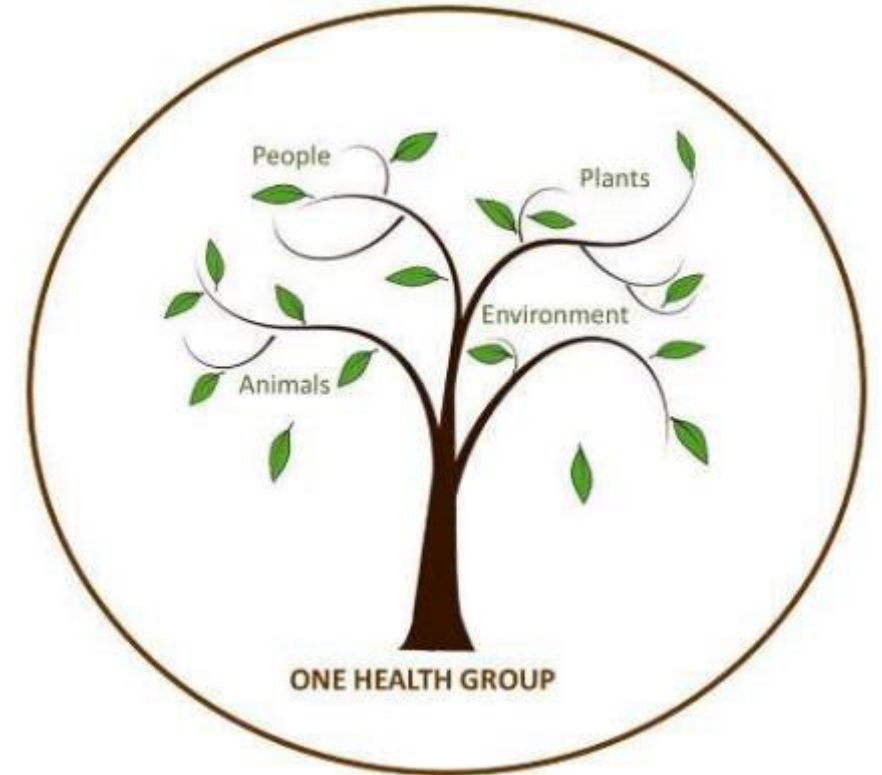
**Framework** that captures the **relationship** between human, animals, and the environment

**System** to identify emerging threats and facilitate a coordinated response between community, public health, and wildlife health agencies

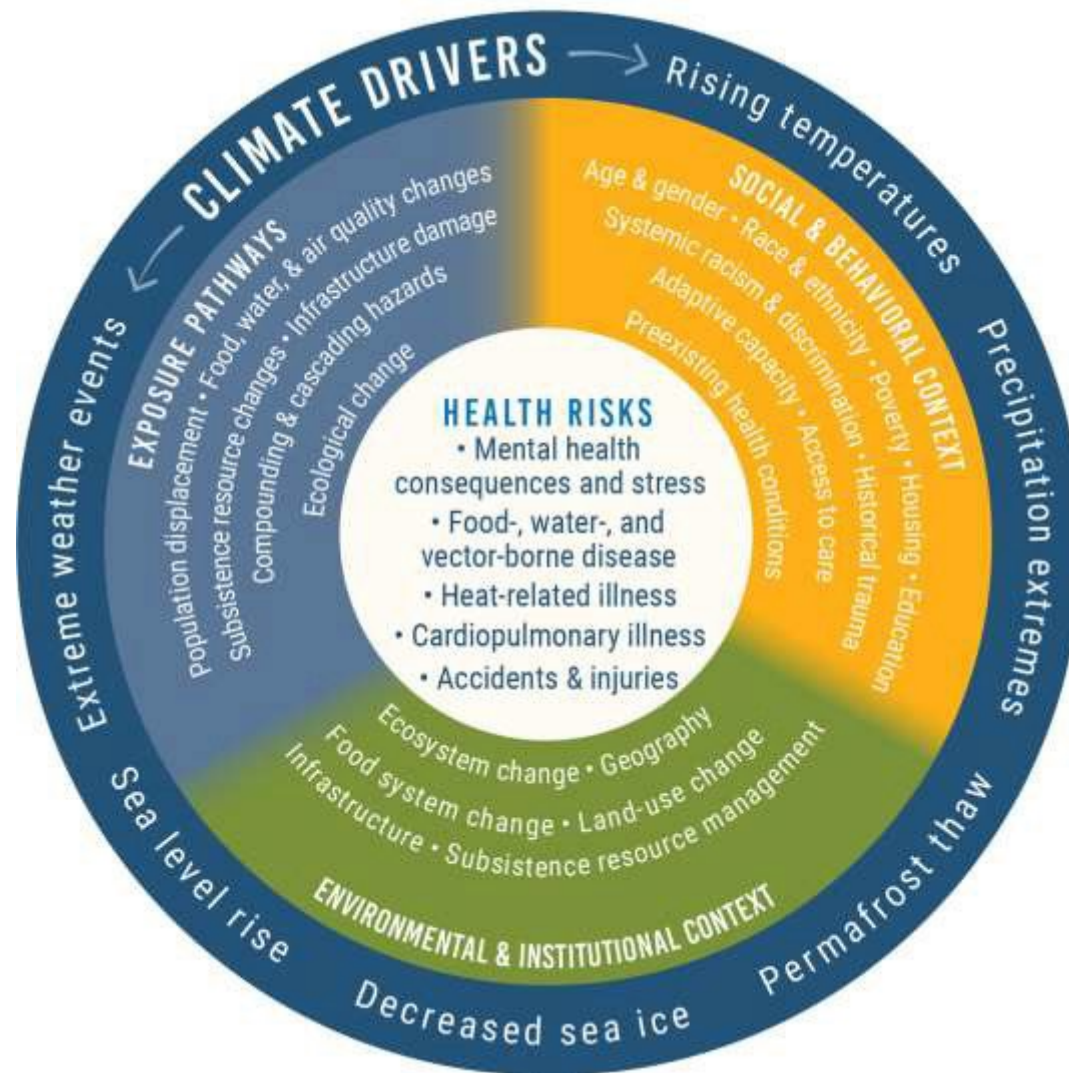
# What is One Health (Continued)?

**Collaboration** between subsistence hunters, environmental managers, public health, veterinary medicine, wildlife scientists, emergency response, etc.

**Comprehensive** response when events occur to ensure that people have actionable information about complex concerns, such as safety related to food and subsistence harvest and food consumption



# One Health and Climate Change



# Climate Health Impacts



## Medical and Physical Health

- Changes in fitness and activity level
- Heat-related illness
- Allergies
- Increased exposure to waterborne and vector-borne illness

## Mental Health

- Stress, anxiety, depression, grief, sense of loss
- Strains on social relationships
- Substance abuse
- Post-traumatic stress disorder

## Community Health

- Increased interpersonal aggression
- Increased violence and crime
- Increased social instability
- Decreased community cohesion





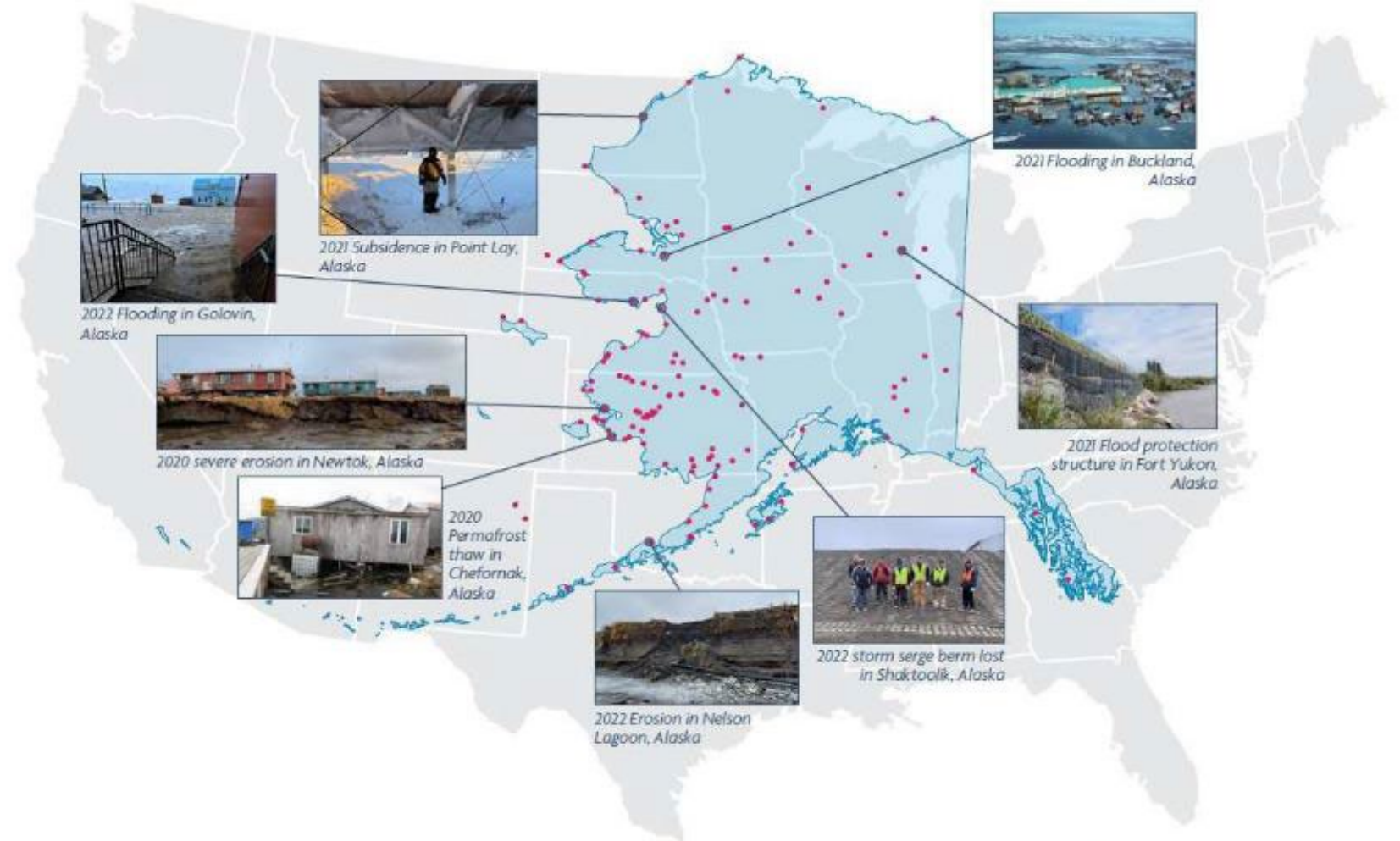
# Center for Environmentally Threatened Communities

- Climate Risk Assessments
- Community Planning and Project Development
- Grant Writing and Management
- Contracting Services



# Geographic Comparison Map

The state of Alaska compared to the continental U.S. showing the geographic range of 144 environmentally threatened communities, and examples of some of the environmental threats impacting these communities.







# Unmet Needs of Environmentally Threatened Alaska Native Villages: Assessment and Recommendations

Published November 2024



ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM

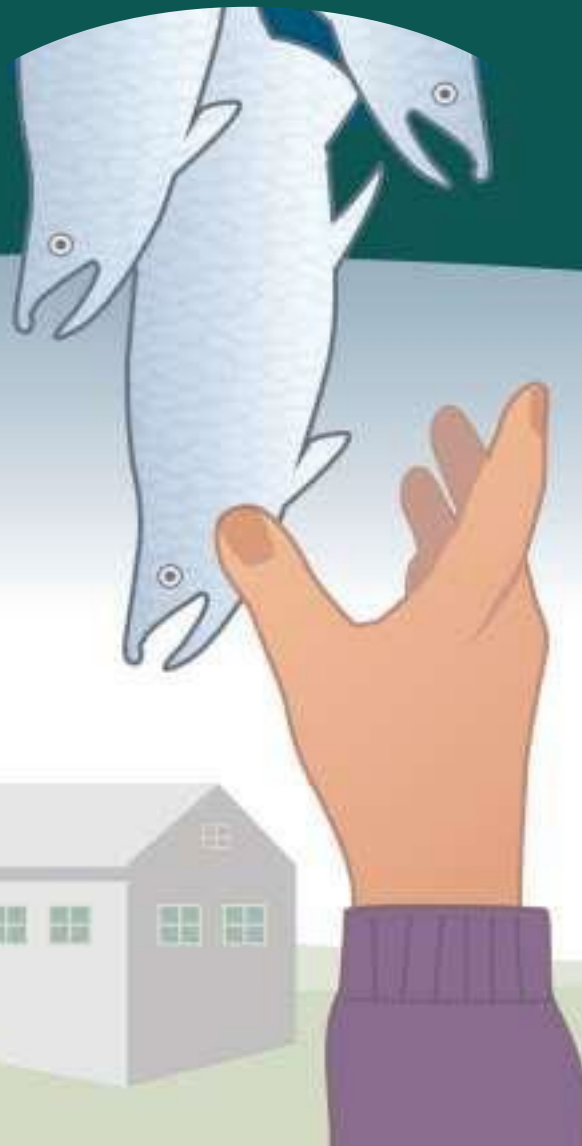


# Inequitable Delivery of National Climate Change Resources and Services

**Cities**



**Towns**



**Alaska Native Villages**



# Community-Driven Relocation Decision-Making

## RISK ASSESSMENT



- Collect baseline data on erosion, flood, and permafrost thaw using community-based observations and scientific data
- Erosion, flood, and permafrost modeling and engineering analyses
- Data compiled into risk assessment report for review by community members and leaders

### RESULT

Community understanding of risk

## PLANNING



- Community solutions to mitigate risk are developed based on technical feasibility, and benefits and cost of actions
- Community decides to protect-in-place, retreat or relocate, and prioritizes related actions, resources, and timelines
- Community develops Hazard Mitigation Plan (HMP) and resilience/adaptation plan with prioritization of fundable projects

### RESULT

Written plan summarizing hazards and priority projects to reduce risk

## IMPLEMENTATION

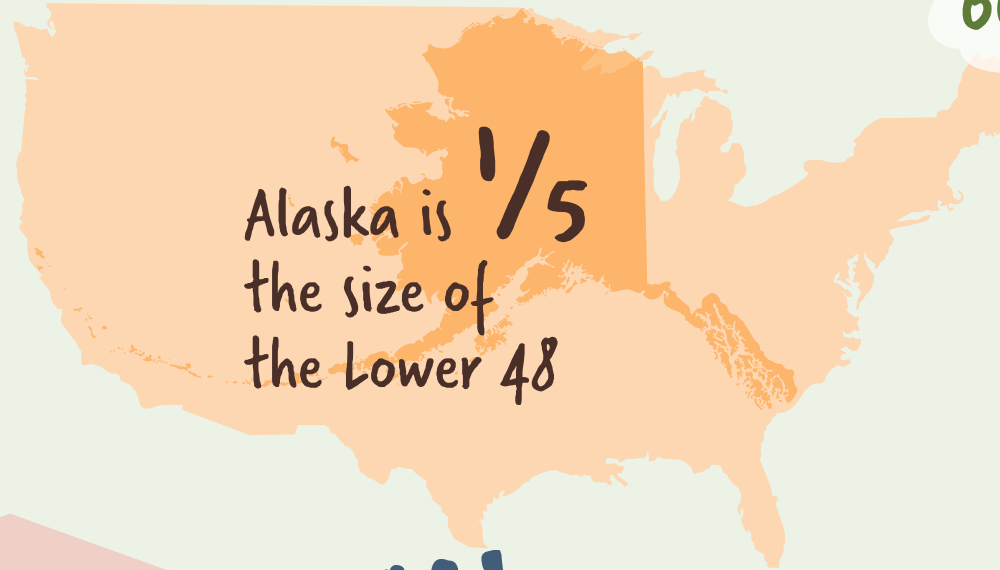


- Community drives project design
- Community acquires and manages project funding
- Community manages construction project implementation by working with local or outside project management contractors
- Construction using local workforce

### RESULT

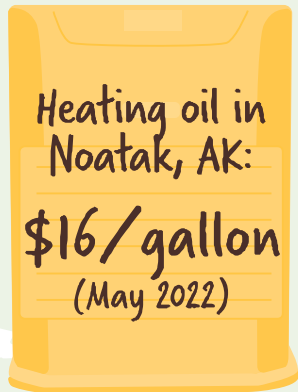
Reduced risk to environmental threats

# Current Rural Alaska by the Numbers



60% of Alaska communities are not connected to the road system

Each year Alaskans in rural communities harvest an average of **295 pounds** of food through subsistence activities.



The average population of communities in rural Alaska

Of the 144 environmentally threatened communities facing infrastructure impacts from erosion, flooding and permafrost thaw, 95% are economically disadvantaged.



# Community Impacts

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# Current Trends and Impacts

## TRENDS



### INCREASED PRECIPITATION

More frequent and severe precipitation events can cause flooding and erosion



### INCREASED WIND SPEEDS

High wind speeds can amplify the impact of storms



### RISING AIR TEMPERATURES

Warming air temperatures lead to permafrost thaw and the loss of sea ice



### LOSS OF SEA ICE

Barrier sea ice buffers the coastline from severe storms



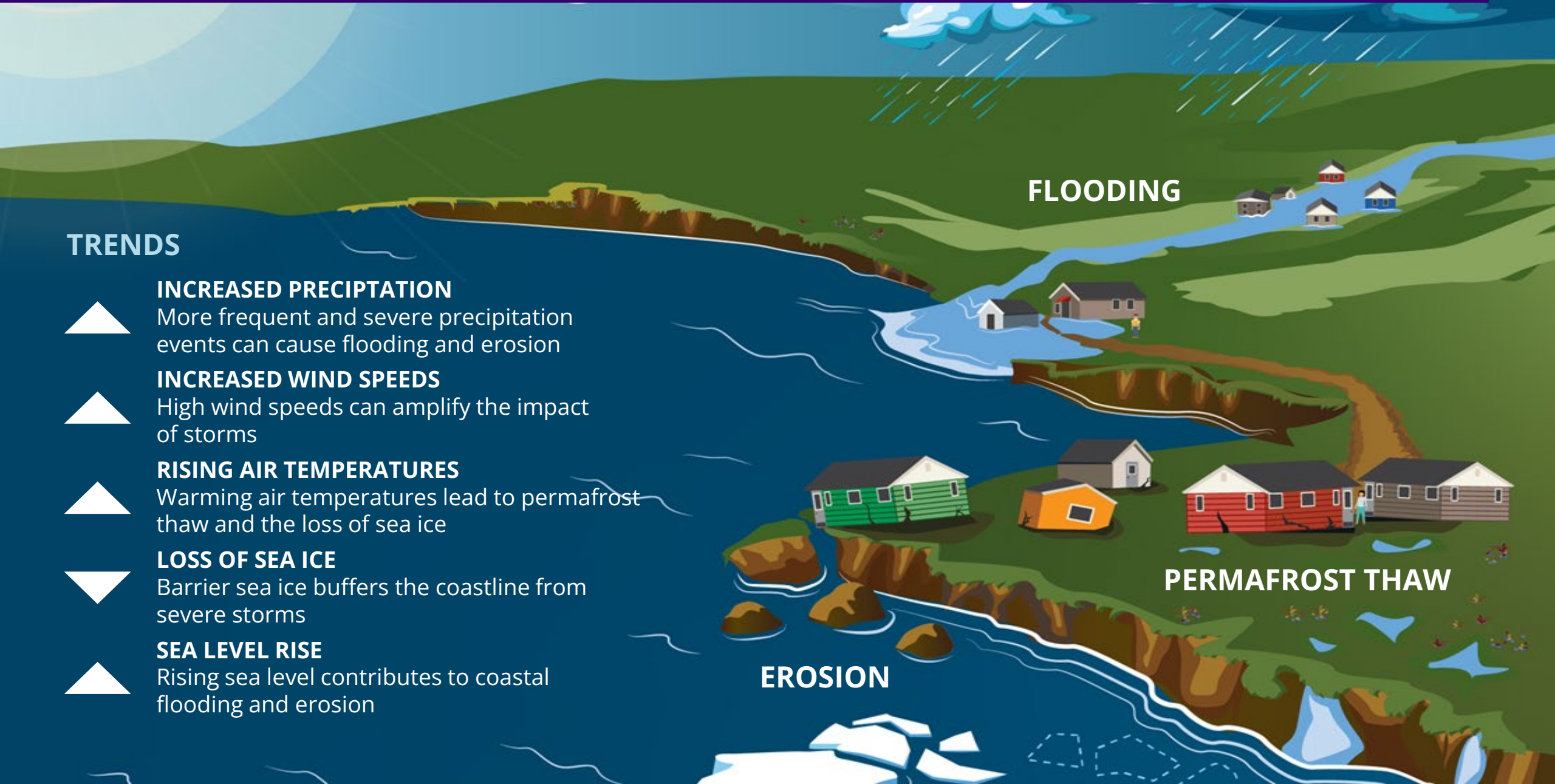
### SEA LEVEL RISE

Rising sea level contributes to coastal flooding and erosion

FLOODING

PERMAFROST THAW

EROSION



# Buckland





# Kotlik





# Chefornak





# Quinhagak





# Shishmaref



# Mitigating Erosion, Flooding, and Permafrost Degradation

## Protection-in-place

These use of shoreline protection measures and other controls to prevent or minimize impacts.



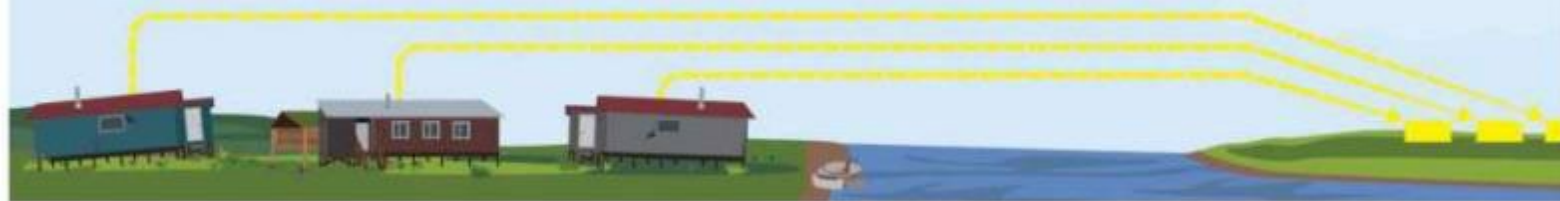
## Managed Retreat

Moving a portion of the community away from hazard prone areas to locations nearby or adjacent to the current site. In order to successfully retreat, a community needs developable land nearby.



## Relocation

Moving the entire community to a new location that is not connected to the current site. Relocation is the option of last resort.









# Lack of Technical Assistance

“Technical assistance has informed most of the recent decisions Shaktoolik has made to address coastal flooding and erosion. We would not be where we are today without a lot of outside support.”

- Genevieve Rock, Native Village of Shaktoolik

# Question for the Viewers



*What are the impact of climate change that you see in your own community?*

- A. Relocation or displacement
- B. Mental Health
- C. Physical Health
- D. All of the above
- E. Other (please type in chat)

# Finding New Ways to Respond

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# How Does Climate Affect People?





# Climate Change and Solastalgia

Mental health and stress-related disorders are important health outcomes that are influenced by climate change (Luber et al., 2014; USGCRP, 2016).

For example, climate change can affect mental health by causing **solastalgia, the distressing sense of loss that people experience as a result of unwanted environmental changes that occur close to one's home** (Albrecht et al., 2007), and associated pathologies such as anxiety, depression, and posttraumatic stress disorder that can result from acute events such as fires, floods, and storm surges, as well as more protracted changes such as thawing permafrost and coastal erosion

“Climate change started at contact. Colonization was the initiation of an imbalanced relationship with the environment.”

- **Wilson Justin, Athabaskan Elder** (Personal Communication, 2018)

# Climate Grief and Solastalgia are Psychological Trauma

Trauma destroys the social system of care, protection, and meaning that support human life. **The recovery Process requires the reconstruction of these systems.** The essential features of psychological trauma are disempowerment and disconnection from others. The recovery process therefore is based upon empowerment of the survivor and restoration of relationships.

Herman, J.L. (1998), Recovery from psychological trauma



# Climate Change and Mental Health



Source: Adapted from IPCC AR6 WGII Ch 7 (2022) & health2016.globalchange.gov Ch 8 (2016).

# Climate Response: Community Relocation of Newtok

- Erosion and Permafrost Melt
- School being washed into river
- New location across river
- Community Support
- Introducing traditional practices



# Climate Response: Adaptation Plan in Oscarville



## Oscarville Adaptation Plan:

- Listen to Elders
- Use their language
- Tell their story
- Bridge with Science
- Invite new ways to plan



# Acknowledgement

My heartfelt gratitude to the people of Oscarville for opening your hearts and sharing your stories. You have forever impacted my life. A big thank you to Princess Lucaj Johnson and the staff at CCHRC, who contributed to this effort.

## **RE-design the Framework Yupik Drum: "Cauyaq"**

**Frame never Ending :: Holistic**

**Skin Stretched Tight :: Foundation**

**Woven in Strength :: Resilient**

**Bound to Sustain :: Sustainable**

**Holistic :: Value-based Mindset**

**Foundation :: Indigenous Wisdom**

**Resilient :: Space In-between**

**Sustainable :: 7 Generations Deep**



Continue to find new ways to adapt, adjust and become resilient, just as our ancestor did.



# Key Takeaways

- ✓ Alaska is on the front lines of climate change
- ✓ Alaska has unique challenges
- ✓ The current system of response is inequitable to Alaska Tribes
- ✓ Funding is inadequate for the level of climate response needed in Alaska



# A Chat with Jackie Qataliña Schaeffer



Sue  
Grinnell



Jackie Qataliña  
Schaeffer

# QUESTIONS?

To ask a question, please click the



icon in the Zoom toolbar to open your Q&A Pod.

## **Alaska Native Tribal Health Consortium**

The Unmet Needs of Environmentally Threatened Alaska Native Villages: Assessment and Recommendations

[https://www.anthc.org/wp-content/uploads/2024/01/Unmet\\_Needs\\_Report\\_22JAN24.pdf](https://www.anthc.org/wp-content/uploads/2024/01/Unmet_Needs_Report_22JAN24.pdf)

## **U.S. Global Change Research Program**

Climate and Health Assessment

<https://health2016.globalchange.gov/>

## **One Health**

<https://onu-rome.delegfrance.org/One-Health-publication-of-an-operational-definition>