







An online platform for collecting local  
observations of environmental change

Mike Brubaker, Director LEO Network

[www.leonetwork.org](http://www.leonetwork.org)



An online platform for collecting local  
observations of **weird stuff** about  
environmental change

Mike Brubaker, Director  
Local Environmental Observer (LEO) Network  
[www.leonetwork.org](http://www.leonetwork.org)





# Local Environmental Observer



**CENTER FOR  
CLIMATE AND HEALTH**



**CENTER FOR  
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ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM

**CENTER FOR  
CLIMATE AND HEALTH**



















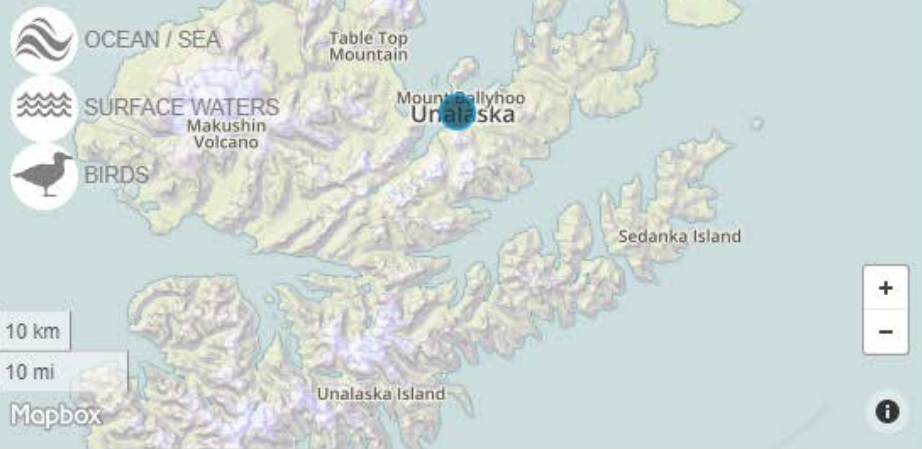




SEPTEMBER 6, 2019

# Shearwater (genus *Puffinus*) Bird Die-off

Unalaska, Alaska, United States



*Eighteen dead shearwaters (genus *Puffinus*) have washed ashore at Humpy Cove. Additional birds were observed by other community members at Wide Bay and Morris Cove.*

Observation by [Shayla Shaishnikoff](#):

Environmental staff of the Qawalangin Tribe of Unalaska investigated reports of a bird die-off at Humpy Cove on August 28, 2019. Upon arrival and inspection of approximately 1/4 mile stretch of beach, we identified and counted 18 dead shearwater birds that seem to have washed ashore. Other tribal members also reported finding dead shearwaters at Wide Bay and Morris Cove.

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## Contributing Members

**Shayla Shaishnikoff**

Observer

Unalaska Alaska, United States

Lead Intern **Environmental Department**  
**Qawalangin Tribe of Unalaska**

Send Message

**Hillary Burgess**

Consultant

Seattle Washington, United States

Science Coordinator

**Coastal Observation & Seabird Survey Team (COASST)**

Send Message

**Kathy Kuletz**

Consultant

Anchorage Alaska, United States

Seabird Coordinator

**U.S. Fish and Wildlife Service**

Send Message

## See Also

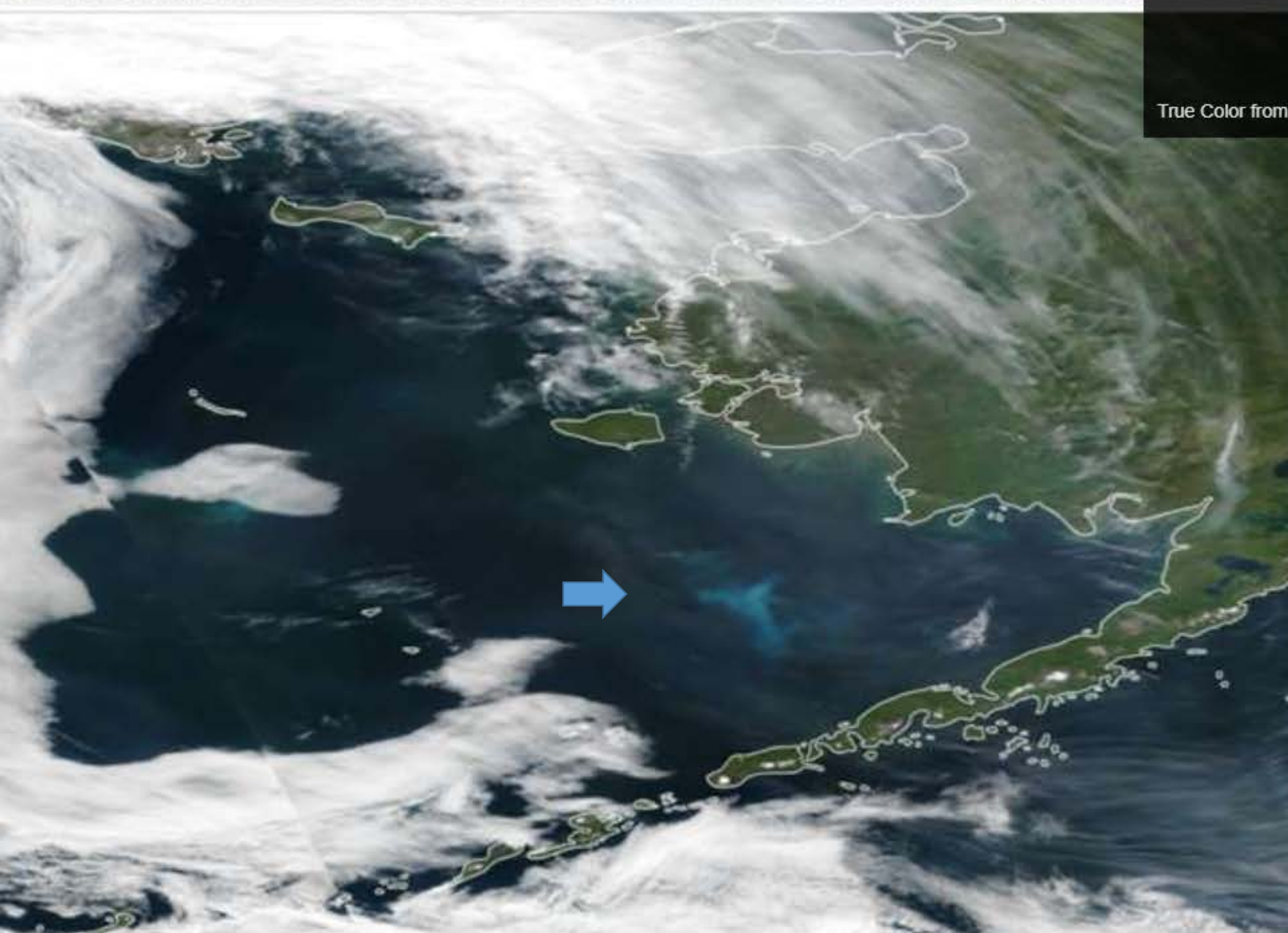
**Mass Die-off of Shearwaters (genus *Ardenna*)**

Egegik, Alaska, United States

JUL 30, 2019

+ My Map

**Dead Birds, Including Short-tailed**



True Color from







## Near Shishmaref

Within

100

KM

Go ▶

Enter Search Terms



View Options ▾



Topics: All ▾ Date: Any ▾ Region: Near Shishmaref ▾ Type: Observations+1 ▾

1 - 31 of 31



### More dead marine mammals, birds found on region's beaches

Shishmaref, Alaska, United States  
12 JUL 2019

**N** The Nome Nugget

+ My Maps



### Add krill and mussels to the list of unusual marine deaths in Northwest Alaska

Shishmaref, Alaska, United States  
7 JUL 2019

**ADN** Anchorage Daily News

+ My Maps



### Dead Krill and Sea Birds, Stranded Ice Seals

Shishmaref, Alaska, United States  
25 JUN 2019

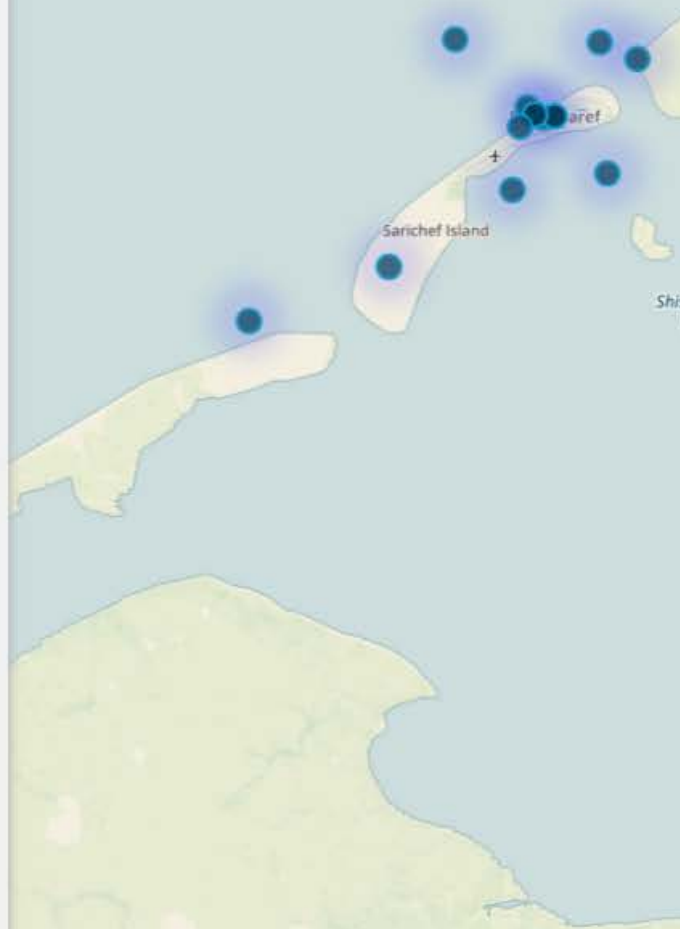
+ My Maps



### Rainbow Smelt (*Osmerus mordax*) With Bad Odor and Taste

Shishmaref, Alaska, United States  
7 FEB 2019

+ My Maps

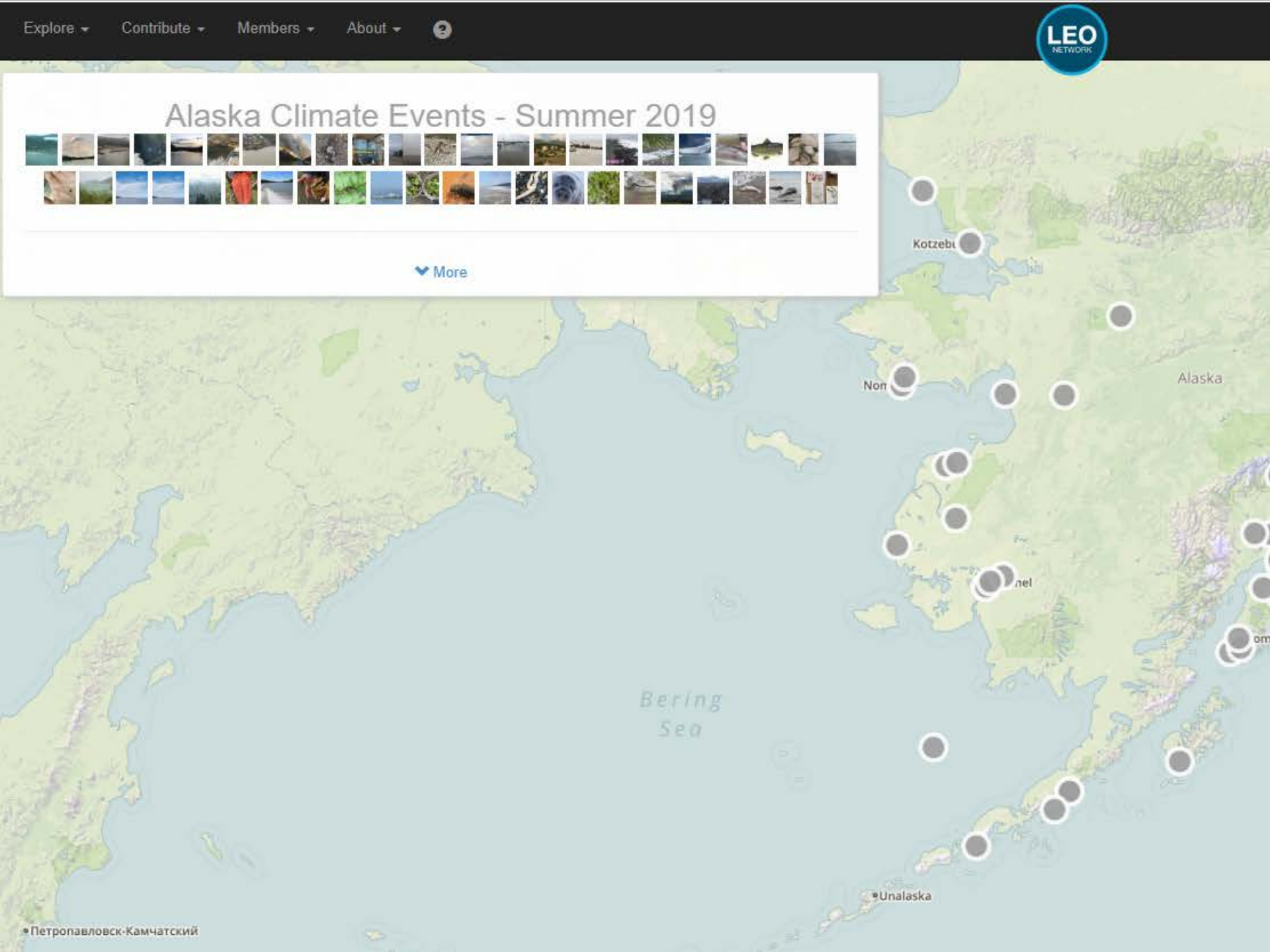




## Alaska Climate Events - Summer 2019



▼ More



# Identifying health effects of climate change in Alaska

## Mental Health



## Travel Safety

## Allergic Reactions



## Waterborne Disease

## Food Spoilage



## Respiratory Health

## Food Confidence



## Ice Hazards



## Harmful Algae



## Nutrition



## Allergies



## Infrastructure Damage



## Food Security





What is LEO Network and how does it work?

How is it being applied to address concerns about environmental change?





LEO Network was developed by the Alaska Tribal Health System beginning in 2012 as a strategy for gathering and sharing information about climate and other drivers of environmental change.

- Primary goal is to share knowledge
- Secondary to help answer questions and connect with resources
- Content is observational, not structured monitoring
- Takes holistic rather than topic specific approach
- Based on a social media (member owner) model
- Welcomes different knowledge systems
- Multi-lingual including indigenous languages
- User driven and user friendly

## How do people use LEO?



*Community Members* – As a platform for sharing observations about significant environmental change, as witnessed by specific events. A way to raise awareness about pressing concerns and to connect with topic experts to receive technical support.



*Public Health* - A communication tool for engaging with communities, staying informed about emerging priorities and providing environmental health consultations.



*Researchers and Agencies* - a surveillance system for receiving local updates on emerging issues, for identifying experts and research partners, for learning about local change and vulnerabilities, and for providing event specific consultations.

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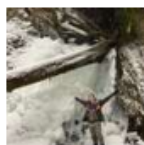
### Terry Chapin

Fairbanks Alaska United States  
Institute of Arctic Biology  
UAF, University of Alaska Fairbanks



### Adrienne Christensen

Anchorage Alaska United States  
Native Village of Chenega



### Joshua Cohen

Metlakatla Alaska United States  
Wildlife Biologist Wildlife, Fisheries, Education  
Metlakatla Fish and Wildlife



### Helen Cold

Ester Alaska United States  
Graduate Student Researcher Biology and Wildlife  
UAF, University of Alaska Fairbanks



### Rebecca Colvin

Anchorage Alaska United States  
Program Coordinator Solid Waste Program  
Alaska Department of Environmental Conservation - ADEC



### Fred Corey

Presque Isle Maine United States  
Environmental Health Director Environmental  
Aroostook Band of Micmacs



### Opik Ahkinga

Diomedes Alaska United States  
Environmental Coordinator DIO IGAP  
Native Village of Diomedes



### Anne-Marie Albrecht

Wendlingen am Neckar Baden-Württemberg Germany  
M.sc. Flood risk management (flash flood)  
Regierungspräsidium Tübingen

## Interests and Expertise

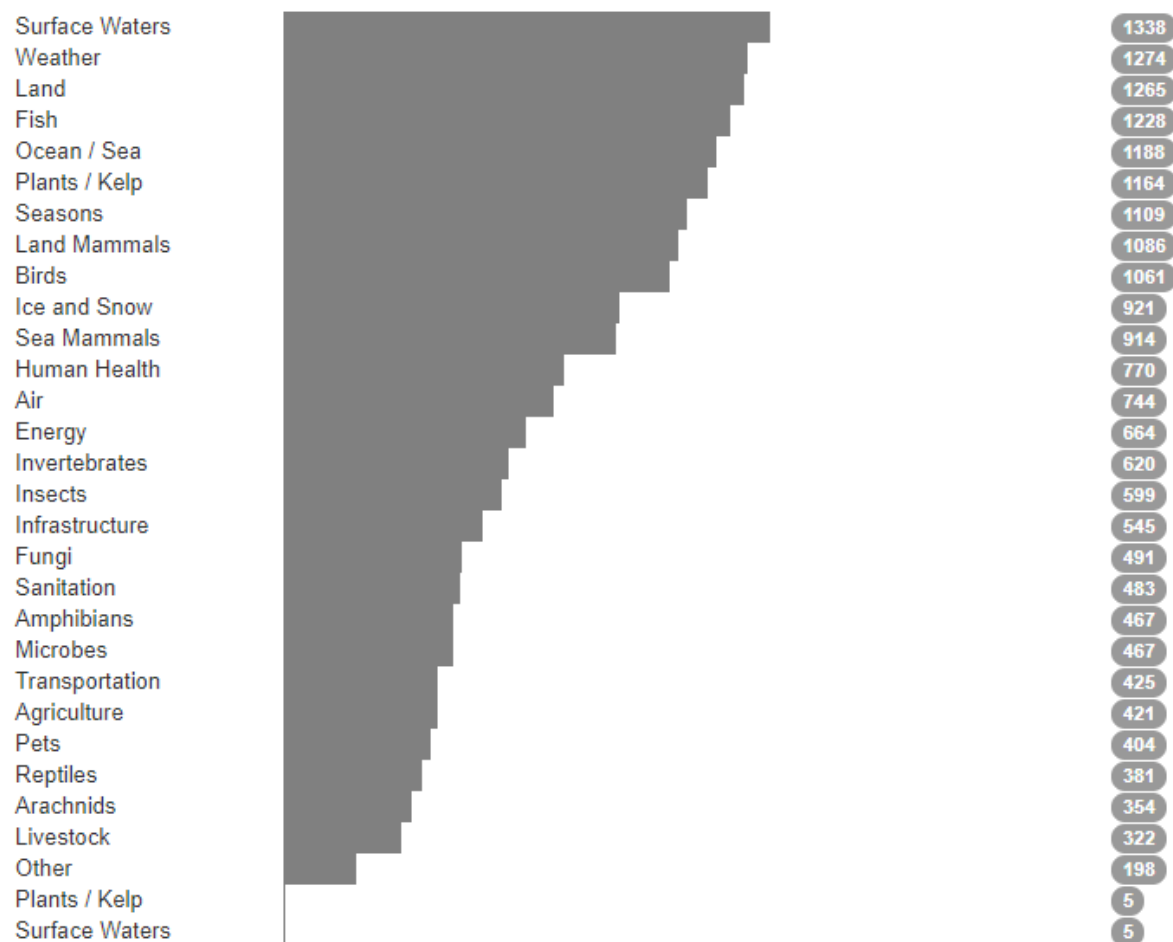
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<input type="checkbox"/>	Sanitation	483
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<input type="checkbox"/>	Microbes	467
<input type="checkbox"/>	Transportation	425
<input type="checkbox"/>	Agriculture	421
<input type="checkbox"/>	Pets	404
<input type="checkbox"/>	Reptiles	381
<input type="checkbox"/>	Arachnids	354
<input type="checkbox"/>	Livestock	322
<input type="checkbox"/>	Other	198
<input type="checkbox"/>	Plants / Kelp	5
<input type="checkbox"/>	Surface Waters	5
<input type="checkbox"/>	Health	1

▼ Apply Filter

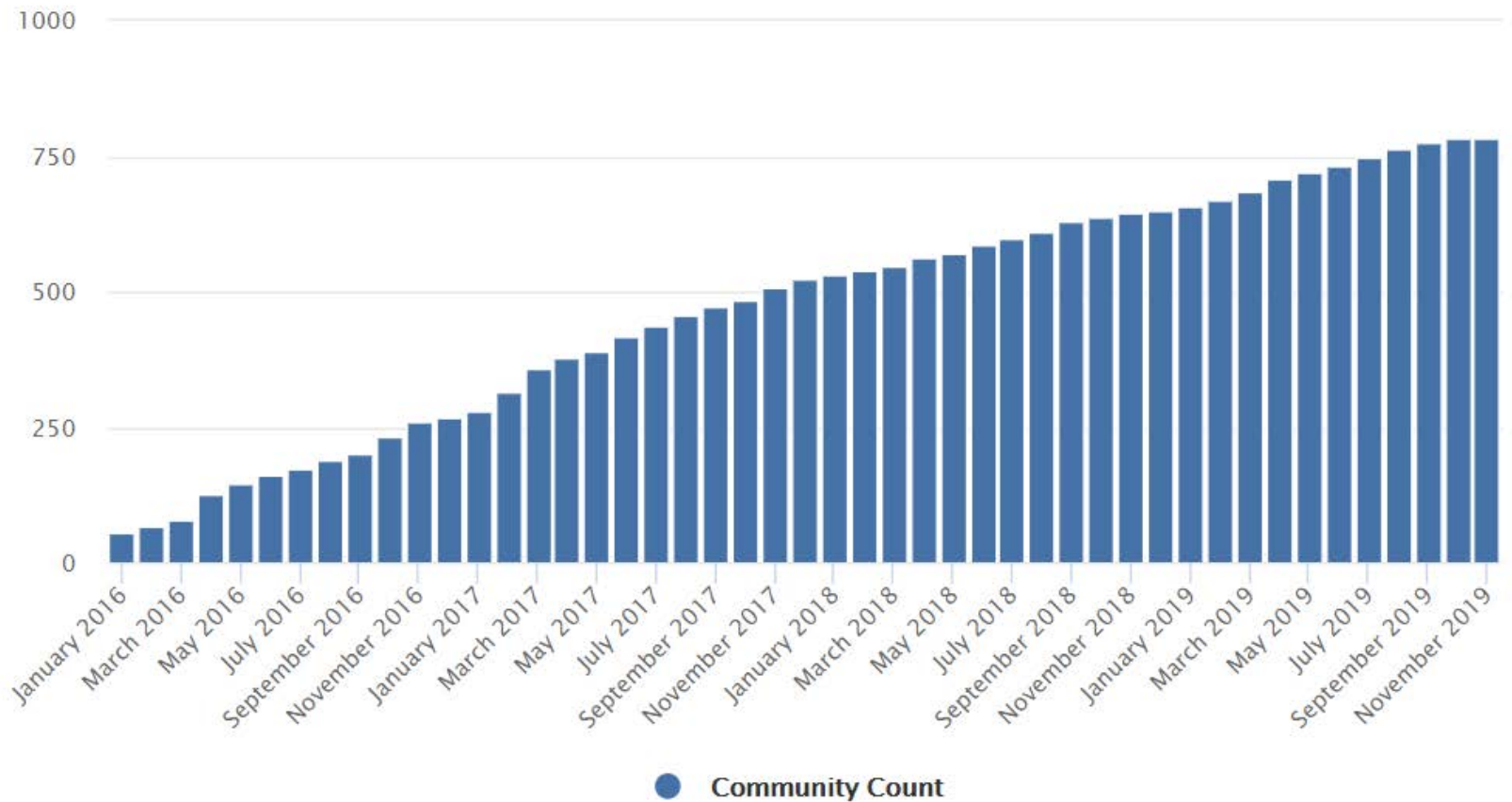
## Basis of Knowledge



## Interests and Expertise

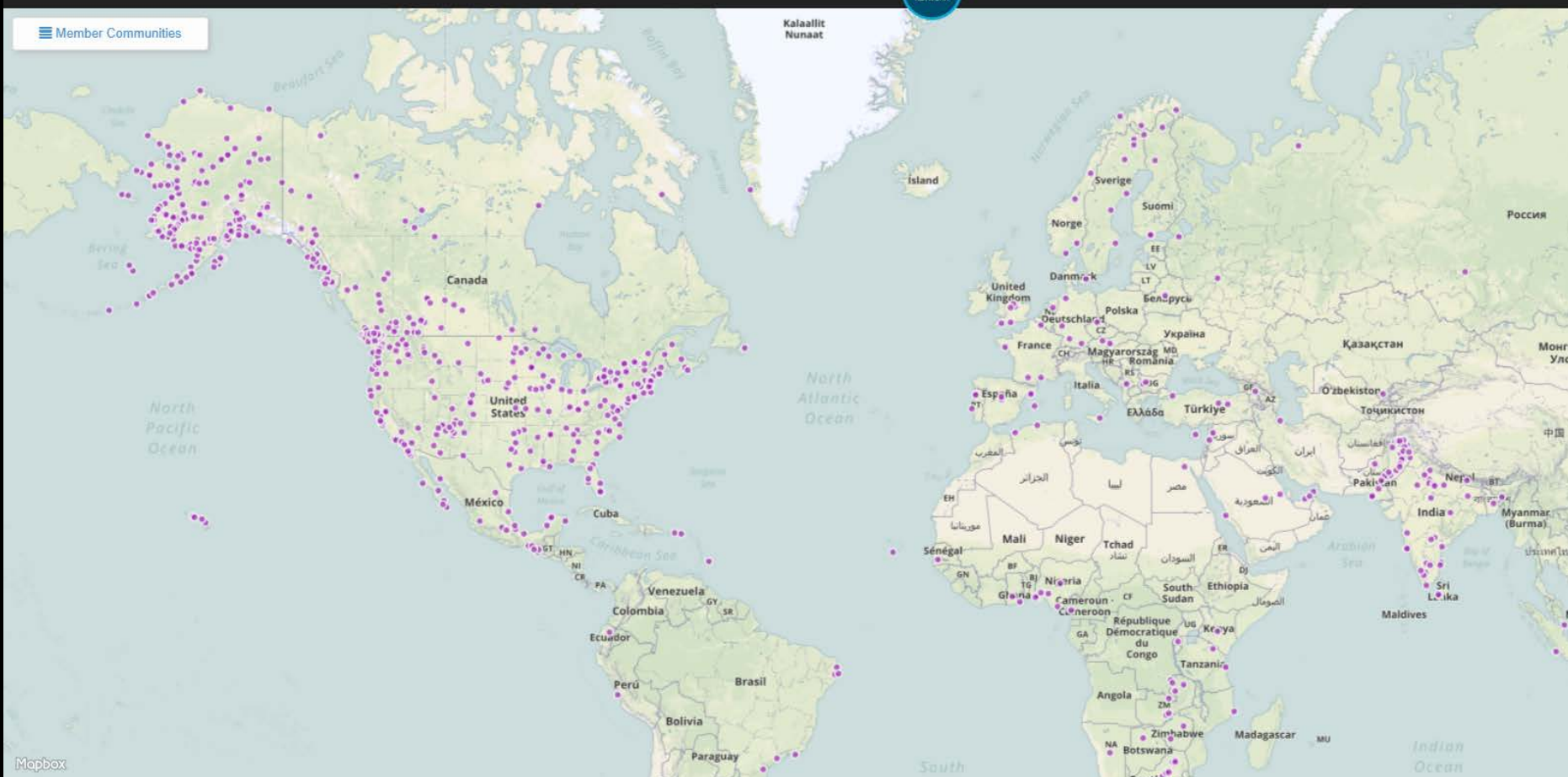


## Communities by Month





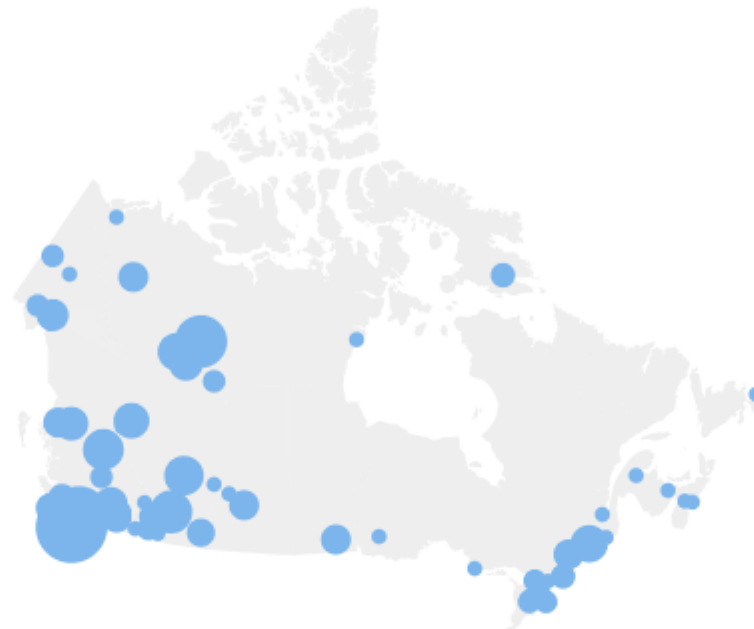
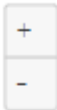
Member Communities





# LEO Communities in Canada

Options



Communities

Name	Members
Victoria, British Columbia	72
Vancouver, British Columbia	44
Yellowknife, Northwest Territories	31
Calgary, Alberta	19
Prince George, British Columbia	15



English

Español

Français

Deutsch

Русский

Norsk

Svenska

Suomi

Dansk

Yup'ik

Portuguese

Монгол хэл

العربية

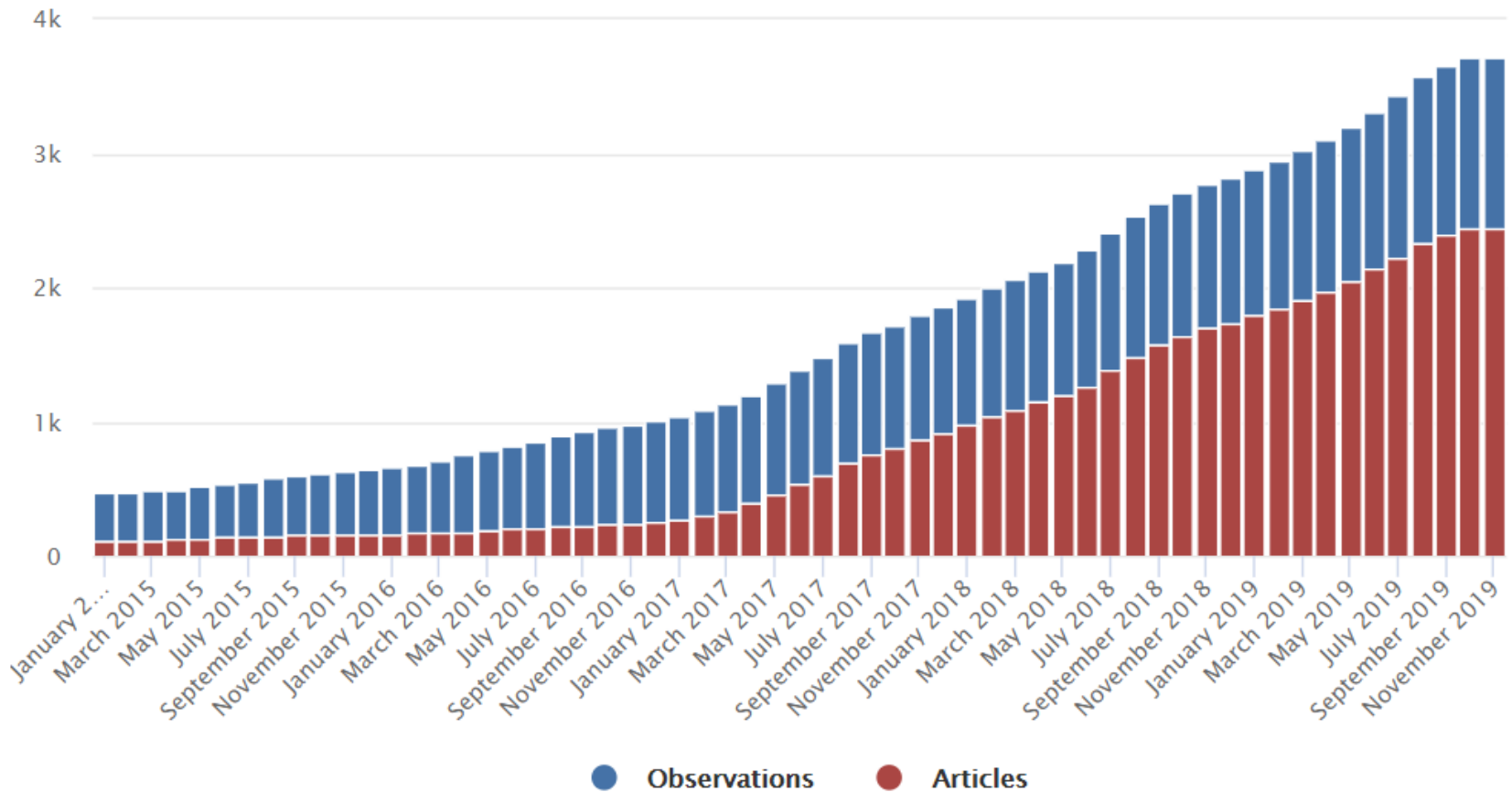
Davvisámegiella

Skolt Sámi

Íslenska

Українська

## Observations/Articles by Month (Cumulative)



**Flu Season is Approaching**

We have flu shots available for 6 months and older.

**Make your appointment now.**

## Barrow's eroding coastline reveals human bones

✎ Author: [Kamala Kelkar](#) ⌚ Updated: September 28, 2016 📅 Published October 4, 2015

As Arctic Ocean waves from summer and fall storms [eat away at Barrow's bluffs](#), they take land from the living -- and sometimes they expose the dead.

Last month, local archaeologist Anne Jensen [anchored herself to two firefighters](#) and rappelled down a mound being eroded by those waves. She found bones and the remains of a collapsed underground house about to break free from the dirt.

Subscribe now and get your first month for only \$1.99!





## Local



LEO Network  
us understand  
observations

### Your Own Observation

Have you observed an unusual environmental or climate event in your area? Please share it with us.

### A News Article

Has your local news media reported on an unusual environmental or climate event? Please let us know.



that help  
oute your

ed Search

Northwest  
Territories

Yellowknife

Baker Lake

# Submit a News Article

Has an unusual environmental or climate event been covered in your local news? Please share it with us.

Please provide a link to the news story

Next ➤

# Submit a News Article

Has an unusual environmental or climate event been covered in your local news? Please share it with us.

Please provide a link to the news story

<https://www.adn.com/alaska-news/article/barrows-eroding-coastline-spits-out-human-bones/2015/10/05/>

Next >

Thank you for submitting a news article to the LEO Network. Please review and edit this information before submitting to LEO.

<https://www.adn.com/alaska-news/article/barrows-eroding-coastline-spits-out-human-bones/2015/10/05/>



ADN Anchorage Daily News

## Barrow's eroding coastline reveals human bones

Next >

### Publication

Anchorage Daily News

### Author

Kamala Kelkar

### Publication Date

10/05/2015





### Your Own Observation

Have you observed an unusual environmental or climate event in your area? Please share it with us.

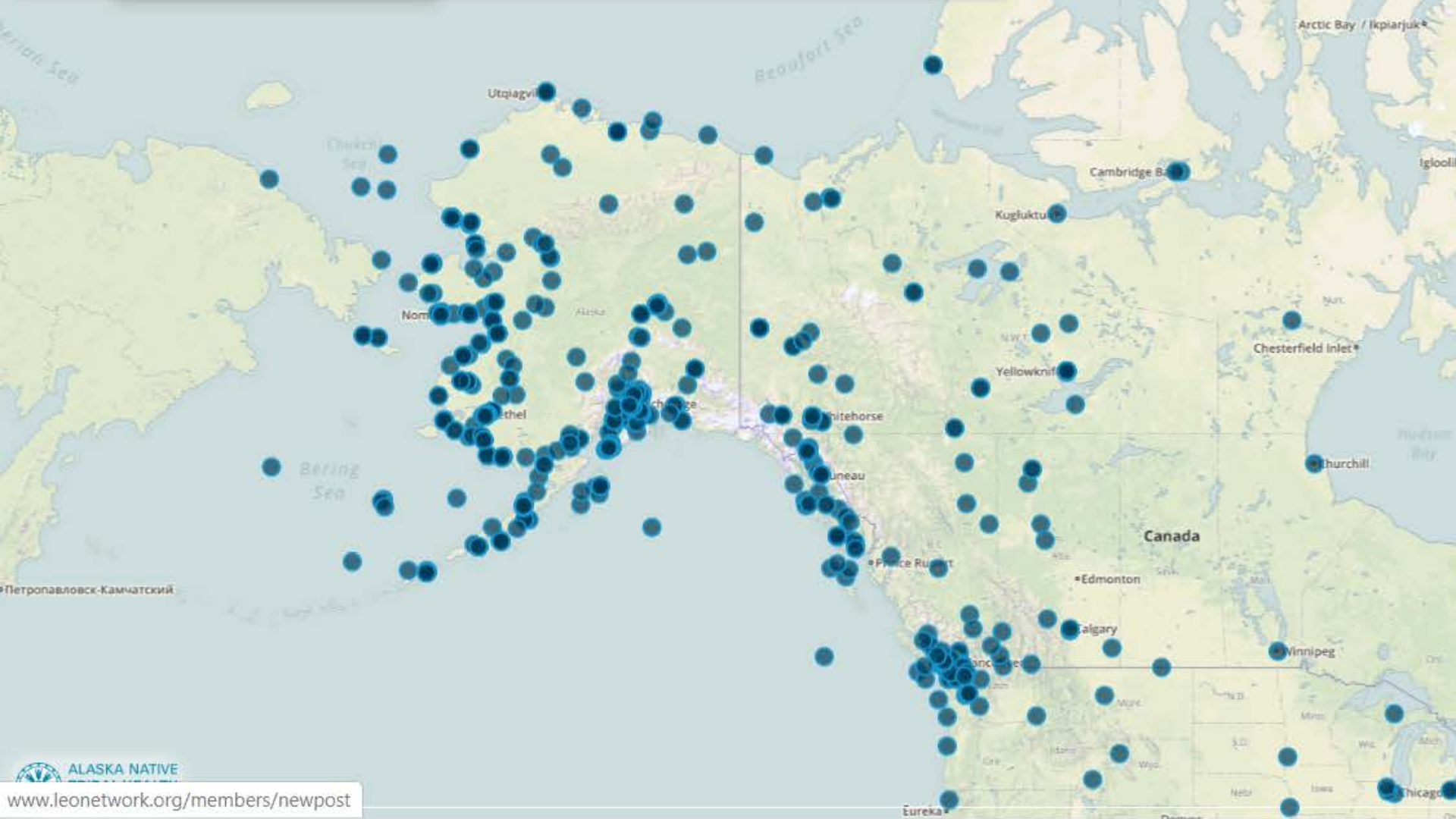


that help us understand our changing world. Please join us and contribute your

### A News Article

Has your local news media reported on an unusual environmental or climate event? Please let us know.

search

[Advanced Search](#)



Next >

## What's your headline?

This will be the title of your post

When did you make your observation?

11/03/2019



Next ➤

## What's your headline?

This will be the title of your post

Dozens of sick and dying caribou

When did you make your observation?

11/03/2019

[<](#) Dozens of sick and dying caribouNext [▶](#)


## Please describe your observation

Why is it unusual or significant?

My brother and I were traveling to our hunting camp. The weather was very warm for November and with the river open and the water higher than normal. We were twenty miles up just east of our hunting camp when we came across about twenty caribou lying on the ground...





Next 

Add photos or files to support your observation

 Add



SUBMIT OBSERVATION

◀ Dozens of sick and dying caribou

## Add photos or files to support your observation



the-last-caribou.jpg

✕ Delete



Next &gt;

## Where did you make your observation?



## Set Location



 Your Current Location

 Near You

 Search for Place


 Enter Coordinates

 Current Center of Map

 Clear Location

Close

 Set Location

Next 

◀ Dozens of sick

Where did y

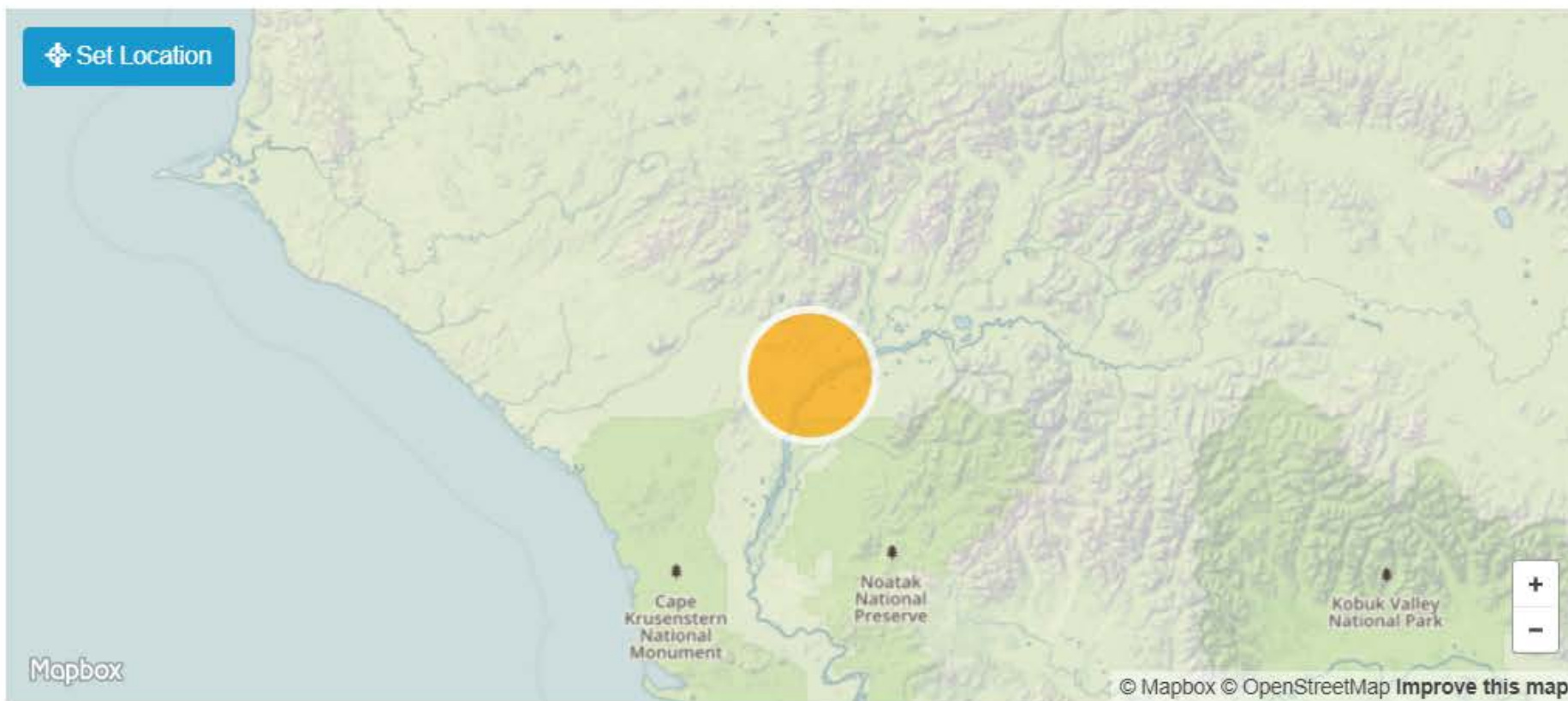
South  
Pacific  
Mapbox



◀ Dozens of sick and dying caribou

Next ▶

## Where did you make your observation?



*specify place name...* ✎

67.92101125483218,-162.806396484375

General Area ▼

Please help us categorize your observation

## Natural Environment

What aspects of the **natural environment** are relevant to this post? Choose all that apply.



☐ Weather



☐ Seasons



☐ Ocean / Sea



☐ Surface  
Waters



☐  
Groundwater



☐ Ice and  
Snow



☐ Land



☐ Air



☐ Plants /  
Kelp



☐ Fish



☐ Marine  
Mammals



☒ Land  
Mammals



☐ Birds



☐  
Invertebrates



☐ Insects



☐ Arachnids



☐ Reptiles



☐ Amphibians



☐ Fungi



☐ Microbes

# Unusual or Unexpected Event

Why is this post **unusual** or **unexpected**? What about this event deviates from the norm?



☐ Extreme Temperature



☐ Extreme Precipitation



☐ Extreme Wind



☒ Death / Die-off / Decline



☐ Deformity / Disease



☐ Unusual Range / Sighting



☐ Unusual Abundance



☐ Infestation



☐ Seasonal Timing



☐ Unusual Animal Behavior



☐ Flood



☐ Wildfires



☐ Erosion



☐ Landslide / Avalanche



☐ Drought



☐ Algal Bloom



☐ Cyclone / Hurricane



☐ Thunderstorm



☐ Storm Surge



☐ Earthquake



☐ Volcano



☐ Sea/Land Level Change



☐ Permafrost Change



☐ Pathogen Change

Please help us categorize your observation

## Impact on Human Environment

How has the **human environment** been impacted by the event described in this post?



☐ Health



☐ Infrastructure



☐ Transportation



☐ Energy



☐ Sanitation



☐ Economic Impact



☐ Cultural Impact



☐ Recreation



☒ Food Security



☐ Water Security



☐ Air Quality



☐ Pollution



☐ Harvest Failure



☐ Agriculture



☐ Aquaculture



☐ Livestock



☐ Pets



☐ Displacement



☐ Forestry



☐ Burial Site



☐ Fisheries



[◀](#) Dozens of sick and dying caribou

## Ready to submit your observation

Thank you for contributing to the LEO Network.

[↓ Save](#)[✓ Submit to LEO](#)



# \_Home

 Preview

Hub ▾

Stats ▾

Resources



	Published	Approved	Under Review	Draft or Pending	Rejected
<a href="#">+ Create ▾</a> <input type="text" value="Search"/>					
Observations	31			11	14
Projects					
News Articles	741			1	
Major Events	2				
Tweet Observations					



## Victoria Kotongan

Unalakleet Alaska, United States

Native Village of Unalakleet  
Environmental Specialist

[✉ Send a Message to Victoria Kotongan](#)

★ Following

## Contributions [View on Map](#)



### Unalakleet River Goes Out Early

Unalakleet, Alaska, United States  
APR 27, 2016

[+ My Maps](#)



### Good Year for Ptarmigan (*Lagopus lagopus*)

Unalakleet, Alaska, United States  
DEC 30, 2015

[+ My Maps](#)



### Spring River Ice Change

Unalakleet, Alaska, United States  
MAY 26, 2015

[+ My Maps](#)



### Worms *Splendidofilaria pectoralis* in Grouse and Ptarmigan

Unalakleet, Alaska, United States  
OCT 7, 2012

[+ My Maps](#)

## Collaborators



### Caroline Van Hemert

Anchorage Alaska, United States  
Research Wildlife Biologist  
US Geological Survey - USGS



### Todd O'Hara

Fairbanks Alaska, United States  
UAF, University of Alaska Fairbanks



Victoria writes: On Saturday the 6th and Sunday the 7th I went grouse hunting up along the road to the White Alice site. On Saturday I shot 6 spruce grouse and 2 ptarmigan. When I was cleaning the first grouse I ripped open the breast and there were worms squiggling around on top of the breast meat. Three of the six grouse had these long skinny white worms on the meat.





Victoria writes: On Saturday the 6th and Sunday the 7th I went grouse hunting up along the road to the White Alice site. On Saturday I shot 6 spruce grouse and 2 ptarmigan. When I was cleaning the first grouse I ripped open the breast and there were worms squiggling around on top of the breast meat. Three of the six grouse had these long skinny white worms on the meat.

Todd writes: Today we necropsied seven birds. Three of 7 had the subcutaneous parasites that were of interest to Sissy and these were collected and placed in 10% buffered formalin. In addition, the gastrointestinal system was collected and placed in 10% buffered formalin. These we will let fix for about 7 days. After that we will place them in a small amount of water for shipping to Colorado State University where Dr. Ballweber's team will work on them.

OCTOBER 7, 2012

# Worms *Splendidofilaria pectoralis* in Grouse and Ptarmigan

Unalakleet, Alaska, United States



BIRDS

Nome

Alaska

Bethel

Anchorage

300 km

200 mi

Bering Sea

Mapbox

Species of nematode *Splendidofilaria pectoralis* has been described in blue grouse (*Dendragapus obscurus pallidus*) in British Columbia, but never as far north and west as Unalakleet.

**Observation:** On Saturday the 6th and Sunday the 7th I went grouse hunting up along the road to the White Alice site. On Saturday I shot 6 spruce grouse and 2 ptarmigan. When I was cleaning the first grouse I ripped open the breast and there were worms squiggling around on top of the breast meat. Three of the six grouse had these long skinny white worms on the meat. On Sunday the 7th all four of the grouse had worms on or in the meat. Two had worms coming out of the meat instead of just being coiled on top of the meat. I love hunting and eating grouse. It's a food source of the community. I am concerned about the health of the birds and the safety of the meat for food. Victoria Kotogan

**LEO says:** We are currently working with Victoria, ADFG and UAF Wildlife Toxicology Lab and others to help identify the type of worm, and we are surveying other members of the LEO network for any additional information on this type of event. Victoria has been in contact with Richard Merizon, ADFG. Mr. Merizon stated in an email to Victoria, "I have checked with our state veterinarian on your photos. The worms in the photos are some kind of filaroid, transmitted bird to bird by a biting arthropod via microscopic larvae. Humans are not susceptible (the worm itself is not infectious to anything, bird or human). The presence of the parasite does not affect the edibility of the bird." Victoria is sending the frozen birds to the Wildlife Toxicology Lab at UAF for necropsy and the worms will be removed and sent to Colorado State University for identification. M. Brubaker

**UAF Wildlife Pathology Lab Consult:** Dr. Todd O'Hara writes: "We have completed step 1 of the grouse parasite investigation. Today we necropsied seven birds. Three of 7 had

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💬 Add Comment

✎ Edit

## Contributing Members



Victoria Kotongan

Observer

Unalakleet Alaska, United States  
Environmental Specialist  
Native Village of Unalakleet

✉ Send Message



Todd O'Hara

Consultant

Fairbanks Alaska, United States  
UAF, University of Alaska Fairbanks



Caroline Van Hemert

Consultant

Anchorage Alaska, United States  
Research Wildlife Biologist  
US Geological Survey - USGS

✉ Send Message

Latitude 63.888988494873

Longitude -160.602615356445

📍 Nearby

Kotongan, Victoria, Todd O'Hara and Caroline Van Hemert. 2012. Worms *Splendidofilaria pectoralis* in Grouse and Ptarmigan. LEO Network (leonetwork.org). Accessed 6 November 2019.

## Projects



Bering Strait

JAN 1, 2012

77 Observations

## Documents



### Wildlife health in a rapidly changing North: focus on avian disease

Van Hemert, C., Pearce J. M., Handel C. M.

Climate-related environmental changes have increasingly been linked to emerging infectious diseases in wildlife. The Arctic is facing a major ecological transition that is expected to substantially affect animal and human health. Changes in the phenology or environmental conditions that result from climate warming may promote novel species assemblages as host and pathogen ranges expand to

Eroding



View Options ▾

Topics: All ▾

Date: Any ▾

Region: Entire World ▾

Type: Observations+1 ▾

1 - 20 of 56

Next →



## Eroding bluff threatens road

Chevak, Alaska, USA

20 JUL 2012

Eroding bluff threatens community transportation access

[+ My Maps](#)

## Thawing and Eroding Trail

Golovin, Alaska, United States

26 SEP 2012

Permafrost thaw is causing trail in Golovin to erode.

[+ My Maps](#)

## 'Pretty unnerving': Eroding cliff creeps closer to popular trail at Point Woronzof

Susitna, Alaska, United States

27 MAY 2019

City park staff have set up barriers in hopes of encouraging passersby to stay far away. Potential fixes could include putting up a wall and relocating the bike path or road.



Anchorage Daily News

[+ My Maps](#)

## Erosion and Weird Growth on Tundra

Kotlik, Alaska, United States






























20 AUG 2019

An unidentified fungus is growing along the eroding coastal bank.

[+ My Maps](#)

[All Topics](#)

## Topic

<input type="checkbox"/>	 Land	33
<input type="checkbox"/>	 Infrastructure	23
<input type="checkbox"/>	 Erosion	19
<input type="checkbox"/>	 Ocean / Sea	18
<input type="checkbox"/>	 Surface Waters	13
<input type="checkbox"/>	 Weather	13
<input type="checkbox"/>	 Transportation	11
<input type="checkbox"/>	 Ice and Snow	6
<input type="checkbox"/>	 Cultural Impact	7
<input type="checkbox"/>	 Burial Site	5
<input type="checkbox"/>	 Sanitation	5
<input type="checkbox"/>	 Economic Impact	4
<input type="checkbox"/>	 Landslide / Avalanche	4
<input type="checkbox"/>	 Permafrost Change	4
<input type="checkbox"/>	 Birds	3
<input type="checkbox"/>	 Health	3
<input type="checkbox"/>	 Plants / Kelp	3
<input type="checkbox"/>	 Recreation	3
<input type="checkbox"/>	 Storm Surge	3
<input type="checkbox"/>	 Energy	2
<input type="checkbox"/>	 Extreme Precipitation	2
<input type="checkbox"/>	 Fish	2
<input type="checkbox"/>	 Flood	2
<input type="checkbox"/>	 Food Security	2
<input type="checkbox"/>	 Fungi	2
<input type="checkbox"/>	 Health	2
<input type="checkbox"/>	 Deformity / Disease	1
<input type="checkbox"/>	 Death / Die-off / Decline	1
<input type="checkbox"/>	 Drought	1



Topics: All ▾

Date: Any ▾

Region: Entire World ▾

Type: Observations+1 ▾

Any Date

Past Week

Past Month

Past Year

More Options...

Next →



## Eroding bluff threatens community transportation access

Chevak, Alaska, United States

20 JUL 2012

Eroding bluff threatens community transportation access

+ My Maps



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Golovin, Alaska, United States

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+ My Maps



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Anchorage Daily News

+ My Maps



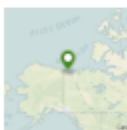
## Erosion and Weird Growth on Tundra

Kotlik, Alaska, United States

20 AUG 2019

An unidentified fungus is growing along the eroding coastal bank.

+ My Maps



## At Herschel Island, history is eroding

Herschel Island, Yukon Territory, Canada

27 JAN 2017

Herschel Island has seen a lot of people come and go. The Inuvialuit have used the place, known as Qikiqtaruk in Inuvialuktun, for at least 1,000 years.



Yukon News

+ My Maps



## Easter Island Is Eroding

Easter Island, Chile

15 MAR 2018

Rising ocean levels are causing waves to break on the statues and platforms built a thousand years ago. The island risks losing its cultural heritage. Again.



New York Times

+ My Maps

Topics: All ▾ Date: Any ▾ Region: Entire World ▾ Type: Observations+1 ▾

Entire World

Or limit to:

- A country or region
- A community or location
- A latitude band
- A bounding box
- A polygon



## Eroding bluff threatens community

Chevak, Alaska, USA

20 JUL 2012

Eroding bluff threatens community

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## Thawing and Eroding Trail

Golovin, Alaska, United States

26 SEP 2012

Permafrost thaw is causing trail in Golovin to erode.

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## 'Pretty unnerving': Eroding cliff creeps closer to popular trail at Point Woronzof

Susitna, Alaska, United States

27 MAY 2019

City park staff have set up barriers in hopes of encouraging passersby to stay far away. Potential fixes could include putting up a wall and relocating the bike path or road.



Anchorage Daily News

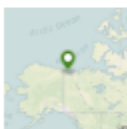
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## Erosion and Weird Growth on Tundra

Kotlik, Alaska, United States

20 AUG 2019

An unidentified fungus is growing along the eroding coastal bank.

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## At Herschel Island, history is eroding

Herschel Island, Yukon Territory, Canada

27 JAN 2017

Herschel Island has seen a lot of people come and go. The Inuvialuit have used the place, known as Qikiqtaruk in Inuvialuktun, for at least 1,000 years.



Yukon News

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## Easter Island Is Eroding

Easter Island, Chile

15 MAR 2018

Rising ocean levels are causing waves to break on the statues and platforms built a thousand years ago. The island risks losing its cultural heritage. Again.



New York Times

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## Eroding bluff threatens road

Chevak, Alaska, USA

20 JUL 2012

Eroding bluff threatens community transportation access

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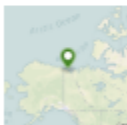
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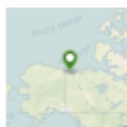
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New York Times

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OCTOBER 30, 2019

# Thawing ground is sinking at historic mass burial site

Brevig Mission, Alaska, United States



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## Contributing Members

**James Olanna** Observer

Brevig Mission Alaska, United States

Native Village of Brevig Mission

✉ Send Message

**Johnee Seetot** Observer

Brevig Mission Alaska, United States

Coordinator IGAP

Native Village of Brevig Mission

✉ Send Message

**Mike Brubaker** Consultant

Anchorage Alaska, United States

Director Community Environment and Health  
ANTHC

✉ Send Message

*This year was one of the warmest and wettest in recorded history and permafrost thaw is causing the ground at the mass grave site to sink. With origins in the Spanish Flu epidemic of 1918, watchful management to preserve site integrity is important.*

**Observation by Johnee Seetot:** The mass grave is to just adjacent to community grave site, to the east, about 75-100 feet away. At the mass grave site the crosses are falling down. When they get separated from the grave site its a big problem. The main grave area (to the north) has fallen crosses, and you can see that the edge of the area atop the creek side is showing signs of erosion.

**[LEO Network Editor Comments]:** This year has been the second warmest and second wettest on record (Nome weather station). These conditions are accelerating permafrost thaw in some areas, and resulting in land subsidence and erosion (see Johnee Seetot's

## See Also



### Gravesite Erosion

Teller, Alaska, United States

JUN 6, 2014

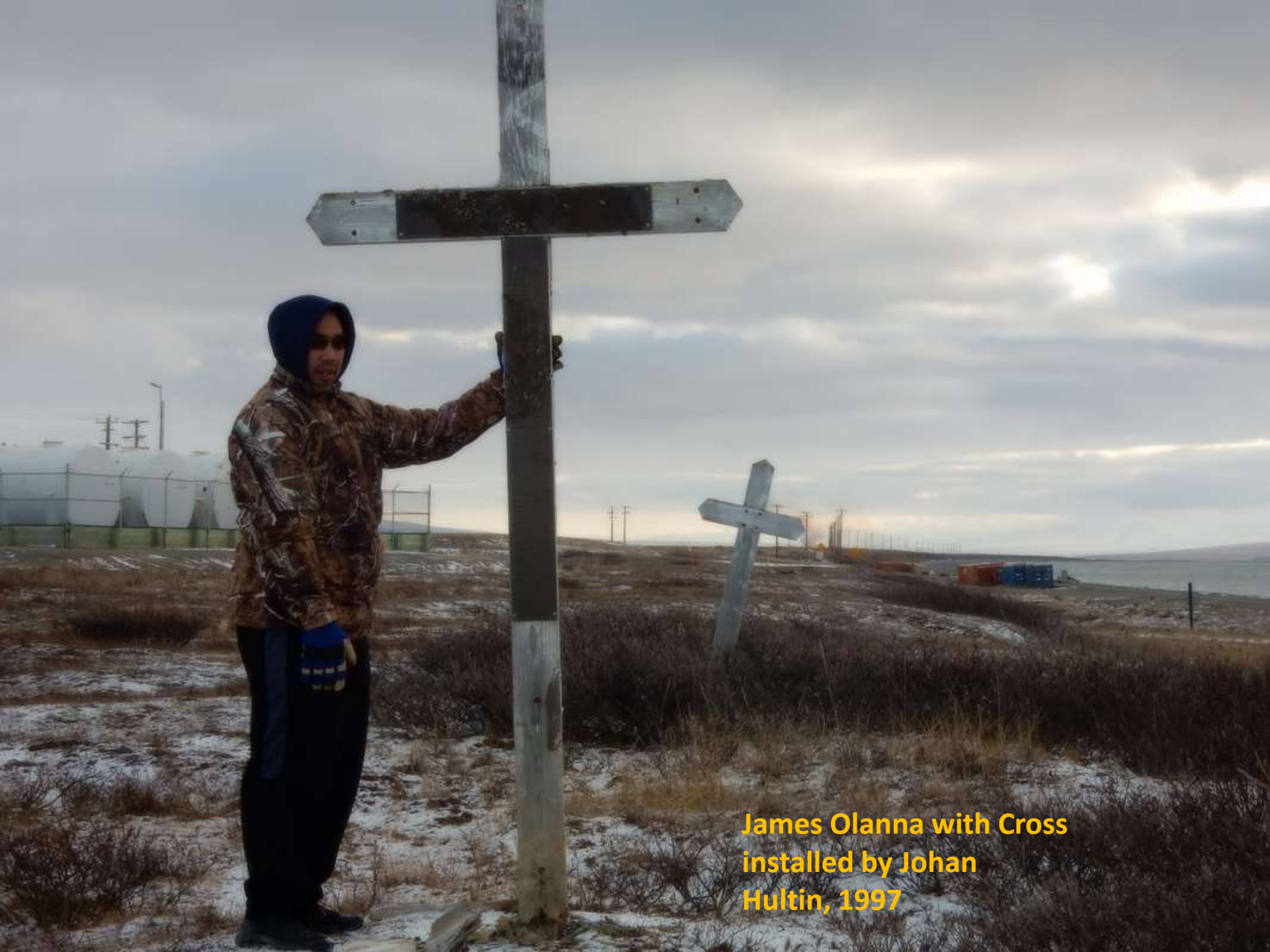
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### As permafrost thaws, Western Alaska village cemeteries sink into swampland

ADN Anchorage Daily News

Kongiganak, Alaska, United States



James Olanna with Cross  
installed by Johan  
Hultin, 1997







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Historical weather from weather stations near Brevig Mission

[ShoreZone Photos](#)

Aerial photography near Brevig Mission from [ShoreZone](#).

[FAA Webcam Photos](#)

Aviation photos near Brevig Mission.

[Climate Projections](#)

Climate projections for Brevig Mission from [SNAP](#).

[Community Maps](#)

Maps of Brevig Mission from [State of Alaska DCRA](#).

[Google Earth](#)

High-resolution aerial imagery of Brevig Mission.

## 7 Nearby Posts within 50 km

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### Blue Mussel (*Mytilus edulis*) Die-Off

Port Clarence, Alaska, United States

20 JUN 2019

"When we looked over the side of the boat, we saw clumps of mussels floating up the whole Tuksuk channel. No one has ever heard of something like this before."

6

## LEO Members

[View All >](#) Ben Attatayuk Dora Olanna





Brevig Mission

Teller

Google

CNES / Airbus IBCAO Landsat / Copernicus Maxar Technologies TerraMetrics

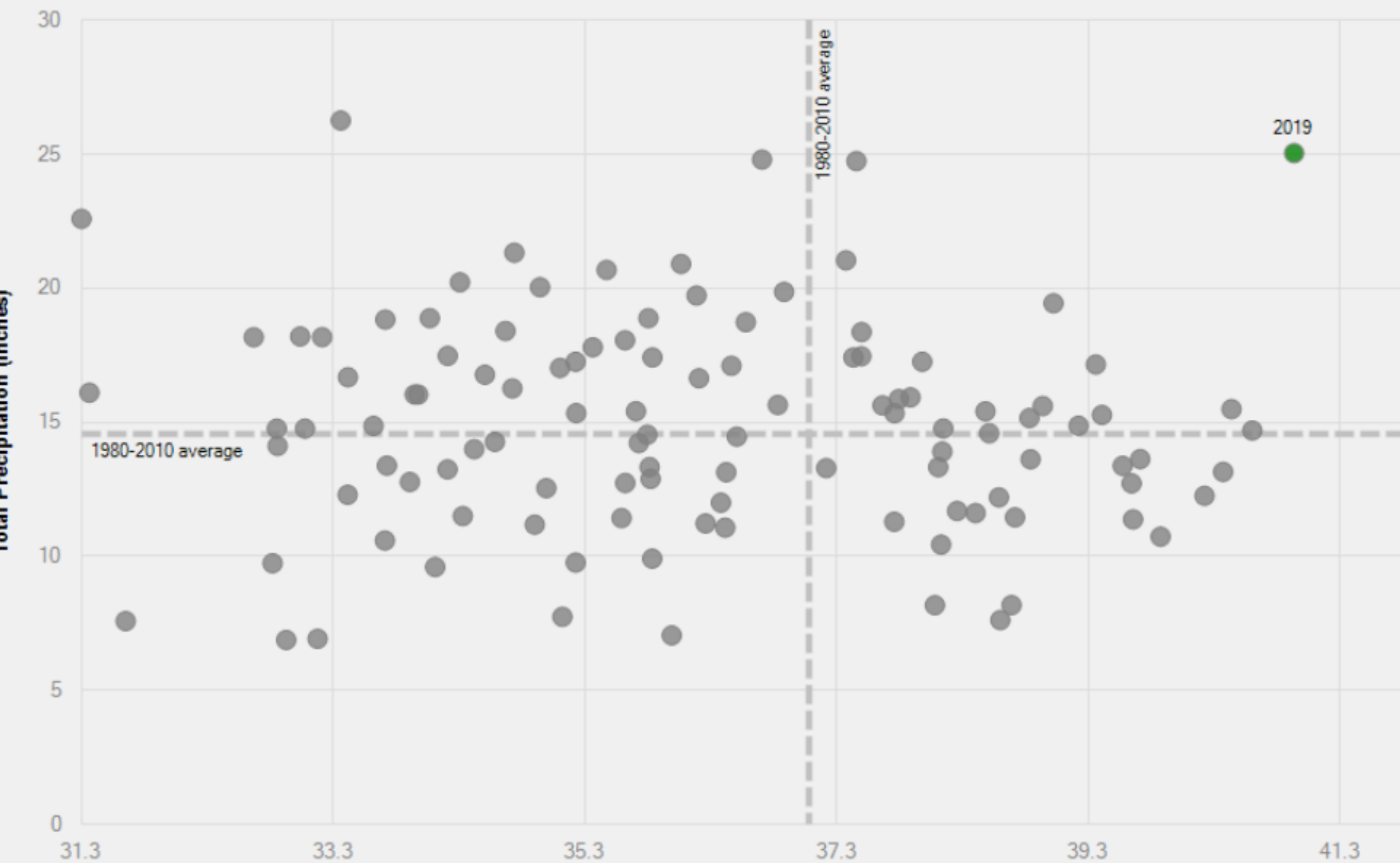






# Annualized Temperature & Precipitation

OME MUNI AP / For the period Jan 1 to Nov 2







## Alaska Division of Public Health

*Prevention Promotion Protection*

### Handling Human Remains from Burial Sites and Cemeteries Fact Sheet

#### **Background**

Many of Alaska communities are situated along the coastline or along winding braided rivers, to support subsistence lifestyles. Pounding Arctic storms, continuously changing riverbeds, melting permafrost, and earthquakes endanger traditional burial grounds and more modern cemeteries located in these communities. Each year there are one or two reports that caskets and human remains have become exposed due to erosion or other forces of nature. In addition, human-made construction and building also encroach on crypts, burial grounds and cemeteries, requiring human remains to be moved to new locations.

#### **Potential health risks**

Individuals who are involved in handling human remains may have concerns about their risk for acquiring infectious diseases from the bodies they are moving. The diseases that most often cause concern are tuberculosis, influenza, and smallpox. Each of these diseases caused serious epidemics and many deaths at various points in Alaska's history.

Desiccated remains are considered very low risk, but remains with soft tissue pose a higher level of concern. Polymerase chain reaction (PCR) and other studies have identified organisms in Egyptian mummies and other historical remains; however, these organisms have not been found to be viable/infectious. Furthermore, viable influenza virus from unearthed body tissues of people who died from the Spanish flu in 1918 has never been recovered in culture, even from tissues that have remained frozen.

#### **Recommendations**

Persons involved in excavating, storing and handling human remains from burial grounds and cemeteries, should consider precautions in the following circumstances:

- Bodies recovered from sealed coffins
- Bodies that are constantly frozen or in very cold environments, or
- Individuals who are known to have died from smallpox, anthrax, or tetanus.

Recommended precautions for persons working with human remains:

- 1) Use barrier precautions
  - a. Wear latex or vinyl gloves to protect your hands when handling human remains or caskets;
  - b. Protective eyewear;
  - c. Covering for regular clothing that is disposable or can be washed with bleach.
- 2) Use disposable dust masks in enclosed environments or where there may be a lot of dust in the air in an outdoor setting.
- 3) Wash hands immediately after gloves are removed. If running water and soap aren't available, use a waterless hand wash product with 70% alcohol.
- 4) Avoid eating and drinking or smoking at the work area.
- 5) Cover all open skin lesions.
- 6) Place any human remains found outside of caskets or from damaged and opened caskets in body bags.

For more information about laws and protocols pertaining to the discovery of human remains in Alaska, see <http://dnr.alaska.gov/parks/oha/humanremains/out.pdf>

June 18, 2013



Johan Hultin Expedition, 1951



Advisor



Anahma Shannon  
Nome Alaska, United St...

Environmental  
Department  
Kawerak Inc.

✕ Remove

Advisor



Tom Woforth

Cultural Resource  
Manager and Tribal  
Liaison  
Department of  
Military and  
Veterans Affairs

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Observer



James Olanna  
Brevig Mission Alaska...

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Advisor



Louisa Castrodale  
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Alaska Dept. of  
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Services - DHSS

Advisor



Racheal Lee  
Nome Alaska, United St...

Environmental Health  
Director  
Norton Sound  
Health Corporation





Teller, Alaska





St. Michael, Alaska





St. Michael, Alaska





Point Hope, Alaska



# Thawing Burial Sites



## Thawing Burial Sites



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## Medieval Child's Burial Unearthed in Northern Russia

Salekhard, Yamalo-Nenetskiy Avtonomnyy Okrug, Russia  
28 APR 2017

Archeology

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## Eroding Arctic coastline reveals human bones

Utqiagvik, Alaska, United States  
7 OCT 2015

When a storm exposes human remains in Barrow, there isn't an established protocol. They are usually given to the federally recognized Native Village of Barrow for repatriation.

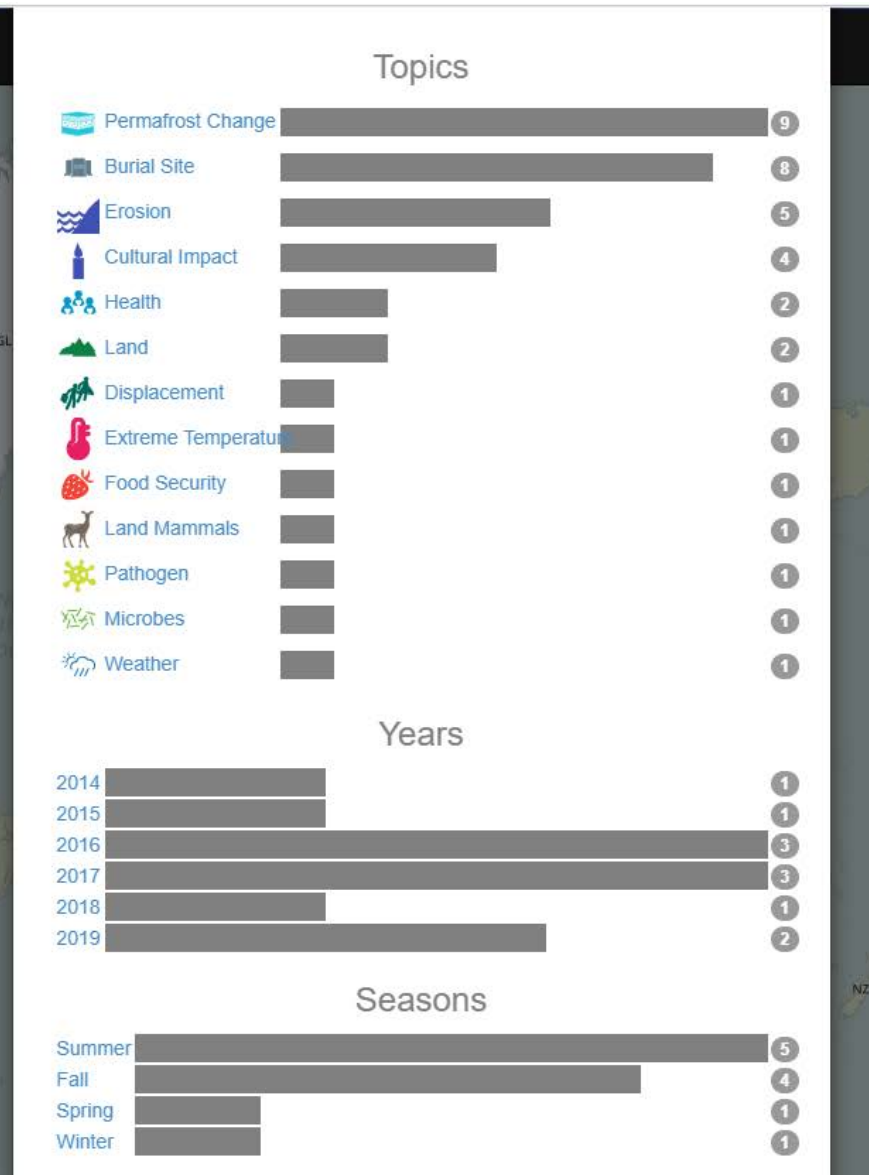
Eye on the Arctic

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## Siberian Heatwave Sparks Anthrax Outbreak, Killing A Child And Thousands Of Reindeer

2 AUG 2016

Russian officials have said the death of a 12-year-old boy, a member of a reindeer-herding family from the Yamal tundra 1 300 miles north of Moscow, was the first fatality in Siberia



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[illegible]









Thank You



Thank You



# Thank You







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[www.leonetwork.org](http://www.leonetwork.org)