

## Knowledge Communication Survey

### Welcome to My Survey

This study is being conducted by Tracie Curry towards the requirements of her PhD in Natural Resources and Sustainability at the University of Alaska Fairbanks. Tracie is co-advised by Professor Chanda Meek and Professor Sarah Trainor. Thank you for participating. Your feedback is important.

#### Funded by:





## Knowledge Communication Survey

### Informed Consent

**Description of the study:**

This study explores content preferences for reports used in environmental planning and decision-making that include information from diverse sources, including natural science, social science, and local and indigenous knowledge. Towards this end, the potential value-added of locally-based photos and artwork for the communication of place-based information is investigated. Place-based information is defined here as information that is particular to specific environments and cultures. You are being asked to take part in this study because: 1) you have expertise in environmental policy, planning, and/or decision-making; and 2) you were identified as a person with decision-making influence.

**What you will be asked:**

If you decide to participate in this study you will be asked to complete a survey, and to sequentially review 3 versions of a 2-page report that will be referenced in the survey. It should take about 30-40 minutes to complete the survey (including the time it takes to review the reports). We may follow-up with you after you have completed the survey to request additional feedback.

**How the information will be used:**

The information you share will help us understand preferences for knowledge communication in environmental management fields, as well as the potential benefits and drawbacks of using locally-based images to assist in the communication of information to decision-makers. This research may be used: 1) as the basis of Tracie Curry's PhD dissertation; 2) to write reports and articles for academic journals; and 3) for presentations at academic and public meetings.

**Potential risks and benefits:**

Taking part in this survey will not put you at risk for physical harm. You will not directly benefit from participating, but may enjoy sharing your perspectives. At the end of the survey, you will be offered the option to include your email for entry into a random drawing for an original artwork that was produced as part of this study.

**Anonymity:**

Your name will not be used in any reports, presentations, or publications of this study without your permission. Furthermore, findings from all surveys will be summarized so as not to evaluate one organization against another.

**Voluntary nature of the study:**

You are free to choose whether or not to take part in the survey. If you decide to participate in the survey, you can skip any questions and you may stop being involved at any time.

**Contacts and questions:**

If you have questions, please contact project leader Professor Chanda Meek (clmeek@alaska.edu) or project researcher Tracie Curry (tracie.curry@alaska.edu).

**Review of research ethics:**

This study was reviewed by the UAF Institutional Review Board (IRB). The UAF IRB examines research projects to protect research subjects. If you have questions or concerns about your rights as a research participant, you can contact the UAF Office of Research Integrity at 474-7800 (Fairbanks area) or 1-866-876-7800 (toll-free outside the Fairbanks area) or uaf-irb@alaska.edu.

IRB#: 1343902-1; Date approved: 11/12/2018 (Exempt)

**Statement of Consent**

**\* I understand the procedures described above. My questions have been answered to my satisfaction and I agree to participate in this study. I have been provided the opportunity to print a copy of this form.**

- Yes - I would like to complete the survey (Click 'Yes' and the 'Next' button to start the survey)
- No - I would not like to complete this survey (Thank you for your interest. Click 'No' and the 'Next' button to exit the study)



## Knowledge Communication Survey

**\* Are you at least 18 year of age?**

- Yes
- No - Unfortunately, if you are not 18 years or older, you are not eligible to complete this survey. (Thank you for your interest. Click 'No' and the Next button to exit the study)



## Knowledge Communication Survey

### Background Questions

**Name**

**Agency/Organization**

**What is your current job title?**

**How do you describe your job?**

**How long have you been in this field of work?**

**When you read a report for use in environmental planning/decision-making, what factors influence your view of its 'credibility'?**

Credibility is defined here as the factual reliability and competence of the knowledge being shared, including technical proficiency, and subject matter-based or place-based expertise

## Knowledge Communication Survey

On a scale from 1 (Not at all) to 5 (Very) how would you rate your familiarity with environmental issues on the North Slope of Alaska?

1 Not at all familiar

2

3

4

5 Very familiar

On a scale from 1 (Not at all) to 5 (Very) how would you rate your familiarity with social issues on the North Slope of Alaska?

1 Not at all familiar

2

3

4

5 Very familiar

## Knowledge Communication Survey

**On a scale from 1 (Not at all) to 5 (Very) how would you rate your level of experience working with Indigenous peoples in Alaska?**

Indigenous peoples, also known as first peoples, aboriginal peoples or native peoples, are ethnic groups who are the original inhabitants of a given region, in contrast to groups that have settled, occupied or colonized the area more recently

1 Not at all experienced

2

3

4

5 Very experienced

**Please explain**

## Knowledge Communication Survey

**Local and/or indigenous knowledge are among the information sources I use in environmental planning**

Local knowledge is used here as a generic term referring to knowledge generated through observations of the local environment and held by a specific group of people. Indigenous knowledge is used to mean local knowledge held by indigenous peoples, or local knowledge unique to a given culture or society.

- True
- False
- Not applicable

**Local and/or indigenous knowledge are among the information sources I use in environmental decision-making**

- True
- False
- Not applicable

## Knowledge Communication Survey

**On a scale from 1 (Not at all) to 5 (Very), how valuable do you think local and/or indigenous knowledge are as sources of information for environmental planning/decision-making.**

1 Not at all valuable

2

3

4

5 Very valuable

**Please explain**

## Knowledge Communication Survey

Given your rating of the value of local and/or indigenous knowledge, how much attention do you believe it receives in environmental planning/decision-making?

Not enough

Just enough

Too much

Please explain

## Knowledge Communication Survey

On a scale from 1 (Highly textual) to 5 (Highly visual) the number that best describes your learning preference is

1 Highly textual

2

3

4

5 Highly visual

## Knowledge Communication Survey

Please read [Report A](#) before continuing to the next section

## Knowledge Communication Survey

### Report A Questions

Please read Report A before continuing this section

**The information in Report A was easy for me to understand**

1 Not at all

2

3

4 Very

**Please explain**

## Knowledge Communication Survey

The information presented in Report A seems credible to me

1 Not at all

2

3

4 Very

Please explain

## Knowledge Communication Survey

**Table 1 (see below) helped to improve my understanding of the information provided in the report**

1 Not at all	2	3	4 Very much so	N/A (I didn't look at Table 1)
<input type="radio"/>				

**Please explain**

The timing of sea ice formation and break-up is changing: The number of days with sea ice on the ocean and snow on the ground has seen a significant decline. As the climate warms, the accumulation of snow and ice in the fall is delayed, and its springtime melt occurs earlier. The Chuckchi Sea average melt season, the period between the onset of surface melt and surface freezing, lengthened by 13.2 days per decade from 1979 to 2013 (Table 1). The average increase across the Arctic as a whole was 5 days per decade.

**Table 1:** Trends in Freeze-up, Melt Onset, and Length in the Melt Season from 1979-2013, Expressed in the number of days per decade<sup>-1</sup>  
Adapted from Stroeve et al., 2014

Region	Early Freeze Onset (EFO)	Melt Onset (MO)	Melt Length (EFO-MO)
All	3.0	-2.1	5.0
Bering	3.0	0.4	2.6
Hudson Bay	3.4	-3.1	6.5
Baffin Bay	1.3	-4.6	5.9
E. Greenland	2.4	-6.1	8.5
E. Siberian	8.4	-1.3	9.7
Chuckchi	10.7	-2.3	13.2
Beaufort	6.5	-2.7	9.2
Canadian Archipelago	2.2	-1.0	3.2

## Knowledge Communication Survey

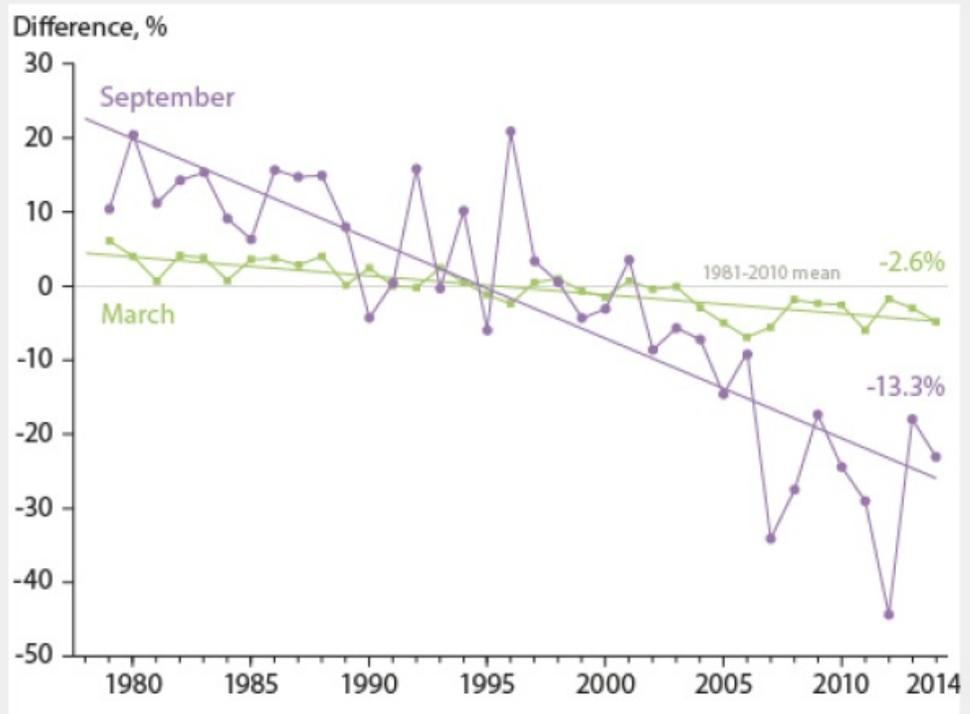
**Figure 1 (see below) helped to improve my understanding of the information provided in the report**

				N/A (I didn't look at Figure 1)
1 Not at all	2	3	4 Very much so	
<input type="radio"/>				

**Please explain**

The extent of sea ice, especially at the time of its regular annual minimum in September, has been declining over the past few decades (Figure 1). The Beaufort and Chuckchi seas have seen extreme summer ice loss, with declining trends in September ice extent of approximately -20% per decade through 2015.

**Figure 1:** Historical trends in Arctic sea ice extent for March (month of maximum extent) and September (month of minimum extent). Each value is the difference in ice extent relative to the mean values for 1981–2010. The straight lines show least squares linear regressions and indicate ice losses of 2.6% (March) and 13.3% (September) per decade (Perovich et al., 2015)<sup>4</sup>



## Knowledge Communication Survey

Figure 2 (see below) helped to improve my understanding of the information provided in the report

				N/A (I didn't look at Figure 2)
1 Not at all	2	3	4 Very much so	
<input type="radio"/>				

Please explain

Spring declines in sea ice extent are also significant (Figure 2). This impacts the timing that important subsistence animals (such as bowhead whales and walrus) arrive in the region.

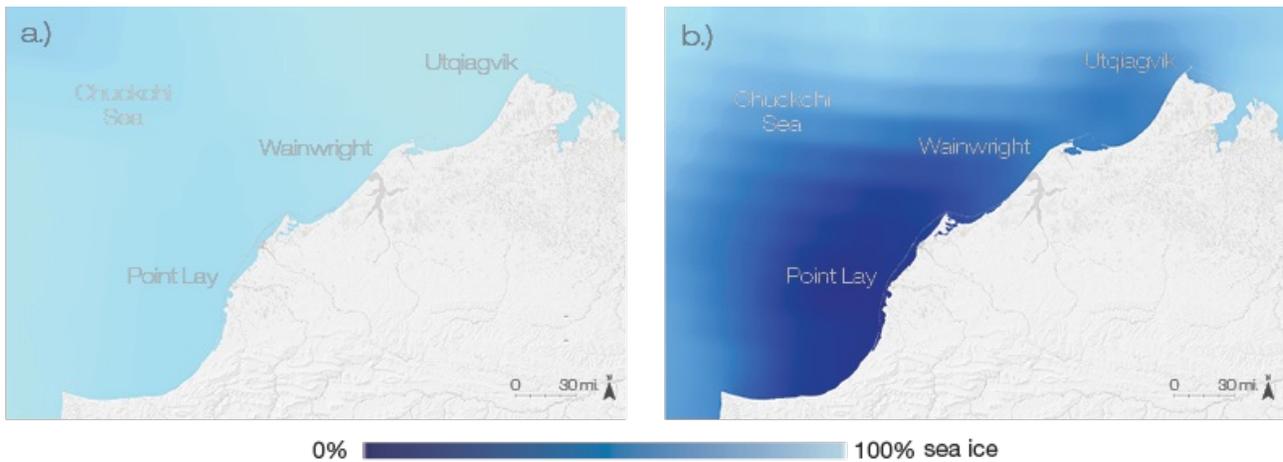


Figure 2: Average May sea ice coverage in the Chuckchi Sea (a) May 2013, (b) May 2016. Based on data from the Scenarios Network for Alaska and Arctic Planning (SNAP) Historical Sea Ice Atlas, 2016.

## Knowledge Communication Survey

Please read [Report B](#) before continuing to the next section

Report B presents the same information as Report A, but also contains quoted statements made by individuals with local indigenous knowledge during interviews conducted in Wainwright, Alaska (2015)



## Knowledge Communication Survey

### Report B Questions

Please read Report B before continuing this section

**How did including quoted statements from local people impact your understanding of the issues described in the report if at all?**

## Knowledge Communication Survey

In your opinion, when comparing Report A (baseline) to Report B (added quotes/statements), Report B is less, equally, or more credible.

Less credible

Equally credible

More credible

Please explain

## Knowledge Communication Survey

Please review [Report C](#) before continuing to the next section

Report C presents the same information as Report B but also contains photos and artwork based on local indigenous knowledge shared during interviews in Wainwright, Alaska (2015).

## Knowledge Communication Survey

### Report C Questions

Please review Report C before continuing this section

**How did including locally-based photos and artwork (Figures 1, 3, 4, & 6) impact your understanding of the issues described in the report if at all?**

## Knowledge Communication Survey

In your opinion, when comparing Report B (added quotes/statements) to Report C (added locally-based photos and artwork), Report C is less, equally, or more credible.

Less credible

Equally credible

More credible

**Please explain**

## Knowledge Communication Survey

Figure 1 (see below) helped to improve my understanding of the information provided in the report

				N/A (I didn't look at Figure 1)
1 Not at all	2	3	4 Very much so	
<input type="radio"/>				

Please explain

What, if any, information does Figure 1 convey above and beyond the information provided in Reports A and B?

Travel along the ice edge during the melt season can be dangerous due to uneven ice deterioration. Longer melt seasons negatively impact the mobility of Arctic residents and can reduce access to subsistence resources (Figure 1).

*“Last year they only get three whale because the ice get real funny right away. Every time we go down the snow machine want to fall on the water... they almost lost three ski-doods.” - Wainwright Elder, 2015*

**Table 1:** Trends in Freeze-up, Melt Onset, and Length in the Melt Season from 1979-2013, Expressed in the number of days per decade<sup>-1</sup> Adapted from Stroeve et al., 2014

Region	Early Freeze Onset (EFO)	Melt Onset (MO)	Melt Length (EFO-MO)
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E. Siberian	8.4	-1.3	9.7
Chuckchi	10.7	-2.3	13.2
Beaufort	6.5	-2.7	9.2
Canadian Archipelago	2.2	-1.0	3.2



**Figure 1:** “Duck Hunting in Spring”. George Leavitt, 2017  
Hunters must exercise caution when traveling along shore ice in the early spring. It is best to travel with a partner.

## Knowledge Communication Survey

Figure 3 (see below) helped to improve my understanding of the information provided in the report

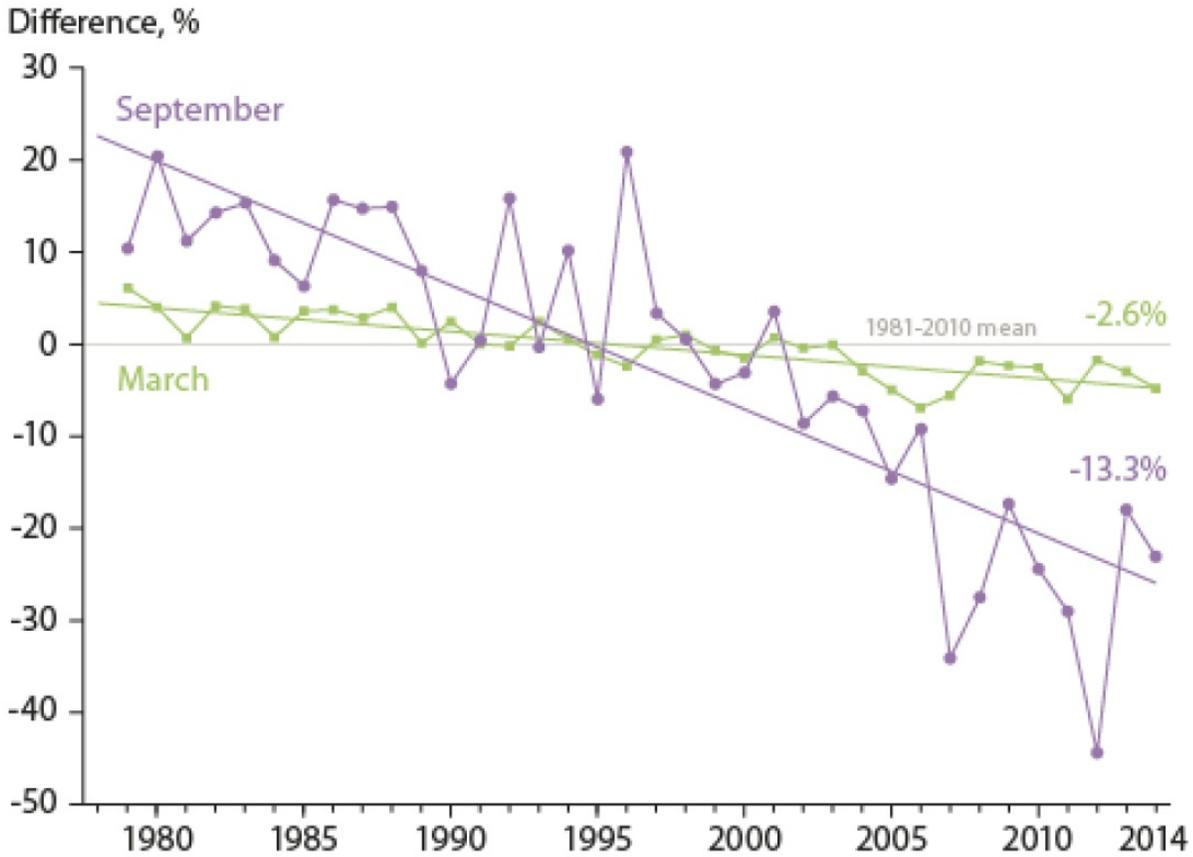
1 Not at all	2	3	4 Very much so	N/A (I didn't look at Figure 3)
<input type="radio"/>				

Please explain

What, if any, information does Figure 3 convey above and beyond the information provided in Reports A and B?

Spring declines in sea ice extent are also significant (Figure 2). This impacts the timing that important subsistence animals (such as bowhead whales and walrus) arrive in the region.

*“What used to be like, maybe a two or three week period of hunting, you’re cramming it into maybe a week or week and a half... this year was a week. The ice was here and it was gone... no more than 10 days it [the ice] was nearby.” - Wainwright resident, 2015*



**Figure 2:** Historical trends in Arctic sea ice extent for March (month of maximum extent) and September (month of minimum extent). Each value is the difference in ice extent relative to the mean values for 1981–2010. The straight lines show least squares linear regressions and indicate ice losses of 2.6% (March) and 13.3% (September) per decade (Perovich et al., 2015)<sup>4</sup>



**Figure 3:** Walrus remain in the vicinity of coastal villages as long as there is pack ice nearby. This important food source is less accessible to hunters when ice floes are far out to sea. (a) USFWS 2006, (b) USGS 2010, (c) Photo of Willie Hoogendorn by Boogles Johnson, taken east of Cape Nome, May 2018



## Knowledge Communication Survey

**Figure 4 (see below) helped to improve my understanding of the information provided in the report**

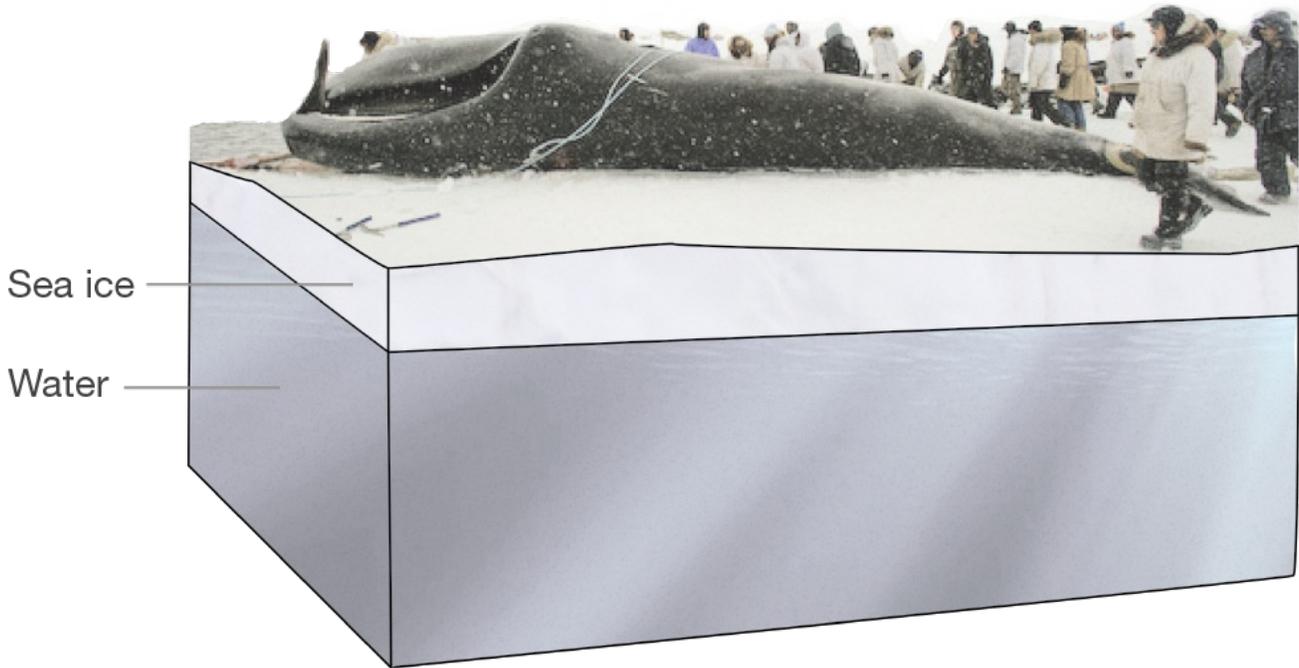
				N/A (I didn't look at Figure 4)
1 Not at all	2	3	4 Very much so	4)
<input type="radio"/>				

**Please explain**

**What, if any, information does Figure 4 convey above and beyond the information provided in Reports A and B?**

Sea ice thickness is among the most difficult geophysical parameters to measure at large scales and, because of large variability and limited observational data, evaluation of ice thickness trends is difficult. However, based on subsurface sonar, aircraft-mounted sensor, and satellite lidar and radar data, it is estimated that the annual mean ice thickness in the broad region of the central Arctic basin where submarine data is available has decreased from 3.59m in 1975 to 1.25m in 2012, a 65% reduction.

*“Well, in my time, we used to have good ice for our whaling. Nowadays, it’s pretty hard for us to find thick ice to pull up a whale” - Wainwright Elder, 2015 (Figure 4)*



**Figure 4:** A minimum 3-4 feet of ice thicknesses is needed to support the weight of a whale

## Knowledge Communication Survey

Figure 6 (see below) helped to improve my understanding of the information provided in the report

				N/A (I didn't look at Figure 6)
1 Not at all	2	3	4 Very much so	
<input type="radio"/>				

**Please explain**

**What, if any, information does Figure 6 convey above and beyond that provided in Reports A and B?**

In the Iñupiat worldview, food security is synonymous with environmental health and encompasses a wide range of concerns from availability (ability of the Arctic ecosystem to maintain a high variety of life) to accessibility (having the ability to live off the land and to obtain sufficient access to diverse sources of healthy food) (Figure 5). Sea ice variability has significant impacts on all dimensions of food security, necessitating an adjustment in traditional hunting and management strategies (Figure 6)

Figure 5:  
Interconnected sea ice variability and food security

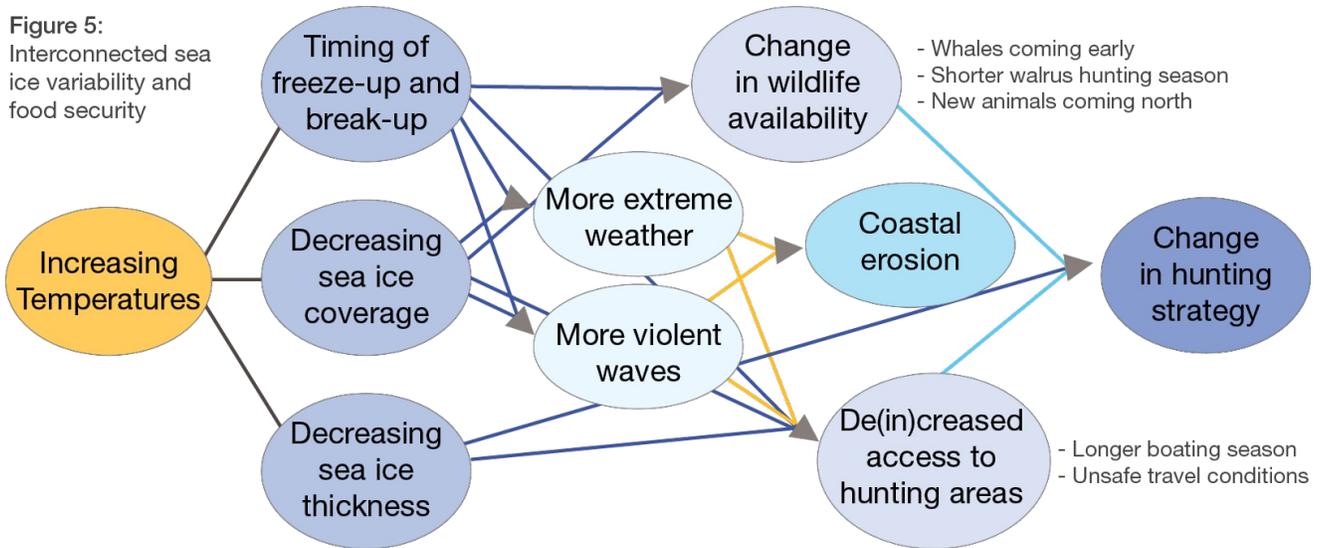


Figure 6: “Getting close to the lead”, painted scene on baleen. George Leavitt, 2017  
Depicts Iñupiat whalers breaking trail to open lead. Decreased sea ice leads to increased winds, which in turn push pressure ridges against village shorelines, making trail-breaking hard work.



## Knowledge Communication Survey

Please rate the usefulness of the following arrangements (A. text only, B. text + quote, and C. text + quote + image) based on their ability to convey information

### A. Text only

Future projections show ongoing declines in sea ice concentration and thickness. This has significant implications for North Slope communities as their hunting success and mobility are to a large extent dependent on the quality of ice. For example, it is becoming increasingly difficult to whalers to locate ice that is thick enough to support the weight of a whale. In response, hunters may go after smaller animals, or they may travel further to find suitable ice conditions.

1 Not useful at all

2

3

4 Very useful

### B. Text + Quote

Future projections show ongoing declines in sea ice concentration and thickness. This has significant implications for North Slope communities as their hunting success and mobility are to a large extent dependent on the quality of ice. For example, it is becoming increasingly difficult to whalers to locate ice that is thick enough to support the weight of a whale. In response, hunters may go after smaller animals, or they may travel further to find suitable ice conditions.

“Well, in my time, we used to have good ice for our whaling. Nowadays, it’s pretty hard for us to find thick ice to pull up a whale” -Wainwright Elder, 2015

1 Not useful at all

2

3

4 Very useful

### C. Text + Quote + Image

Future projections show ongoing declines in sea ice concentration and thickness. This has significant implications for North Slope communities as their hunting success and mobility are to a large extent dependent on the quality of ice. For example, it is becoming increasingly difficult for whalers to locate ice that is thick enough to support the weight of a whale. In response, hunters may go after smaller animals, or they may travel further to find suitable ice conditions.

*“Well, in my time, we used to have good ice for our whaling. Nowadays, it’s pretty hard for us to find thick ice to pull up a whale” -Wainwright Elder, 2015*

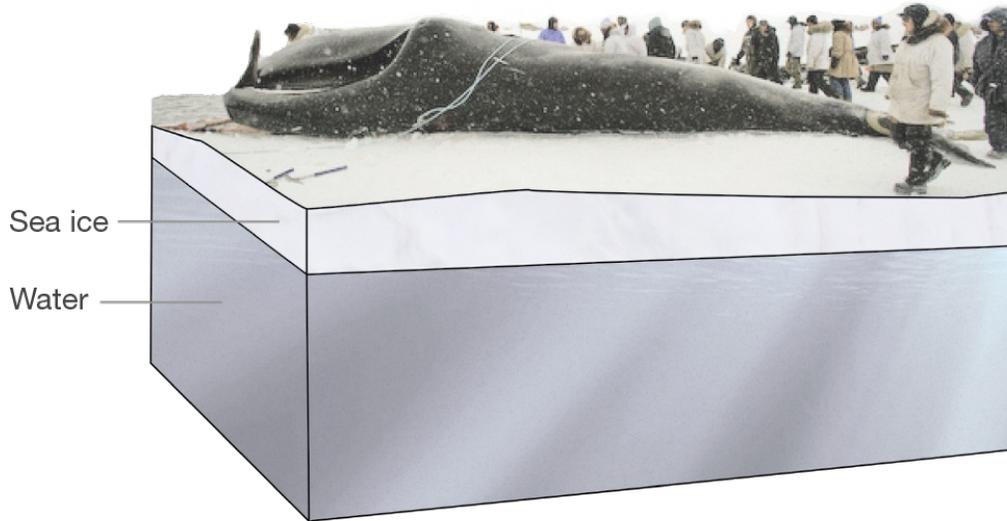


Figure 4: A minimum 3-4 feet of ice thicknesses is needed to support the weight of a whale

Not useful at all

Very useful



Please explain the rationale of your answers to A. Text only, B. Text + Quote, and C. Text + Quote + Image

## Knowledge Communication Survey

**Which, if any, of the reports (A, B, C) do you prefer given the following intended purpose?**

To provide an understanding of current knowledge on key components of sea ice variability on the North Slope of Alaska as well as an understanding of the local context and experience of these changes

- Document A
- Document B
- Document C
- None

**Please explain**

**Do you have any additional comments?**



## Knowledge Communication Survey

### Survey Feedback

**How long did it take you to complete the survey?**

**Are there specific questions in this survey that you found confusing or ambiguous? If yes, please let us know which ones and how we might improve them.**

**Were there any questions we did not ask that you thought we should have?**

**Any additional comments?**



## Knowledge Communication Survey

Can you think of anyone else that would be a good candidate for this survey that 1) has experience in environmental policy, planning, and/or decision-making, and 2) has decision-making influence within their agency or organization? If so, please provide their name and contact information below:

**Recommendation 1:**

Name:

Agency/Organization:

Email:

Phone:

**Recommendation 2:**

Name:

Agency/Organization:

Email:

Phone:

## Knowledge Communication Survey

Thank you for your time!

Can we contact you with follow-up questions? If so, please enter your email here:

Would you like to enter this email in a random drawing to win the artwork below?

- Yes, I would like to be entered in the drawing
- No, thank you

***Getting Close to the lead*, painted scene on baleen**  
**George Leavitt, Utqiagvik, 2017**

