



Creating a Story of Change

Using the

Local Environmental Observer Network

Erica Lujan

Alaska Native Tribal Health Consortium

Community Environment and Health



ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM



Air & Healthy Homes

Working with Tribal partners to address air quality and healthy homes issues in their communities



Contamination Support Program

Supporting Alaska Tribal partners to



ATC

An an... together and fe... of env...



Emergency Preparedness

Supporting the preparedness of the



Environmental Health Field Services

Working with Tribal partners and



LEO Network

The Local Environmental Observer (LEO) Network connects people through information on our shared environment



Center for Climate & Health

Assisting communities to better understand the impacts of climate change and how to adapt in healthy ways



Health Facilities Engineering

Providing partners assistance with

ocal

The Focus of LEO is Environmental Change

Local observers report on unusual environmental events that are time and location specific. These events may be personal observations or news articles describing an event.

The screenshot shows the LEO Network website interface. At the top, there is a navigation bar with the LEO Network logo, a 'Sign In / Join' link with an orange arrow pointing to it, and a language dropdown set to 'English'. Below the navigation bar is a large map of Alaska and the surrounding regions, including parts of the Yukon and Northwest Territories. The map is populated with numerous blue circular dots representing observations. Key geographical features labeled include the Chukchi Sea, Bering Sea, Sea of Okhotsk, Beaufort Sea, and Aniakchak Gulf. Major Alaskan cities like Utqiagvik, Nome, Bethel, Anchorage, Whitehorse, and Juneau are also marked. On the left side of the page, there is a section titled 'Observer Network' with a row of small images and a text box that reads: 'Local environmental events that help us understand our world. You can contribute your observations or news articles.' Below this is a search bar and a video player with the text 'Watch our short video to learn more about the LEO Network.' On the right side, there is a 'Join LEO' button with an orange arrow pointing to the 'Sign In / Join' link in the navigation bar.

Each one of these colored dots represents an observation.

To view observations, you must be a LEO member.

Sign up to become a LEO member at:

www.leonetnetwork.org

As of September 2019, there are 3300 LEO Members (local observers, interested viewers, and topic experts)



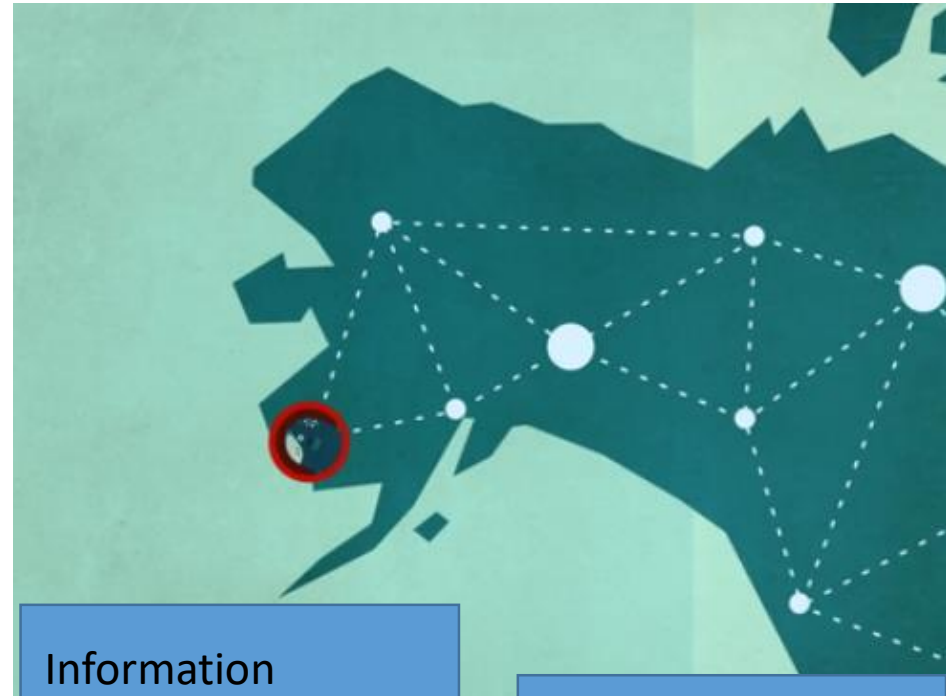
**The goal of LEO is to connect local observers and topic experts to share information about environmental change.
There are four steps to the LEO process:**

LEO observer submits an observation

LEO editors add contextual information, and forward the observation to a topic expert to provide more information

Information provided by the topic expert is added to the LEO post and sent back to the observer

The post is reviewed, then published to the network and becomes available to other LEO members



JUNE 14, 2019

Fire Smoke in Unalakleet Area

Unalakleet, Alaska, United States

WEATHER

SEASONS

LAND

AIR

HEALTH

WILDFIRES

Mapbox



☆ Follow

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💬 Add Comment

Contributing Members



John Henry Observer

Unalakleet Alaska, United States

IGAP Coordinator **Environment**

Native Village of Unalakleet

[✉ Send Message](#)



Mary Mullan Consultant

Chugiak, Alaska

Tribal Environmental Program Associate

ANTHC

[✉ Send Message](#)

Observation by **John Henry**:

During the day on Friday, June 14th, hazy, white smoke were observed in the adjoining areas of Unalakleet located N, NE, E, and SE to varying concentrations. The smell of the smoke was noted in the City of Unalakleet. Today around 8:30 AM, I took photos of the smoke in the general direction listed in the prior statement, with the exception of the NE section. The photographs were about the same state as the fire smoke this past Friday. The smell of fire smoke was still in the air.

Mary Mullan, with the Air Quality and Healthy Homes Program at ANTHC, writes:

Smoke from wildfires contain many different types of chemicals, toxins, and

See Also



Observed Smoke from Fores

Unalakleet, Alaska, United States

JUN 9, 2019



Fire Near Unalakleet

Unalakleet, Alaska, United States

JUN 15, 2018



Fire Smoke Encroaching into

Unalakleet, Alaska, United States

JUN 7, 2017

Mary Mullan, with the Air Quality and Healthy Homes Program at ANTHC, writes:

Smoke from wildfires contain many different types of chemicals, toxins, and particulate matter that can cause serious health impacts to individuals. Smoke inhalation can especially impact those with respiratory illnesses, heart and lung disease, as well as children and elderly. It is important to keep your indoor air as clean as possible during wildfires, [this video created by the Aleknagik Traditional Council](#) gives great advice on how to protect yourself from wildfire smoke and here are some additional tips:

- Reduce indoor and outdoor physical activities
- Purchase a 20 inch box fan, and 20 inch high-efficiency particulate air (HEPA) grade furnace filter. Minimum efficiency reporting value (MERV) 11 filters will also work and can be purchased online.
- Attach filter to fan with duct tape. Make sure arrow on fan is pointed away from the fan
- Use the fan only when someone is in the room. Make sure it does not overheat.
- Replace filter when dirty.

Comments from LEO Editors:

This observation has been forwarded to Kawerak, the Norton Sound Health Corporation, and the Alaska Fire Science Consortium.

The Alaska Department of Environmental Conservation Division of Air Quality has issued an [Air Quality Advisory](#) for the Seward Peninsula and communities located around Norton Sound. This area is experiencing degraded air quality due to wildfire smoke from the North River fire located in the Western Interior. The advisory is in effect from Tuesday, June 18, 2019 8:00 AM to Friday, June 21, 2019



Fire Smoke Encroaching

Unalakleet, Alaska, United States

JUN 7, 2017

Henry, John and Mary Mullan. 2019. Fire Smoke in Unalakleet, Alaska (leonetwork.org). Accessed 25 September 2019.

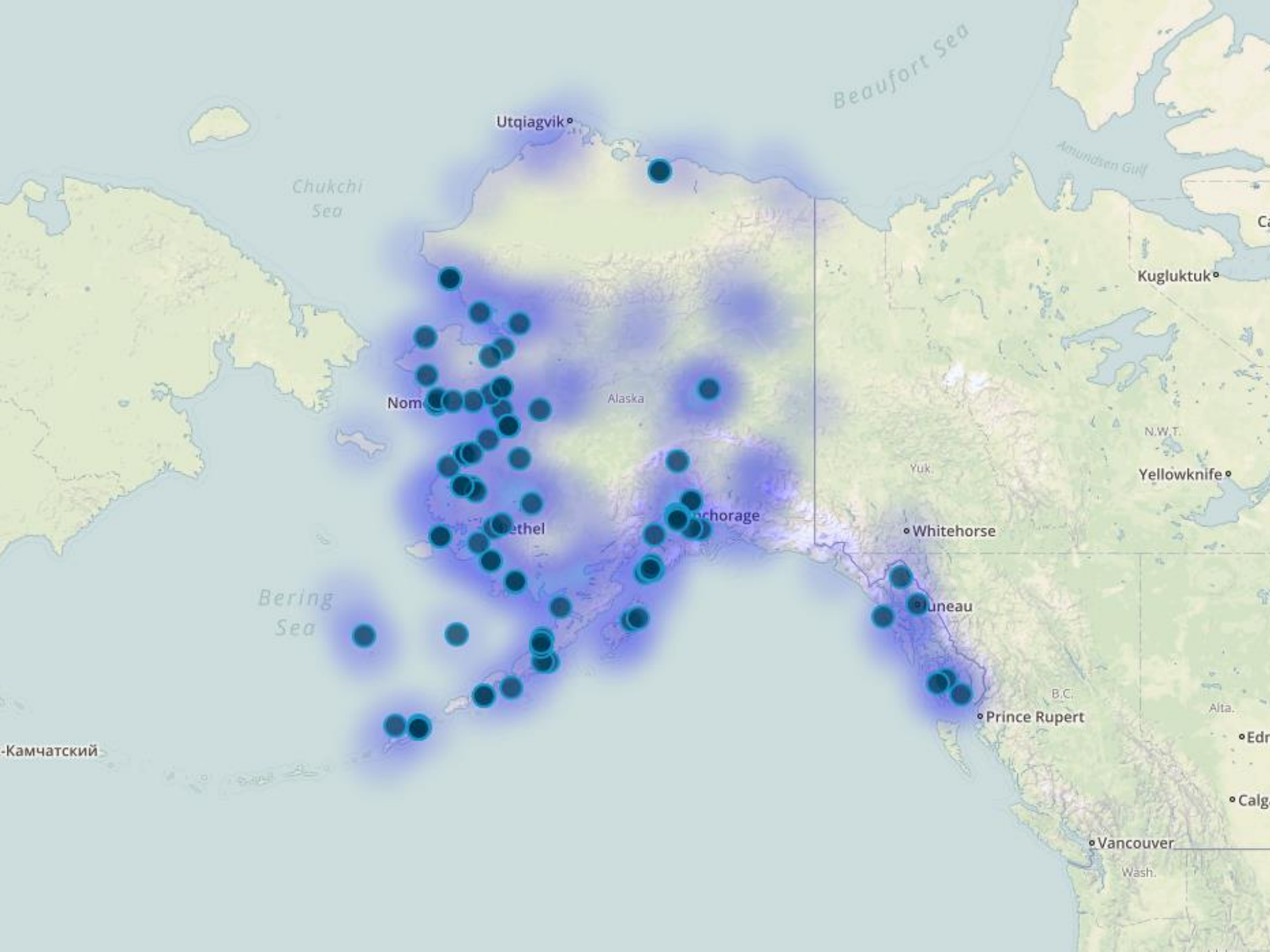
Documents

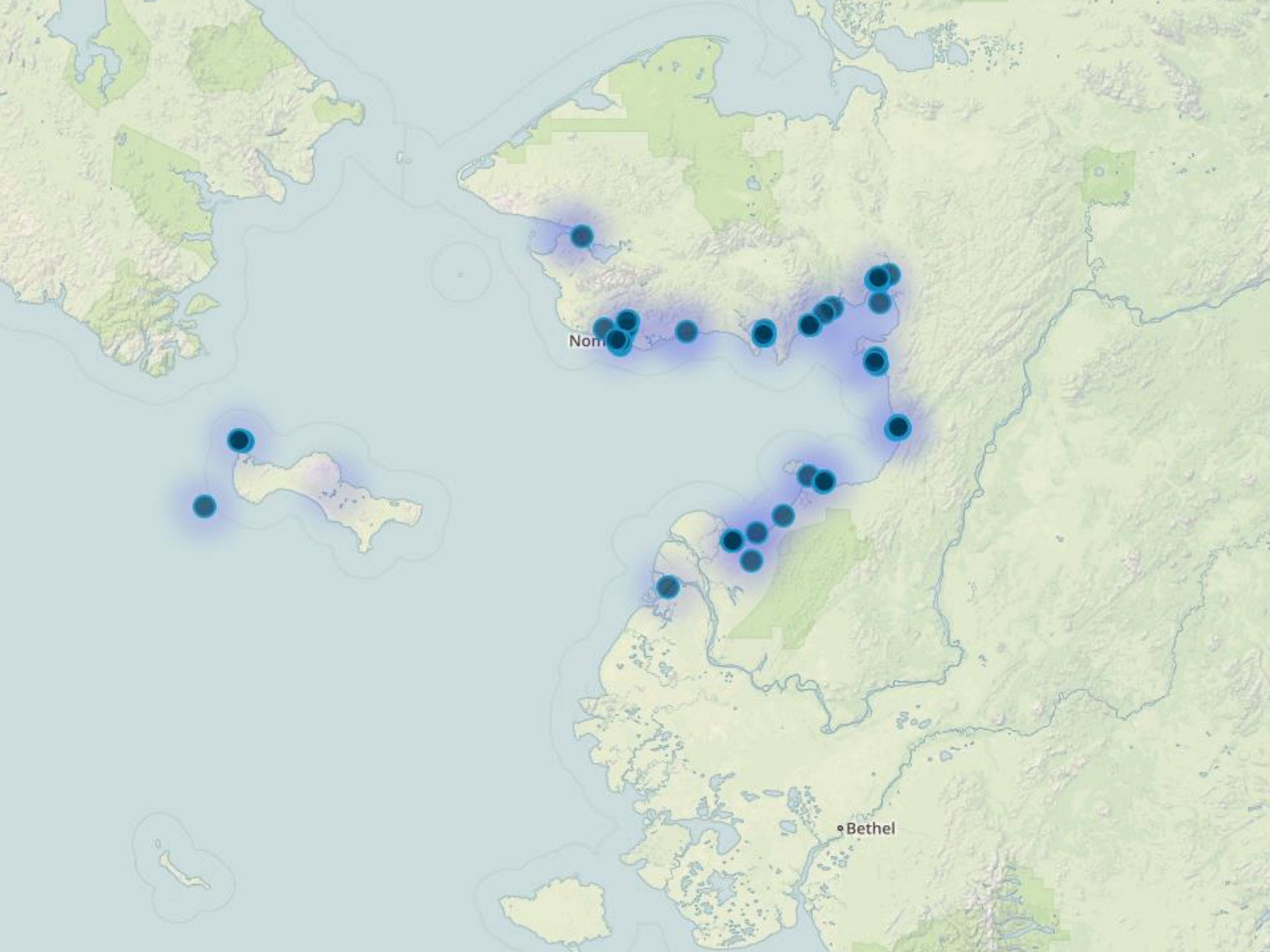


[How to Make your own air purifier](#)



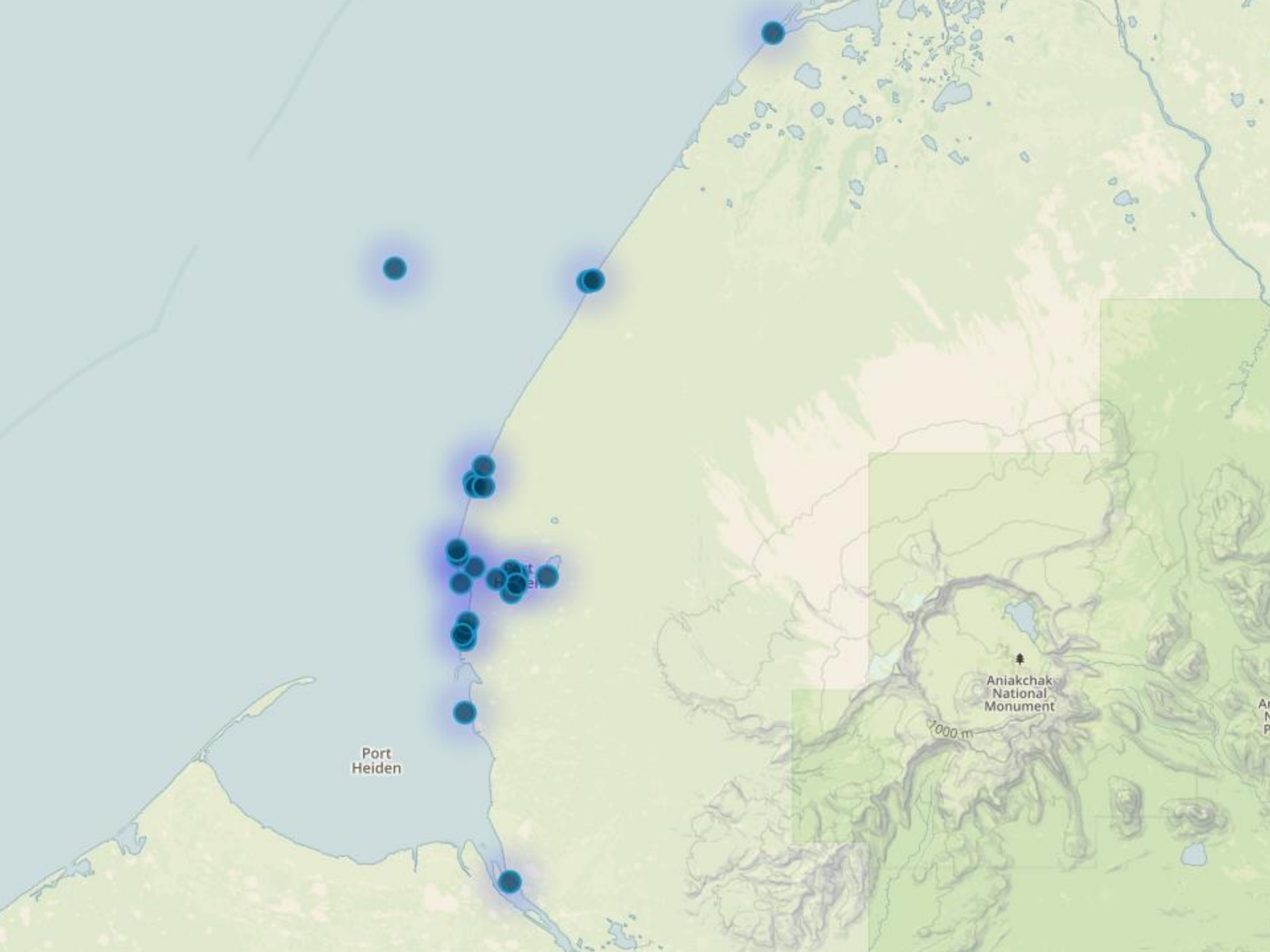
[Western Interior Alaska Air Quality Advisory #2019-F4.PDF](#)





Nom

Bethel



Port Heiden

Aniakchak National Monument

7000 m

Port Heiden

Alaska, United States



☆ Follow



Port Heiden is a community of 102 residents on the Alaska

[Wikipedia Page](#)

[Daily Satellite Imagery](#)

Daily imagery from NASA satellites [VIIRS](#), [Aqua](#) and [Terra](#)

[Weather](#)

Historical weather from weather stations near Port Heiden

[ShoreZone Photos](#)

Aerial photography near Port Heiden from [ShoreZone](#).

34 Nearby Posts within 50 km

View posts within

100

KM

Go >



Marine Mammal Strandings at 2nd Cape

Near Port Heiden

26 AUG 2019

A variety of stranded marine mammals were observed in the Port Heiden area between August 17 and 26th.

[LEO Network](#)

[+ My Maps](#)

Climate Change in Port Heiden, Alaska

Strategies for Community Health





26 Dec 2013 -
7 Jan 2014



Unusually Warm

Port Heiden, Alaska, United States
9 Dec 2013

[+ My Maps](#)



Dead Walrus (*Odobenus rosmarus*)

Port Heiden, Alaska, United States
26 Dec 2013

[+ My Maps](#)



No Sea Ice

Port Heiden, Alaska, United States
7 Jan 2014

[+ My Maps](#)



Storm Disrupts Transportation

Port Heiden, Alaska, United States
7 Mar 2013

[+ My Maps](#)



Winter Brown Bear (*Ursus arctos*)



**Rotten Smell and Mushy
Sockeye Salmon
(*Oncorhynchus nerka*)
and Pacific Halibut
(*Hippoglossus stenolepis*)**

Meshik River, Alaska Peninsula,
Alaska, United States
11 Jun 2015

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Low Seal Numbers

Port Heiden, Alaska, United States
17 Aug 2015

[+ My Maps](#)



**Loss of Fuel Header Due
to Coastal Erosion**



Coastal Erosion Following November Storm

Port Heiden, Alaska, United States
25 Nov 2017

[+ My Maps](#)



Sea Otters (*Enhydra lutris*) Hauling Out with Seals

Port Heiden, Alaska, United States
26 May 2017

[+ My Maps](#)



Erosion Could Drain Lake at Anytime

Port Heiden, Alaska, United States
29 May 2017

[+ My Maps](#)



Earthquakes Change Well-water Quality

Port Heiden, Alaska, United States
26 May 2017

[+ My Maps](#)

26 - 29
May 2017



Coastal Erosion Damaging Boat Launch

Anderson, the header w
shoreline to the point of
decommissioned the fu
jute fabric, used as grou
of a former drum dispos
abandoned underground
site, is actively being ex
and washed in to the bo
at the old Meshik village
the summer of 2018. Re
impact that the coastal
community infrastru
March, 2013, Shannon
occurring during a sever
public roads, electrical
She explained that if th
expensive to repair the
may also ruin the elect
the water wells (Matsor

“A high wind o
can take as n
of shoreline in
Big tides, high
around Than
a lot of erosio

—Scott Anderson, Port Heiden

community infrastructure. In a LEO Network post from March, 2013, Shannon Matson wrote that the erosion, occurring during a severe storm, was impacting the public roads, electrical transformers, and water wells. She explained that if the erosion continued, it would be expensive to repair the roads. The associated flooding may also ruin the electrical transformers and seep in to the water wells (Matson, 2013).

“A high wind out of the west can take as much as 30 feet of shoreline in a single storm. Big tides, high winds, and no ice around Thanksgiving can cause a lot of erosion. Lots of pumice.”

—Scott Anderson, Port Heiden

water also create a greater risk of physical injury to fishers themselves.



erode out of the bluff.
Photo by Richard Buzard

erosion is the
ercial fishers
ve barrier has
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to transport
t Anderson).
Each year,
a dirt road from
get the boats to
eroded away.
gerous, risking
fishing seasons
nching in open

Summary Findings: Health Impacts

TOPIC	DESCRIPTION	OBSERVED CHANGE	COMMUNITY IMPACTS	HEALTH CONCERNS	RECOMMENDATIONS
Weather	Precipitation	Increase in annual precipitation levels and winter rain events	Localized winter flooding	Flooding affects home septic systems	Evaluate drainage around homes with septic systems. Develop water-monitoring protocol to test for possible contamination from neighboring septic leach fields.
	Temperature	Increase in air temperature	Longer growing season, ability for a wider variety of crops to grow	Extended pollen season	Monitor changes to air quality using LEO, construct greenhouse to shelter gardens from wind and other storms
Air	Indoor Air Quality	Increase in air temperature and moisture levels	Increased incidence of mold and mildew inside homes	Respiratory health (sneezing, coughing, wheezing), headache, fatigue, and other associated symptoms	Perform home assessment to identify indoor air improvements, monitor indoor humidity levels, ensure adequate ventilation
Water	Quality/Availability	Change quality of well water following earthquakes and severe storms.	Changes in water quality affect taste and appearance, raising safety concerns.	Supply shortages of palatable drinking water, increase cost of changing water filters and replacing stained appliances	Systematic well water to determine variables associated with changing water quality. Creation of community water plan to accommodate variability in well water quality
	Recreation	Severe erosion between the coast and Goldfish Lake that will lead to a lake breach	Loss of recreation area	Reduced level of physical activity	Creation or identification of alternative recreation sites
Land	Infrastructure/ Economy	Severe storms and wave activity have eroded the safe boat launch	Boats are launched in open water, vulnerable to wave swells	Risk of injury and property damage, potential for delayed launch.	Explore all future construction relating to adaptation using a common set of design engineering parameters
Wildlife	Food Security	Some salmon have discolored skin, and unusual smells in the flesh, potential for shellfish to accumulate PSP toxin	Disruption of subsistence practice and nutritious food consumption	Nutritional deficiency from market food, weight gain	Monitor changes to subsistence resources using LEO Network, test shellfish for PSP in light of temperature changes

Food Security Goal: Increase the availability of cost effective, healthy foods by increasing Meshik Farm yield

PUBLIC HEALTH IMPACT:

- The overall decrease in subsistence harvest due to abundance, variability, and species health has caused residents to rely more heavily on shelf-stable foods and meat flown in from urban areas at a high cost.

PUBLIC HEALTH BENEFIT:

- The creation and expansion of vegetable gardens provides a source of produce at a commercial level to be available in the community.
- Barley and other fodder crops decrease the cost of raising livestock and increase livestock yield (i.e. meat, milk, eggs)
- Healthy foods are readily available for purchase at low cost.
- Healthy foods are available for elder lunches at the community center.
- Partnering with the school to start vegetables in the classroom in the spring can provide an education for children on health, chemistry, etc. and provide older kids with an income in the summer as they follow their starts to production.

ECONOMIC BENEFIT:

- The sale of produce and animal products can support local jobs.
- Produce could lower the cost school lunches as well as community events such as elder lunches.

Short Term Action:

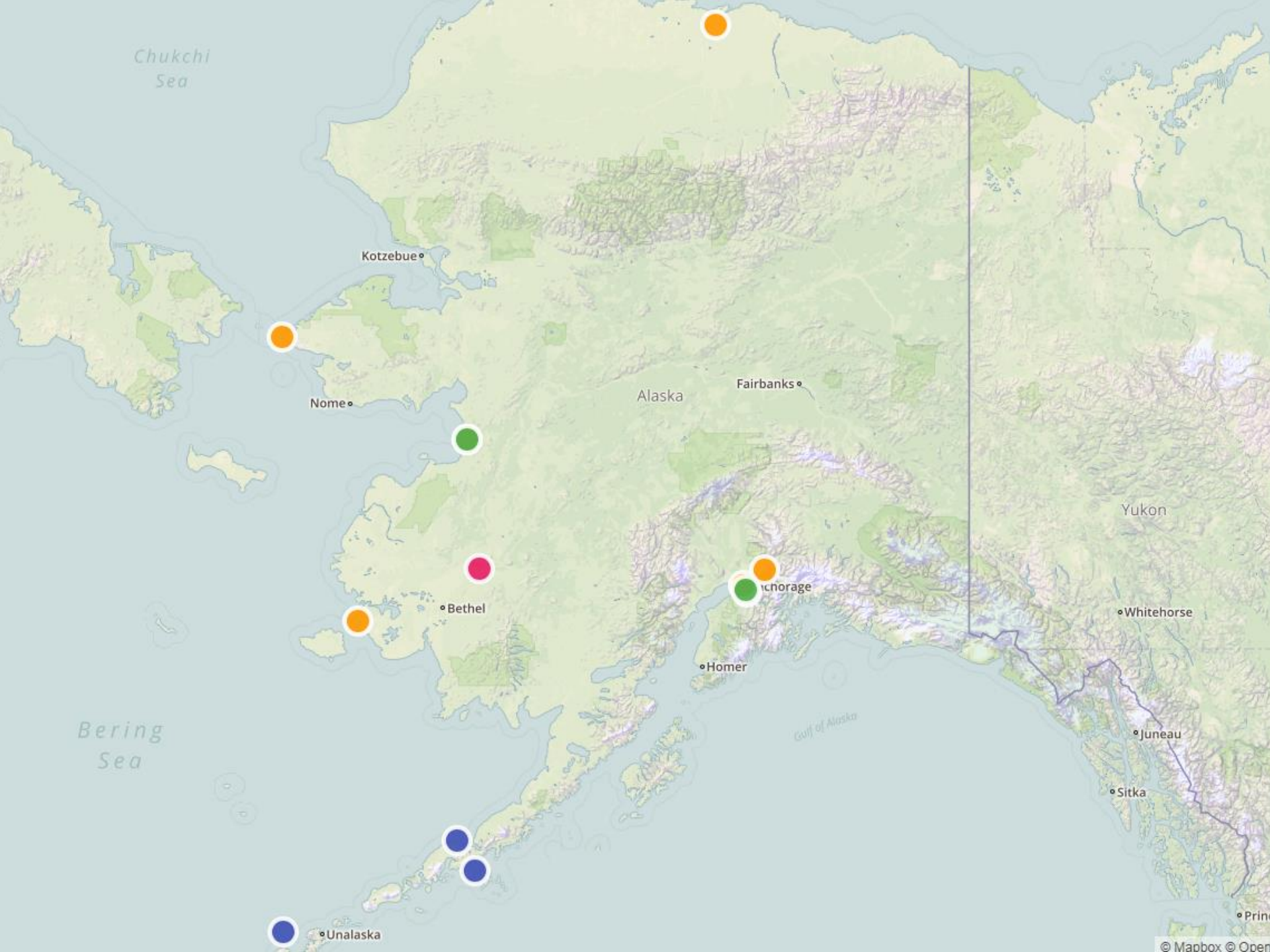
- Network with other communities supporting gardens to develop best-practices such as the Tyonek Grown Program.
- Work with Cooperative Extension Staff to identify best greenhouse design for windy environments.
- Seek education in growing requirements and soil composition for garden crops.

Long Term Action:

- Identify funding source for greenhouse construction and transport of garden supplies.
- Develop a business plan that makes the farm economically sustainable.



Meshik Farm chickens.
Photo by Erica Lujan



ANTHC LEO Alaska Webinar - September 17th, 2019

17 September 2019

Dear LEO Network Members and Participants,

We invite you to join us for the next Alaska LEO Network webinar **TODAY** Tuesday, September 17th, 2019, from 2:00-3:30pm. LEO webinars provide an exciting learning experience and connect local observers and organizations from across Alaska to discuss current and emerging environmental changes.

Agenda:

1:45pm - Conference Line Opens

2:00pm - Welcome, Agenda Review

2:05pm - LEO Observation Review and Discussion

2:45pm - Presentation

Forest health conditions in Alaska: A review of recent surveys

Jason Moan, Forest Health Program Manager with the Alaska Department of Natural Resources Division of Forestry

Description:

A subset of Alaska's forests are surveyed annually by Alaska Division of Forestry



Spruce Rust
USDA Forest Service

If you have any questions about LEO, or would like to set up a webinar to introduce your community members to LEO, please contact :

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Alaska Native Tribal Health Consortium

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