

Phase I Sea Ice Expert Panel Proposal

Intended audience:

ROADS Advisory Panel, Arctic Passion, Proposed Expert Panel

Pre-Reads:

SAON ROADS Process Expert Panel Guidelines:

<https://docs.google.com/document/d/1ePr4MNVBzefmzjKXVfjj3XhbPUIWgkj4/edit>

Instructions:

Please complete the following template in collaboration with the team identified to initiate a ROADS Expert Panel (EP). Submit the completed template to info@roadsadvisorypanel.org. The Advisory Panel will review your submission and respond in writing within 6 weeks.

1. Abstract of the proposed thematic focus of your Expert Panel [300 words].

Sea ice is a defining feature of the North and for many is synonymous with the Arctic. It is a platform for life, and for centuries a reliable platform for travel. However, in recent decades sea ice variability and absence has characterized the region and the cascading effects of these changes have influenced all aspects of life. Human-induced climate change has led to the decline in multi-year ice and year-to-year changes in seasonal sea ice cover. These changes bring with them risks, challenges and opportunities affecting all Arctic communities, pan-Arctic sectors, and global actors alike; therefore, continued, coordinated observation is crucial. In 2011, the Inuit Circumpolar Council published the report 'Sea Ice is our Highway', outlining not only the environmental importance of sea ice but also its economic and cultural significance. Identifying and understanding safe conditions for travel on and within sea ice is of fundamental significance for economic, cultural, and environmental sustainability for Inuit and stakeholders within the region. Thus, the focus of this expert panel is on sea ice and mobilities. Mobilities in this case is defined as the movement of people and goods on frozen sea ice or within ice covered waters (e.g., sledge, snowmobile, or personal watercraft, commercial vessel, etc.) and includes both a focus on local mobilities (e.g. Individual community members' movement on frozen sea-ice and within ice infested waters) and on regional and global traffic moving through the Arctic) for purposes of fisheries, tourism, resource extraction, and re-supply to name a few). Further, changes to sea ice occur alongside ecosystem changes and affect marine life and marine processes, and impact the mobility and life cycles of marine species, particularly those that are ice-dependant (e.g. pinnipeds, polar bears). The properties of sea ice (e.g., extent, thickness, age, algae) represent a suite of measurable phenomena or result of processes with significant relevance to a host of actors, (e.g., Arctic Indigenous Peoples and communities, operational agencies, scientists, etc.)), and environmental and ecosystem services. The importance of sea ice warrants coordinated observation efforts.

2. Scope, purpose and societal relevance of the proposed Expert Panel, including [1000 words]:

- A. Scope: The scope should include an overview of the topical/focal area, the geographic scope and a **description of how the effort addresses the ROADS' Guiding Principles**, especially how it compliments and integrates (or plans to) existing efforts.

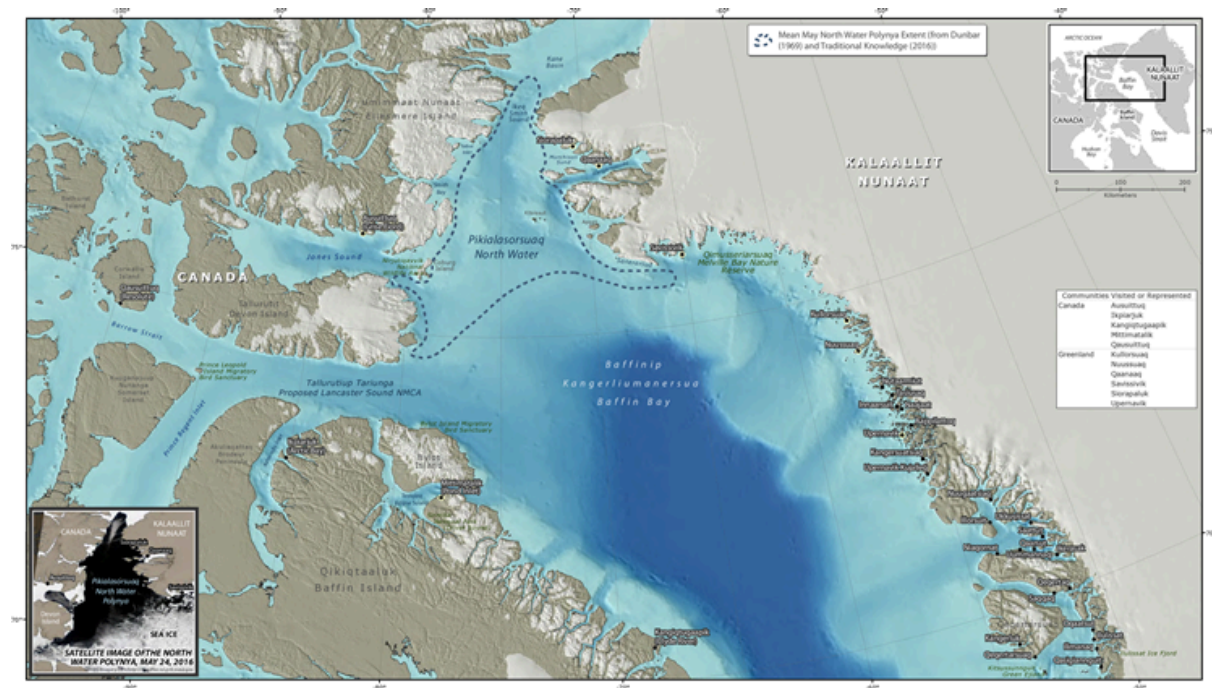


Figure 1. Baffin Bay Region. Source: [Map of Pikialasorsuaq \(The North Water Polynya\) including surrounding Inuit communities. Source: Oceans North Canada](#)

The geographic scope of the EP is the Baffin Bay region (Figure 1), from Ellesmere Island, south to Nunatsiavut (not shown in Figure 1). The region enjoys significant political, scientific, economic, and institutional cooperation, which includes both Canadian and Greenlandic communities with cultural and subsistence ties.

Indigenous Peoples, regulatory bodies, and co-management entities on both sides of Baffin Bay, are presented with a growing number of challenges related to changes in sea ice, and the resulting increased accessibility to the region. Most notably these challenges include:

- changes to mobility and community-based needs: travel, subsistence, safety, reporting and sharing of data, updated infrastructure
- loss of ice impacts on wildlife and ecosystem(s) including: habitat change and loss, loss of species and biodiversity, changes in seasonal migration timing and routes
- increased shipping: multi-jurisdictional, community impacts, effects on ecosystem(s) and marine wildlife such as marine pollutants, anthropogenic underwater noise, and vessel strikes
- economic development: lack of suitable infrastructure to support population growth, increased societal tensions, opportunities for wage labor, risk of pollution

B. Purpose: The purpose of this work should be focused on the overall goals of the ROADS process - improving systemic shortcomings in Arctic observing and data systems while adhering to the Guiding Principles. Please briefly characterize significant shortcomings of the current Arctic observing and data systems under this theme and how this work is organized to address each Guiding Principle.

The purpose of this EP is to improve the coordination and relevance of sea ice observation in the Baffin Bay region. There is shared concern that current Arctic Observing System inputs are performing poorly as the information obtained flows through to data products without informed linkages to societal benefits. In addition, there is little or no input regarding priorities from local communities or Indigenous Peoples and there continues to be gaps

(spatial, temporal, resolution, variables) in the observing system, and the opportunity to contribute to pan-Arctic and global observing initiatives is poorly leveraged.

Principle 1 - Equity: There is a need for equitable inclusion and recognition of Indigenous Knowledge, Indigenous Peoples and local community concerns when developing effective observing systems. This equitable inclusion ensures that the best available data and information is included in efforts to understand processes that directly impact Indigenous Peoples, such as safety associated with sea ice mobility. We will follow the Circumpolar Inuit Protocols for Equitable and Ethical Engagement (ICC Alaska, 2022) and include Indigenous Knowledge holders in all aspects of this work. Indigenous Knowledge experts on sea ice are being identified and will be an integral part of the EP. Indigenous Knowledge holders will also be compensated for participating in the EP.

Principle 2 - Benefit : Identified issues with the data systems which are relevant to sea-ice observations include achieving data interoperability, reconciling data granularity, and supporting and maintaining Indigenous data sovereignty. Pan-Arctic sea-ice monitoring is predominantly from satellite-derived remote sensing. While there are existing community-based sea ice monitoring programs, these forms of data are not often at suitable spatial resolution and are often too inconsistent in spatial and temporal coverage to be useful for community concerns. More clarity and feedback on how the international sea ice community can support and expand sampling and measurement efforts while maintaining proper data sovereignty rights is needed.

Principle 3 - Leveraging: The intent is to expand or build upon existing data-system initiatives, observing infrastructures, and observing programs (local, regional, pan-Arctic) in an impactful way. This may include contribution of information, making recommendations on how to better enhance interoperability, and coordination of efforts to avoid siloing, as appropriate. Some examples include:

- Local: [SmartICE](#), [ELOKA](#), [ISN](#), [SIKU](#)
- Regional: [Canadian Ice Services](#), [NSIDC](#), [NASA ICE](#)
- Pan-Arctic: [Copernicus](#) (Polar TEP), [Polar Portal](#), [CliC ASIWG](#)
- Research Networks / Instrumentation [Distributed Biological Observatories](#) (DBOs)

Principle 4 - Replication: In general, our review of relevant sea ice observing initiatives highlights the need for more focus on a comprehensive risk assessment and risk-aware understanding of the ongoing changes in the Arctic. To complete the required research for a better understanding of environmental processes in the Arctic, it is essential to ensure ethical and equitable engagement with Inuit and Indigenous communities impacted by both natural and anthropogenic activities (ICC Alaska, 2022) and the inclusion of Indigenous Knowledge. The process can be easily reproduced in other regions, recognizing that sea ice SAV's identified may differ in other places, even when the approach is the same or similar.

- C. Societal relevance: Please briefly describe the societal relevance of the proposed EP and the plan to evaluate the societal benefit. Societal relevance should be well established by describing how the EP will use the [International Arctic Observing Assessment Framework](#) (IAOAF), or applicable societal benefit frameworks that will be used or developed, to evaluate societal relevance. Please describe any potential products, services or outcomes of this work and their users or beneficiaries. This is a useful place to cite literature or any preparatory workshops that have taken place to support this work.

The loss of sea-ice in the Arctic has major social, environmental and economic consequences for the communities that rely on it for their livelihoods and food-security (i.e.,

both through access to country food sources and through re-supply vessels). Specifically, sea ice safety and travel for people in northern communities is negatively impacted as both the sea-ice extent, thickness, and length of the sea ice season decreases. At the same time, increased access for ship-based transportation could create opportunities for improved re-supply leading to a reduction in the cost of store bought food. However, these opportunities can only be realized if shipping conditions in variable and changing sea ice are safe and predictable for operators. Loss of sea ice also has global consequences, affecting biodiversity across a large portion of the planet, influencing the decision making of multinational and national corporations around transport, fisheries and development in the Arctic, and climate impacts for areas far removed. We have selected 8 societal benefit areas identified in the [International Arctic Observing Assessment Framework](#) (IAOAF) that are relevant to the work of this SAV EP and to which it will contribute. They are:

- 1) Disaster preparedness (SBA 1)
- 2) Food Security (SBA 3)
- 3) Fundamental understanding of Arctic systems (SBA 4)
- 4) Infrastructure Operations (SBA 6)
- 5) Marine and Coastal Ecosystems and Processes (SBA 7)
- 6) Resilient Communities (SBA 9)
- 7) Sociocultural Services (SBA 10)
- 8) Weather Climate (SBA 12)

This work is intended to be replicable and to serve as a template for other regions in the Arctic.

As of June 2024 the EP has had 13 virtual meetings, and an in-person workshop on March 25th, 2024 at Arctic Science Summit Week. Phase I documentation is complete.

3. Contributors to Expert Panel

A. Membership

Name	Role	Affiliation	Contribution to EP theme	Support
Talia Wells	Facilitator	AINA/UCalgary	Policy and science communication	NFRF
Cecilia Bitz	Member	University of Washington	Climate	NFRF
Chantelle Verhey	Member	GCRC/CarletonU	Data interoperability	NFRF
Jackie Dawson	Member	UOttawa	Climate change and mobilities	NFRF
Jeremy Wilkinson	Member	British Antarctic Survey	Sea ice and climate change	Arctic PASSION / BAS
Maribeth Murray	Member	AINA/UCalgary	Environmental history	NFRF
Rowenna Gryba	Member	ICC-Canada	Indigenous and community engagement / Quantitative ecology	ICC-Canada

B. Support

Name	Affiliation	Contribution to EP theme	Support
Chase Puentes	UWashington	Sea ice/ Indigenous community engagement	RNA CoObs
Emily Lescak	RNA CoObs	RNA CoObs Liaison	RNA CoObs / UAF IARC
Sierra Beacher	UOttawa	Data Analyst	UOttawa/ArcticNet

- C. List additional experts. The recommended panel size is 10-12 people, please justify if the total number is greater or less. Please describe each expert's contribution to the EP and any relevant roles they fill (e.g. boundary spanner, regional expert, ties to a global network, operational services, data manager, etc.)

An internal list of suggested experts has been drafted and letters of invitation have been sent. This list of experts is composed of research scientists, Indigenous Peoples, local community members, Indigenous organization liaisons, ship operators, private sector representatives, policy makers, and information users. A list of experts will be provided to the AP when finalized.

- D. Identify planned mechanisms through which broader input can be included in the work of the EP, such as through workshops or community meetings [100 words].

Between July 2024 and March 2025, our priority is focused on delivering and completing Phase II and Phase III of the ROADS SAV process. Monthly virtual meetings will be scheduled, the frequency of which may increase periodically depending on output requirements. Importantly, there will be two in-person meetings for the EP in Phase II. These will be staged at the Arctic PASSION GA - June 2024 (Inari, Finland) and the Arctic Circle 2024 Conference - October 2024 (Reykjavik, Iceland). An additional meeting is planned to coincide with the RNA-CoObs meeting in August (Fairbanks, Alaska) where the Salmon, Harmful Algal Bloom (HABs), Wildfire and Sea Ice SAV Memberships can compare strategies and notes. For Phase III one in-person meeting will be held at ASSW 2025 in March (Boulder, USA), as well as a presentation of the work of the SAV EP. Phase I was presented at the Arctic Passion General Assembly, in Inari Finland, June 2024. Costs associated with the participation of Indigenous members in the Expert Panel will be appropriately covered.

- E. Describe any relationship/relevance to other Expert Panels [100 words].

The Sea Ice Expert Panel is a joint European-Canadian effort under the umbrella of ArcticPASSION (AP) which is funded by the EU Horizon 2020 programme and New Frontiers in Research Fund Canada. It is developing in parallel to Expert Panels on permafrost, wildfire, salmon and harmful algal blooms.

ROADS Phase	Proposed Start Date	Proposed End Date	Funding	Meetings
Phase I	May 1, 2023	July 1, 2024	Assorted	ASSW 2024 - March (Edinburgh, UK)
Phase II	July 1, 2024	Oct 31, 2024	Arctic Council Bursary - May 1, 2024 (1-year term)	Arctic PASSION GA - June 2024 (Inari, Finland) RNA CoObs Meeting - August 2024 (Fairbanks, AK) Arctic Circle 2024 - October 2024 (Reykjavik, Iceland)
Phase III	Nov 1, 2024	April 30, 2025	Arctic Council Funding - May 1, 2024 (1-year term) SSHRC - unconfirmed - Fall 2024	ASSW 2025 - March (Boulder, USA)
Phase IV	May 1, 2025	Oct 31, 2025	NFRF - unconfirmed - 2024 Nordforsk	Arctic PASSION GA - September 2025 (Potsdam, Germany)

4. Expected timeline for progress through the Integrated Advisory Process [*to the extent possible at the time of initiating work*, 300 words]

The EP will submit the Phase I document to the Integrated Advisory Panel for review on July 1, 2024. The EP will then begin Phase II, initiating a systematic assessment of the societal benefit impacts that are to be achieved by the EP and employ the [International Arctic Observing Assessment Framework](#) (IAOAF). Feedback received from the Advisory Panel, will be incorporated into Phase II as appropriate.

5. Expected funding/resources for the development of the relevant Shared Arctic Variables under the focal/topical area [*to the extent possible at the time of initiating work*, 300 words]

- A. Briefly identify funding needs. Who on the EP needs funding support for their work/contributions, and are those funding needs met? Is there funding available for in-person meetings and/or a community workshop?

Funding will be required for EP members whose funding for the in-person meetings are not covered by Arctic PASSION or other projects. Funding will be required to compensate Indigenous participants for the time spent as an EP member. The daily rate is €450 or comparable local currency. A funding application has been approved by the Arctic Council Working Groups Research and Engagement Scheme (NERC - United Kingdom). Funding is for £36,000 on a 1-year term from the date of disbursement. This funding will support EP efforts for Phase II and III.

- B. If there is not yet funding in place to support EP activities, what is the plan to secure funding? [300 words]

In May 2024 an NFRF 2024 Nordforsk funding application was submitted. Pending approval, a portion of this will include funding for Phase IV.

6. Communication and engagement plan [300 words]

- A. Please describe a communication plan between membership and experts. Planned meetings and workshops, including facilitation and location.

Phase I: Throughout Phase I, EP contributors have held virtual meetings on a bi-weekly basis. A workshop was held Monday March 25th in Edinburgh, UK during ASSW 2024. This served as both an in-person meeting for the EP, as well as an opportunity for input from ASSW participants on the scope and focus of the EP prior to the submission of Phase I documentation. .

Phase II, III & IV: As the EP progresses into Phases II, III and IV, virtual meetings will continue monthly. Frequency may increase periodically dependent on output requirements (ie. upcoming reporting or planning of supplementary mechanisms for broader input). The EP has four additional in-person meetings planned during Phases II, III, and IV. Each meeting will be structured to meet the needs of the EP, depending on the Phase in which it is working.

The EP uses a Google Drive to store all meeting agendas/minutes, documents and collaborative efforts. The EP meets via Zoom. These mechanisms are managed by the EP Facilitator, Talia Wells (AINA/UCalgary). The EP will continue to evaluate the functionality of the Google Drive and may pursue an alternate mechanism in the future (ie. website).

- B. Describe the engagement plan and cite any frameworks that will be used (e.g. ICC EEE, Ellam Yua Co-Production of Knowledge, etc.

We will follow the ICC Alaska EEE and develop a knowledge co-production approach that is guided by Indigenous Knowledge Holders, and the National Inuit Strategy on Research (Inuit Tapiriit Kanatami - Canada) as well as the FAIR and CARE data principles.