

Supplementary Materials

Questionnaire for Utqiagvik



Permafrost Survey

You live on top of permafrost. We would like to get your help in completing a 15-minute survey on the community impacts you have experienced from thawing permafrost and coastal erosion. We will share our research with you and your community so that anything useful can be part of planning for the future. We appreciate anything you can share with us.

Survey respondents should be 18 years or older.

Each person who fills out this survey will be entered into a prize draw. If you are familiar with more than one community, you can choose to fill the survey for each community, and you will be entered in the prize draws for each survey. The survey is anonymous. Personal contact information will only be collected if you wish to enter the prize draws; personal contact information will not be shared outside of the research team at the University of Alaska Fairbanks and the Pennsylvania State University.

1st Prize: \$250 Amazon gift card

2nd Prize: \$100 Amazon gift card

3rd Prize: \$50 Amazon gift card

We will provide at least one of each prize for each community. Additional 1st, 2nd, and 3rd prizes will be decided based on the number of survey participants.

Our research will be carried out by our group of scientists and engineers at UAF and PSU. The work we undertake will be based on your important input, that's why we need your help before we start. For more information on the project, please visit <https://nna-piper.org/>

Quyanaq. Thank you.

The information that you will share with us is related to which community?
(please choose only one option)

- Kaktovik
- Point Lay
- Utqiagvik
- Wainwright



Question 1 of 10

Have you observed changes in permafrost in or around your community, including the areas where you hunt and travel?

(you can choose more than one option)

- Surface water ponding
- Sink holes
- Ground collapse
- Different ground settlement along roads and gravel pads
- Other _____

How long have such changes been happening?
(please choose only one option)

- Less than 6 months
- 6 months to 1 year
- 1 to 3 years
- 3 to 5 years
- 5 to 10 years
- More than 10 years



Question 2 of 10

What are the changes in permafrost affecting?
(you can choose more than one option)

- Houses
 - Runway
 - School
 - Ice cellars
 - Water/sewer
 - Others: _____
-



Question 3 of 10

Map #1:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)





Map #2:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)





Map #3:

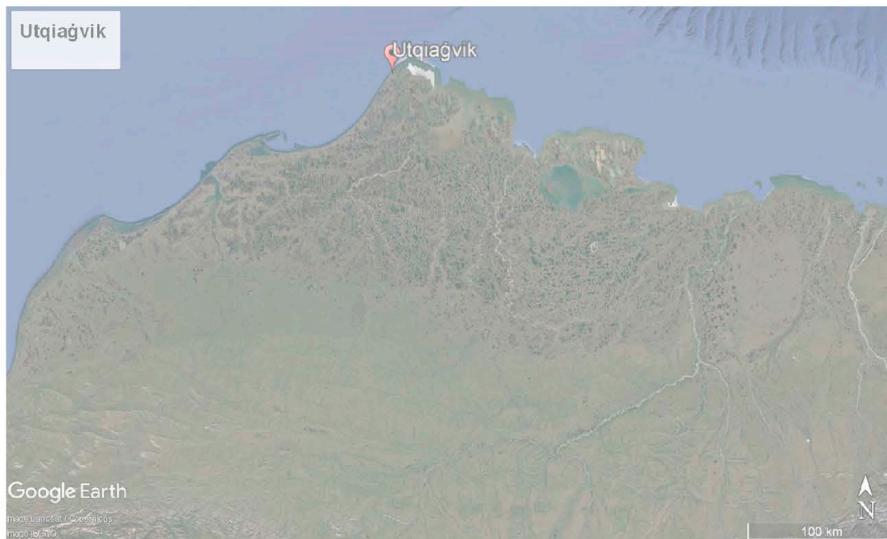
Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)





Map #4:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)





Question 4 of 10

Have you seen damage to houses caused by permafrost thawing?
(please choose only one option)

- Yes
 No
-

What types of damage have you seen? (you can choose more than one option)

- Cracking of walls
 Broken windows
 Door could not close
 Water accumulation around piles or posts
 Jacking up of piles
 Sinking of piles or post-on-pad
 Breaking of pipes
 Tilting of house
 Failure of adjustable supports for elevated foundation
 Breaking of post-on-pad for elevated foundation
 Heaving or sinking of soil underneath slab-on-grade
 Ground subsidence at or near the house
 Others _____
-



Was it fixed? (please choose only one option)

Yes

No

Can you share how it was fixed?



Question 5 of 10

Have you seen damage to buried pipelines or utilidors caused by permafrost thawing?
(please choose only one option)

Yes

No

Can you give an example, such as where it occurred, what was the damage?

Was it fixed?



Question 6 of 10

Have you seen damage to roads caused by permafrost thawing? (please choose only one option)

Yes

No

Can you give an example, such as where it occurred, what was the damage?

Was it fixed?



Question 7 of 10

Have you observed coastal erosion in or around your community, or the areas where you hunt and travel? (please choose only one option)

Yes

No

Does coastal erosion affect:
(you can choose more than one option)

Houses

Runway

School

Ice cellars

Water/sewer

Others _____



How long has the coastal erosion been happening?
(please choose only one option)

- Less than 6 months
 - 6 months to 1 year
 - 1 to 3 years
 - 3 to 5 years
 - 5 to 10 years
 - Longer than 10 years
-



Question 8 of 10

Are you aware of any efforts to stop coastal erosion in your community?
(please choose only one option)

Yes

No

Do you think that those measures are working?
(please choose only one option)

Yes

No



Question 9 of 10

What information would be helpful for your community to plan for the future as climate change continues?



Question 10 of 10

Would you be interested in having a permafrost monitoring station (like the ones pictured below) installed at the place where you live?

We will provide a \$50 Amazon gift card for each owner whose house is selected.

(please choose only one option)

Yes

No



Would you like to add anything or share your other experience with permafrost degradation and coastal erosion?



Would you be willing to be contacted for more details?
(please choose only one option)

- Yes
- No

Please fill out your contact info so that we can reach out to you with further information regarding the installations or contact you for more details.
(if you do not have your own personal phone number or email address, you can use the contact information of your family members or friends)

Name _____

Phone Number _____

Email _____



Would you like to enter a raffle for the chance to win a prize?
(please choose only one option)

Yes

No

If yes, please fill out your information below to enter the raffle:
(if you do not have your own personal phone number or email address, you can use the contact information of your family members or friends)

Name _____

Phone Number _____

Email _____

Maps for Point Lay



Question 3 of 10

Map #1:

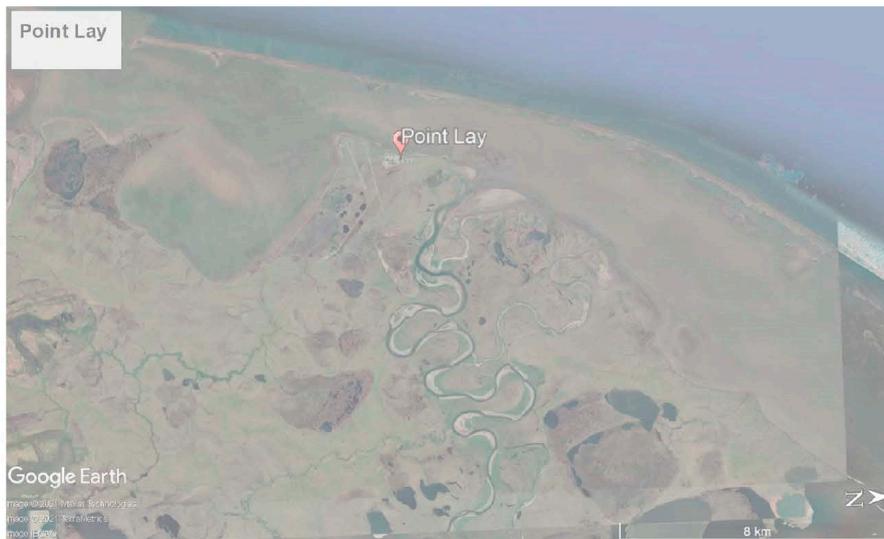
Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
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Map #2:

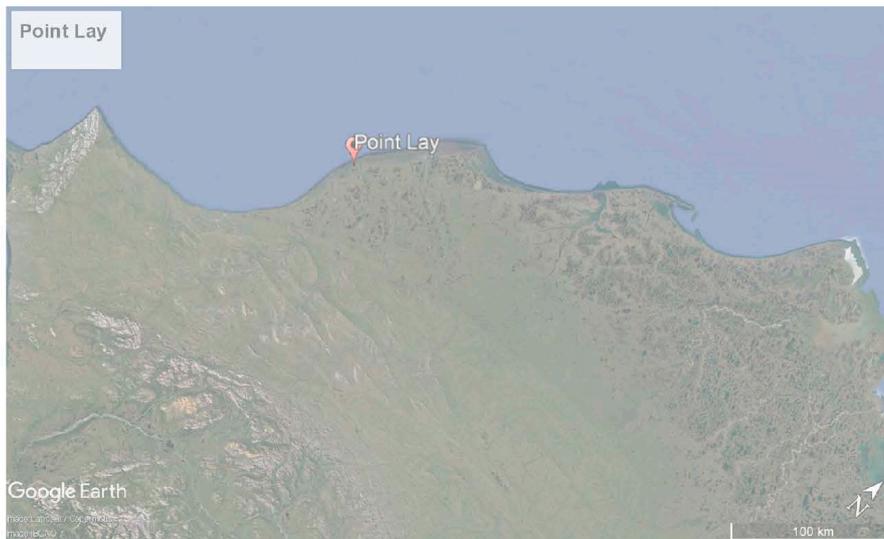
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(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)





Map #3:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)



Maps for Wainwright



Question 3 of 10

Map #1:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
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Map #2:

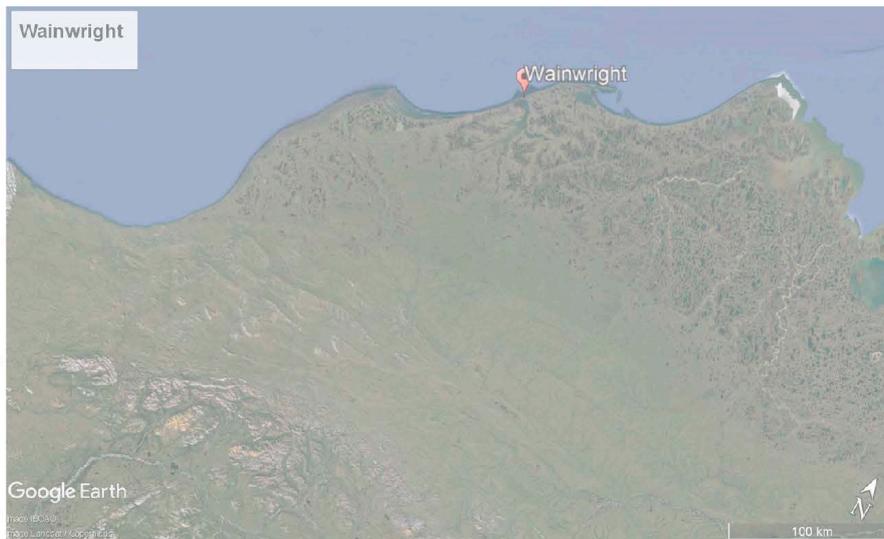
Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)





Map #3:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)



Maps for Kaktovik



Question 3 of 10

Map #1:

Please mark any major areas of coastal erosion and permafrost thaw that you have seen or heard about on the following map.
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(please mark an "X" on the map to represent a degraded or eroded location; you may mark up to 10 locations)

