

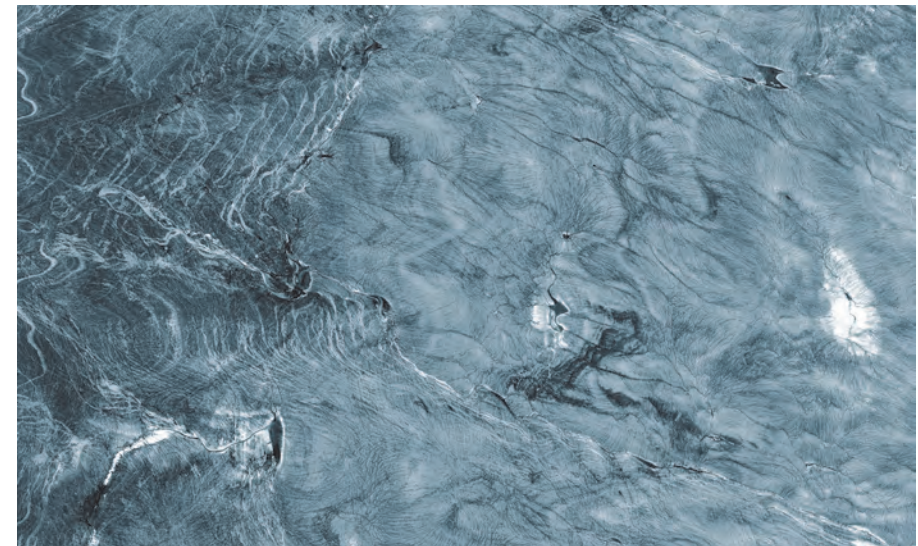


# The Arctic Commons

A. Gavin Zeitz

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RISD MLA Thesis 2018

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**Cover Image:** Aerial view of Greenland Ice Sheet.

All that is solid melts into  
air, all that is holy is pro-  
faned, and man is at last  
compelled to face with  
sober senses his real condi-  
tions of life, and his rela-  
tions with his kind.

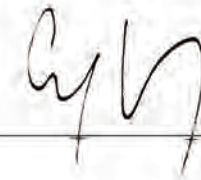
Karl Marx

A thesis submitted in partial fulfillment of the requirements for the Master of Landscape Architecture Degree in the Department of Landscape Architecture of the Rhode Island School of Design, Providence, Rhode Island.

By A. Gavin Zeitz  
May 24, 2018

**Approved by Masters Examination Committee:**

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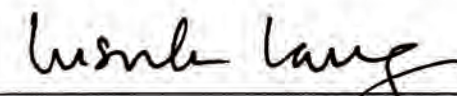
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### **Intentions for this book**

The Arctic Commons envisions a world where geopolitical cooperation and transnational friendship generate an ethos of planetary collectivism promoting the future stability in the Arctic and rest of the world. This book will be a guide to understanding the Arctic at a range of scales, from governmental to regional, and finally the experiential and phenomenal that engages the unique ground conditions. The Arctic Commons encourages political action to create a new network of infrastructure that operates as a model for retrofitting global systems which currently fail to represent the common interests of the everyday citizen. Humankind's current standards for social and environmental politics are underachieving at a moral and ethical level, but also failing at the spatial scale that operates in the realm of landscape architecture. Landscape architects have the power to envision futures at multiple scales and from a range of perspectives. This project seeks to traverse these scales and propose a collective perspective for the Arctic.



Prologue:  
The  
Myth  
of Terra  
Nullius

# The Myth of Terra Nullius

## A Field Study of Northern Landscapes

The North is not empty, and it never has been. The phrase terra nullius is used, often by governments, to describe a territory as a “no-man’s land”. It has a history of being used as a mechanism by colonial governments to project ownership onto territory commonly owned by indigenous communities. The Arctic has often fell into this category as an “uncivilized” or “no-one’s land” and has been described frequently as uninhabitable *terra incognita*. In Greco-Roman times geographers subdivided the world into different “climes” as a way of categorizing the (un)inhabitability of a region. Aristotle and Ptolemy viewed the Arctic as a “frigid” zone of the world where human life could not exist. In the nineteenth-century the Arctic came into the crosshairs of Russian hunters, white explorers, and Romantic landscape painters who depicted the Arctic as an unpopulated and untouched wilderness evoking sentiments of the sublime. The 20th century, in particular the Cold War era, ushered in an age of militarization and globalization of the Arctic . Throughout the Arctic radar stations and military outposts popped up and redefined the cultural and spatial organization of many indigenous cultures. This was also the age of oil discovery and white migration north, which both had an equally momentous effect

on the economic, political, and cultural practices in relation to the land and resources.

The contemporary spectacle of the North is concerns the Arctic as ground zero for climate change and as the location where climate change will have the most significant and radical effect. **What does this mean for the future of the Arctic?** Obviously this means a variety of things to an wide range of people. Photographers and tourists flock to the North to experience the “last frontier” or to capture a photograph of a melting glacier, but these fetishized perceptions of the North represent a parochial and colonial understanding of what has long been a working landscape where plant nations, animal nations, and human nations have adapted to the harsh climate to live in harmony.<sup>1</sup> In fact the earliest known evidence of human inhabitation in the Arctic is 40,000 years ago in western Siberia and 15,000 years ago in North America. This extensive history has shaped many cultural traditions that are deeply connected to the landscape and the environmental context within which they are situated.

The contemporary image culture of the Arctic is one that perpetuates the myth of *terra nullius* and mistakenly represents these environments as disconnected from their significance as deeply

meaningful, experiential, and cultural landscapes founded on a basic connection between humans and their surroundings. It is a collective notion of a place derived from people living in an environment, not a theoretical or framed image of a landscape. The danger in contemporary representation of the Arctic as landscape, or as an image of a landscape, is the perpetuation of a myth of that degrades the culture deeply embedded in the landscape history and the shaping of space throughout the Arctic.

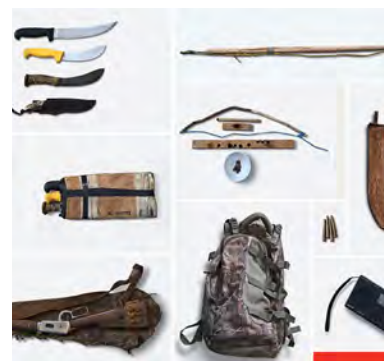
The prologue of this book focuses on these landscapes as symbiotic relationships where cultural, infrastructural, and ecological processes collide to form a landscape that *is* often sublime and mysterious, but also an everyday environment where people live and work. The juxtaposition of perspectival photography and satellite imagery creates a microscope effect allowing for an understanding of the terrain and context while also viewing the spatial sequences, material qualities, and phenomenal aspects of the place.

The photographs themselves were selected to illustrate a range of conditions found along a transect from the mountainous Hatcher Pass south through Anchorage and finally to Homer at tip of the Kenai Peninsula. Within each photograph the traces of

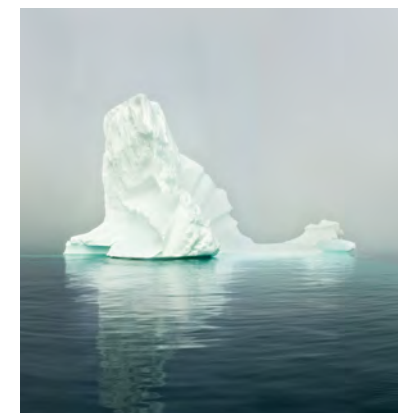
civilization are evident, but also present is a story of a historical relationship with the land. During the trip there was the obvious sense vastness and remoteness, but in this isolation was a strong sense of community, a type of humanity where people are understood as kinship. This idea of a universal kinship is integral to the way we think about the world in the age of the anthropocene as we reshape our the majority of our territories in response to global landscape change.



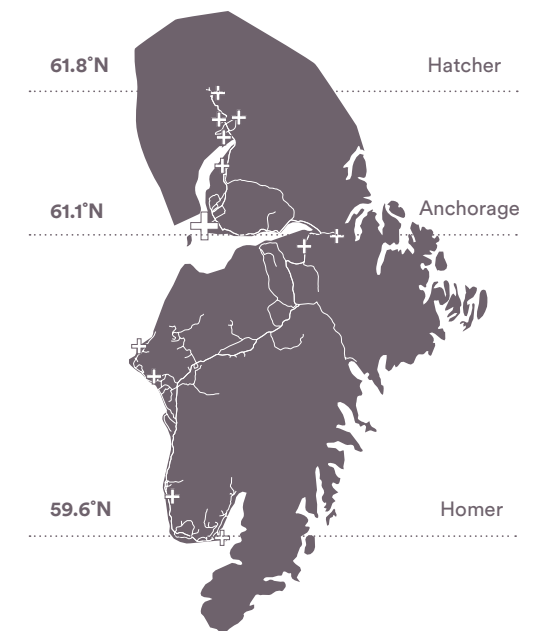
Ancient Inuit Hunting Tools, Smithsonian collection. Smithsonian naturalist Lucien McShan Turner collected these cultural objects in late 18th century while studying weather for US Army Corps in Hudson Bay. Source: Smithsonian Natural History Museum.



Modern Hunting Tools, The Inuit Whale Hunter. Whaling is still a critical piece of survival in the North, but Inuit have adopted new tools and techniques. Source: Foreign Policy.

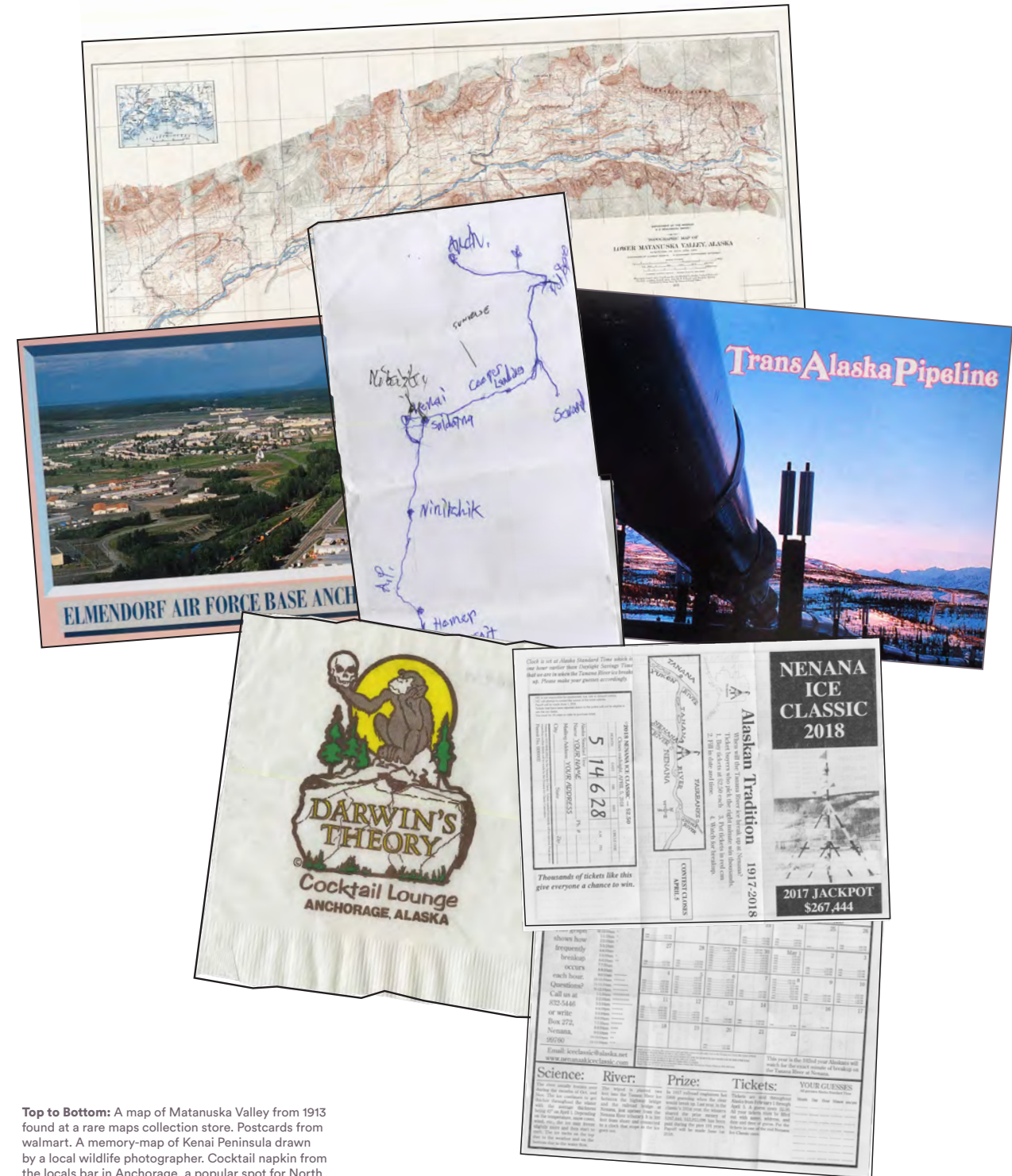


Illusiat 01. The hauntingly beautiful work of Becker portrays the Arctic as the sublime and magical, but photographs in this vein perpetuate a myth of emptiness when these landscapes have cultural value and operate as a working landscapes as well as images. Source: Olaf Otto Becker.



Alaskan Derive. Using Dubord’s method of the *derivé* encouraged spontaneous discover of Northern vernaculars and local community rituals. Source: Author.





**Top to Bottom:** A map of Matanuska Valley from 1913 found at a rare maps collection store. Postcards from walmart. A memory-map of Kenai Peninsula drawn by a local wildlife photographer. Cocktail napkin from the locals bar in Anchorage, a popular spot for North Slope Oil workers on vacation. The Nenana Ice Classic is Alaska's oldest guessing game based around when the ice in the river will unfreeze, it has paid \$14 million since 1917.



### Constructing a New Condominium

61°13'09.5"N 149°50'36.2"W

Anchorage or Dgheyaytnu, as its known by the indigenous Dena'ina Athabaskan, is the largest municipality in Alaska with roughly 300,000 residents. Due to its unique northern location Anchorage is 9.5 hrs from 90% of the industrialized world and is home to one of the most important military bases in the US. Vernacular building typologies stem from a necessity to use the cheapest, lightest, and most accessible materials, such as OSB.



**Silo at Point Woronzhof,  
Anchorage Airport**

61°12'07.8"N 150°01'15.1"W

Anchorage is one of the busiest cargo airports in all of North America. Anchorage is a free trade zone meaning tariffs on goods and fuel is significantly reduced. This economic loophole makes the airport one of the busiest cargo stations in North America. Point Woronzhof is located right at the end of the runway overlooking Cook Inlet. Many locals convene here around sunset to watch the airplane take off over the ice floes.

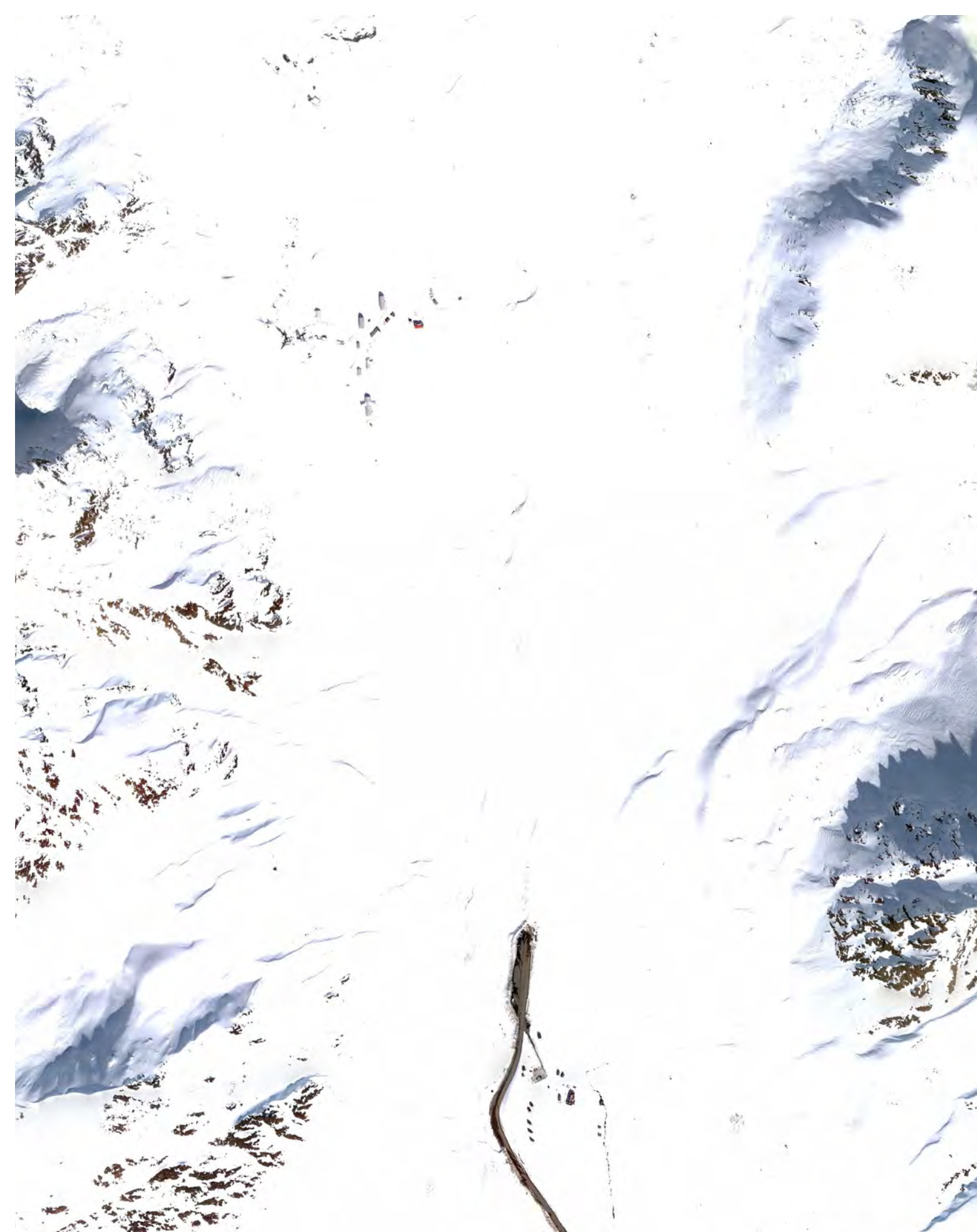




**Mann Leiser  
Memorial  
Greenhouse**

61°12'32.1"N 149°47'09.7"W

Greenhouses offer residents a reprieve from the dark, dry, and cold conditions characteristic of northern winters. Psychologically these spaces are proven to help residents mitigate the harmful effects of Seasonal Affective Disorder.



**Independence  
Mines, Hatcher Pass  
Road Marker**

61°46'12.4"N 149°16'07.9"W

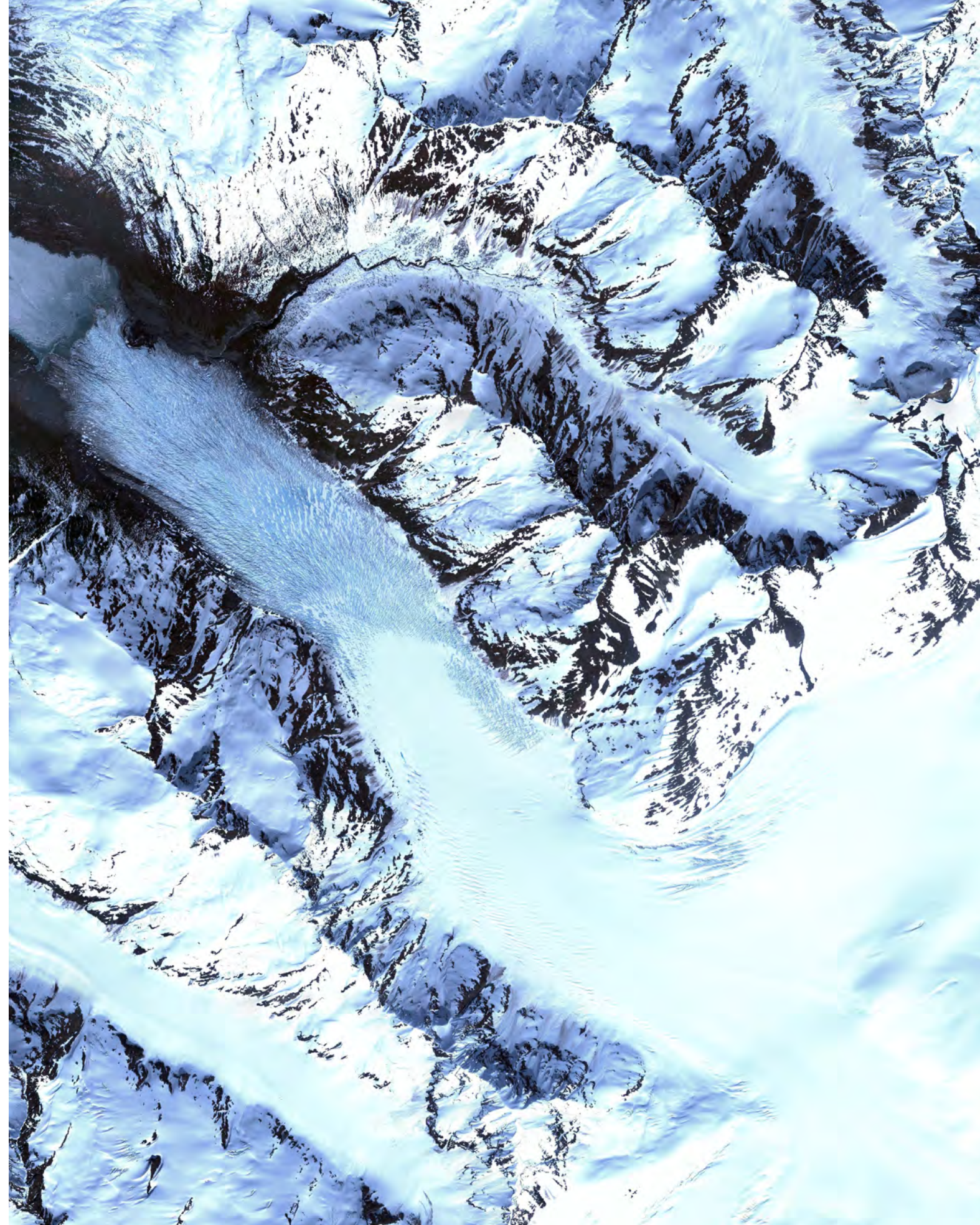
Hatcher Pass is a popular recreational area just a short drive north of Anchorage in the Talkeetna Mountain Range. Like many landscapes in the North they serve different purposes based on the time of year. In the summer many people travel here to visit the Independence Mine (see top of satellite image) to explore the relics a historic gold mining operation. In the winter the road offers access to free back country ski trails. Road marker create a language of orientation and provide a visual edge of the road during whiteout conditions.



**Moose Pass  
Seward Highway,  
Kenai Mountains**

60°11'05.6"N 149°34'18.3"W

Seward Highway is the one roadway between Anchorage and Homer. The road weaves between ridges and foothills in the path of least resistance. The road needs constant maintenance due to the freezing and thawing of the sub-grade soil.





**Agricultural Field,  
Construction Site**

61°38'01.0"N 149°07'47.7"W

Containers are ubiquitous in all areas of the world, but serve many extraordinary purposes in the North. They are used as closets, freezers, garages, foundations for houses, and in this case a shelter to protect construction workers from the elements.

**Bird Watchers,  
Cook Inlet**

59°39'30.8"N 151°39'56.3"W

The end of Homer Spit is an important habitat for a variety of predatory and fish-eating birds. Locals often meet along the shores to share information and talk about birds they recently seen.







**Homer Landfill,  
Scrap Metal Pile**

60°44'27.6"N 151°18'18.2"W

Northern communities accumulate large amounts of waste products as it is logistically difficult and expensive to transport trash to processing facilities. Landfills become de-facto communal resources where people give to the “trash commons” and take what they need in return. The saying “one man’s trash is another man’s treasure” truly resonates up North.



**Palmer Sand &  
Gravel Quarry**

59°38'37.0"N 151°30'30.5"W

Palmer is a town of 7,000 people located on the Matanuska River a historically important trade route to the indigenous Dena'ina and Ahtna Athabaskans tribes. Today the town is the location of the Alaskan State Fair and is known as the farming center of the state.





**DPW Sand Pit,  
Homer**  
60°44'27.6"N 151°18'18.2"W

Sand is a precious resource in the North and often towns are built based on their proximity to a sand deposit. Sand is a crucial resource as a road traction material and is often spread along major transit routes many times a day.



### Homer Ice Racing Ticket Booth

60°44'27.6"N 151°18'18.2"W

Beluga lake is an artificial lake built for ski planes to land on in the summer, but in the winter an oval raceway is plowed into the snow. People custom build Ice Derby cars to race on this track. Spectators drive down to the race track and park their cars around the perimeter of the course to watch the spectacle of loud engines and crashing metal.



**Homer Winter Festival Parade**

59°38'29.2"N 151°32'42.7"W

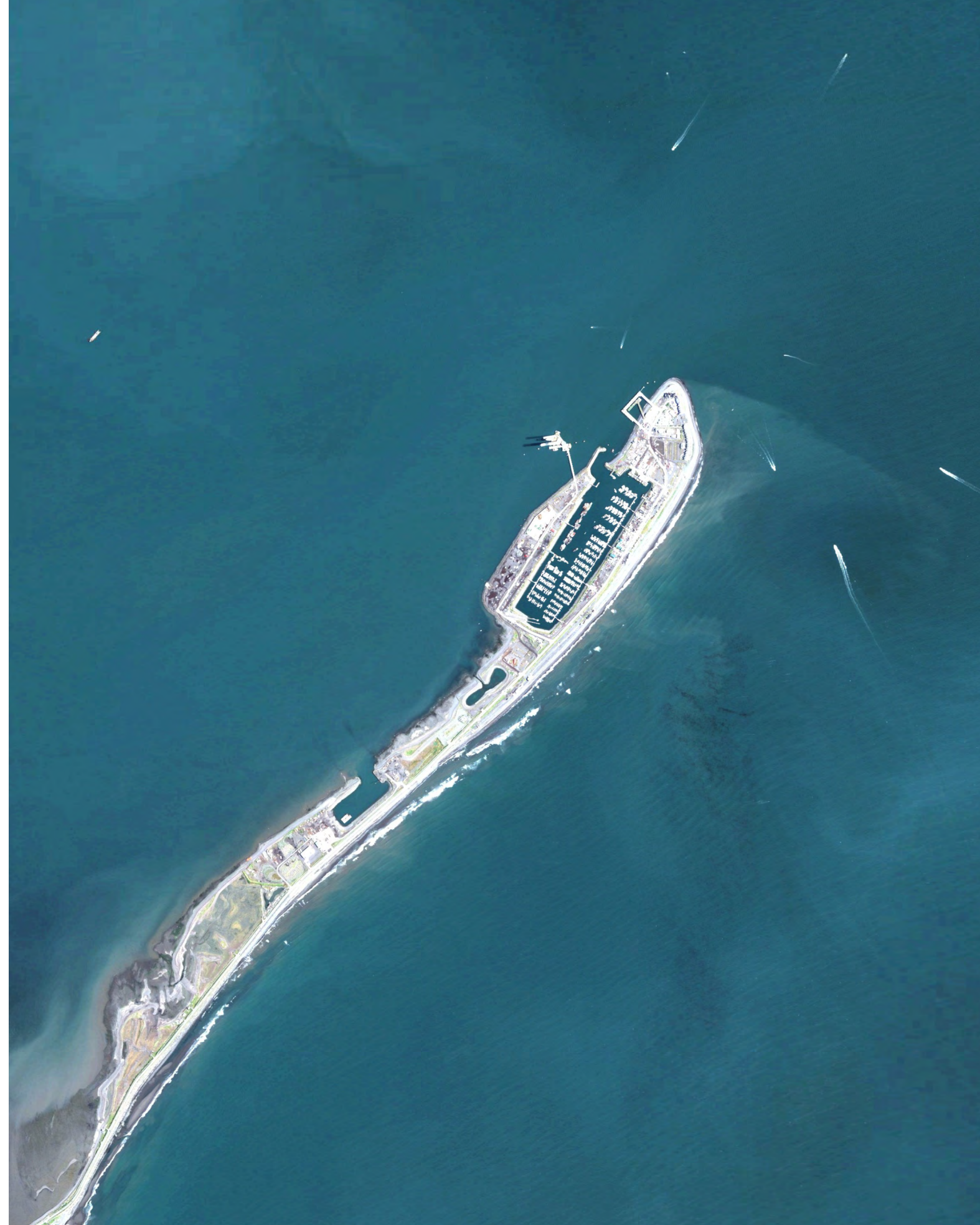
Winter festivals are a common occurrence throughout the world's northern communities. The communities gather in the cold to celebrate their unique and often weird rituals that define their identity. In Homer this consists of ice car derbies, out house races, homebrewing competitions, frozen lake cookouts and male beauty pageants.



## Homer Port & Harbor

59°36'10.2"N 151°25'15.0"W

The Homer Port is the “Halibut capital of the World” and the terminus of the Kenai Peninsula’s Seward Highway. The 4.5-mile long spit juts out into Kachemak Bay and serves as a commercial and pleasure boat anchorage. The Homer Spit hosts a robust population of eagles in the winter and is a popular vacation spot in the summer for Alaskans and out of state tourists.

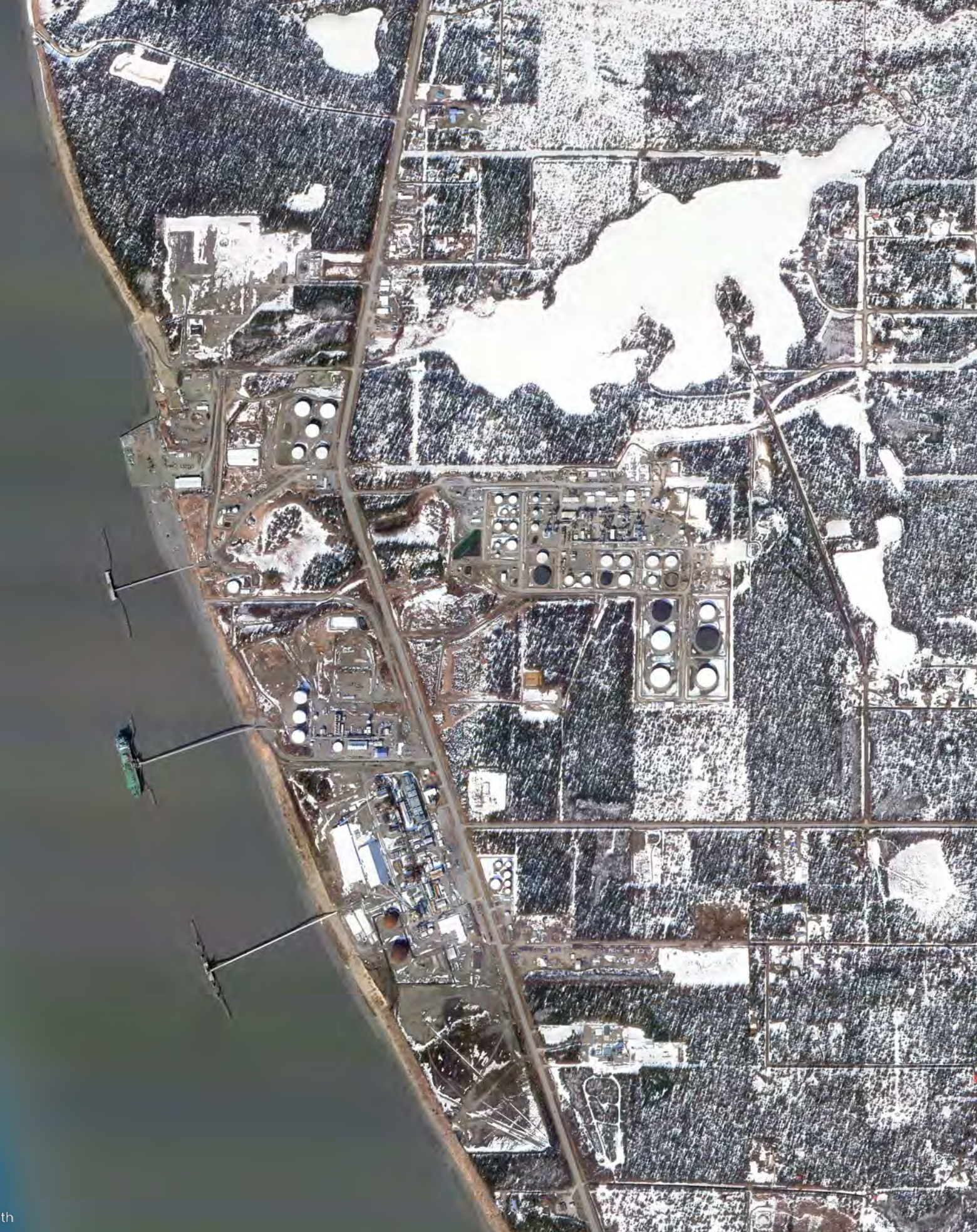


## Land's End Resort

59°35'59.3"N 151°24'46.7"W

At the end of Homer spit lies peculiar row of luxury condos. At the right angle you completely forget about the beautiful mountains and the bay in the background. These colored townhouses seem as if they were designed to be built on Long Island not at the "End of the World".





**Town Beach with  
Oil Drilling Logistics  
Center**

60°44'27.6"N 151°18'18.2"W

Just a two minute walk from the local high school is a small rocky public beach used by locals since the 1950's. This site is also the logistical support base for the offshore oil operations company Offshore Systems—Kenai. In 2007 the Alaska DOT sued the company for installing a gate that prevented public access to the waterfront. In 2012 the D.O.T won the suit allowing people to now enjoy the beach next to the massive oil rig dock.





## Tesoro Oil Refinery

60°41'10.9"N 151°22'08.5"W

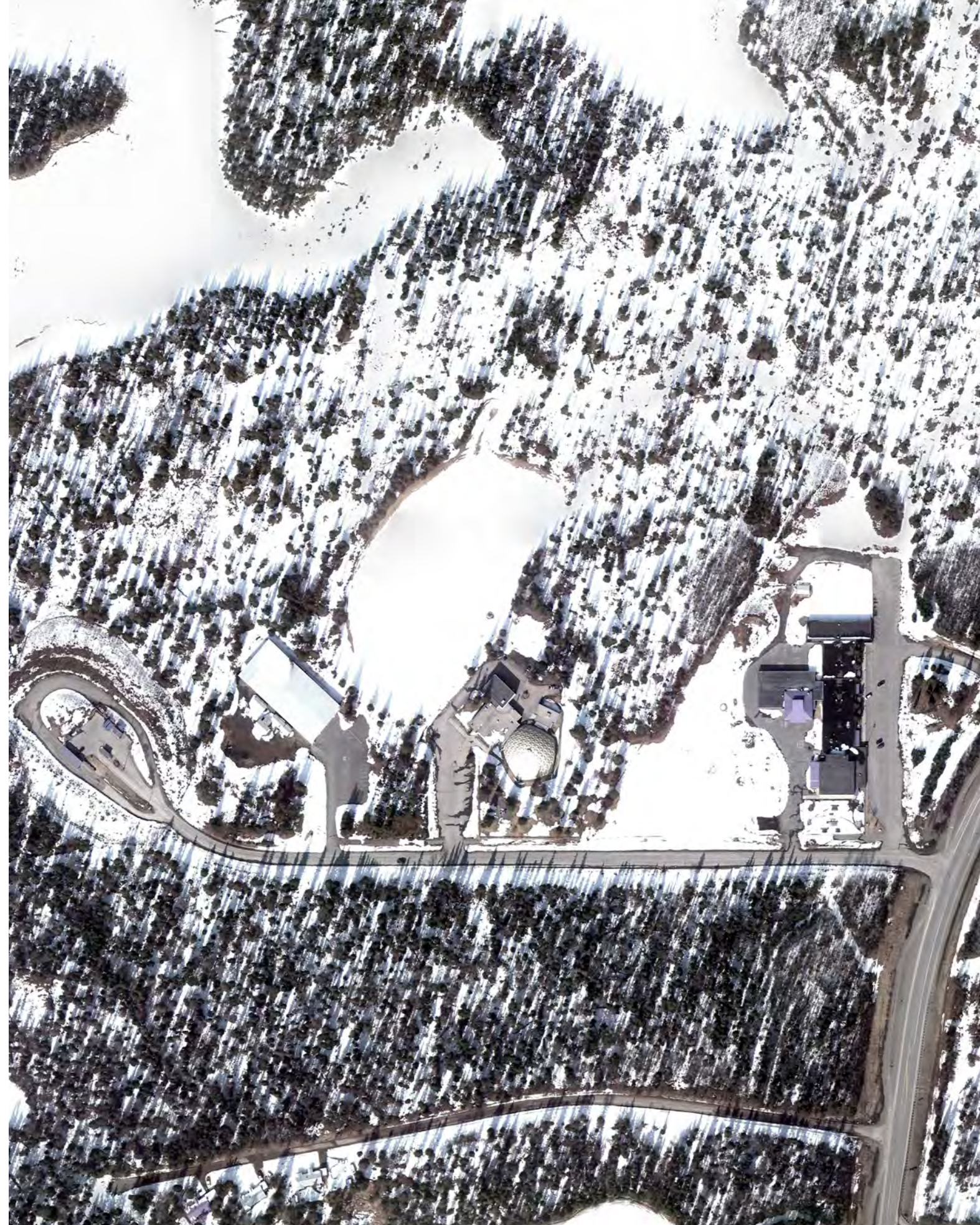
Conoco Phillips is Alaska's largest oil producer, this is one of their main operations in the Cook Inlet. Tesoro Refinery handles the majority of crude oil pumped out of the Cook Inlet Basin, they produce up to 72,000 barrels per day including jet fuel, diesel fuel, heavy fuel oils, propane, asphalt, and gasoline.



**Community  
Pool**

60°42'17.6"N 151°22'50.7"W

North Peninsula Community Center is a world with in a world. Found by happenstance the strange concrete dome building houses a rare Alaskan gem, its swirly waterslide. This may in fact be the northernmost waterslide in the world and for a mid-day crowd it was certainly proving to be a popular town asset.





**Community Pool  
Building**

60°42'17.6"N 151°22'50.7"W

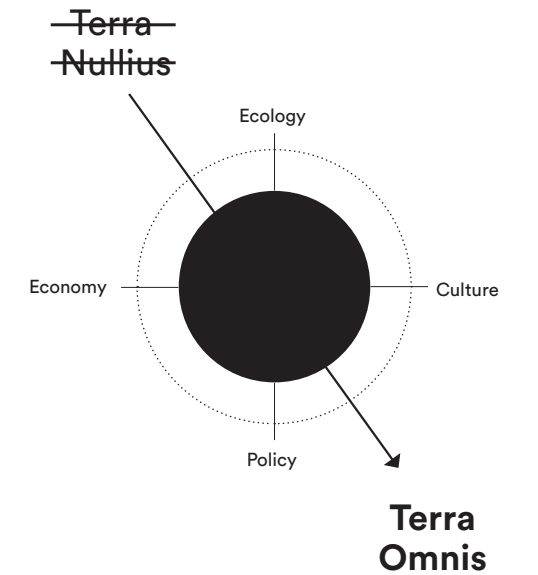
A rare instance where the architecture generates identity rather than being a result of the prohibitive constraints of access to materials and short annual construction timelines.

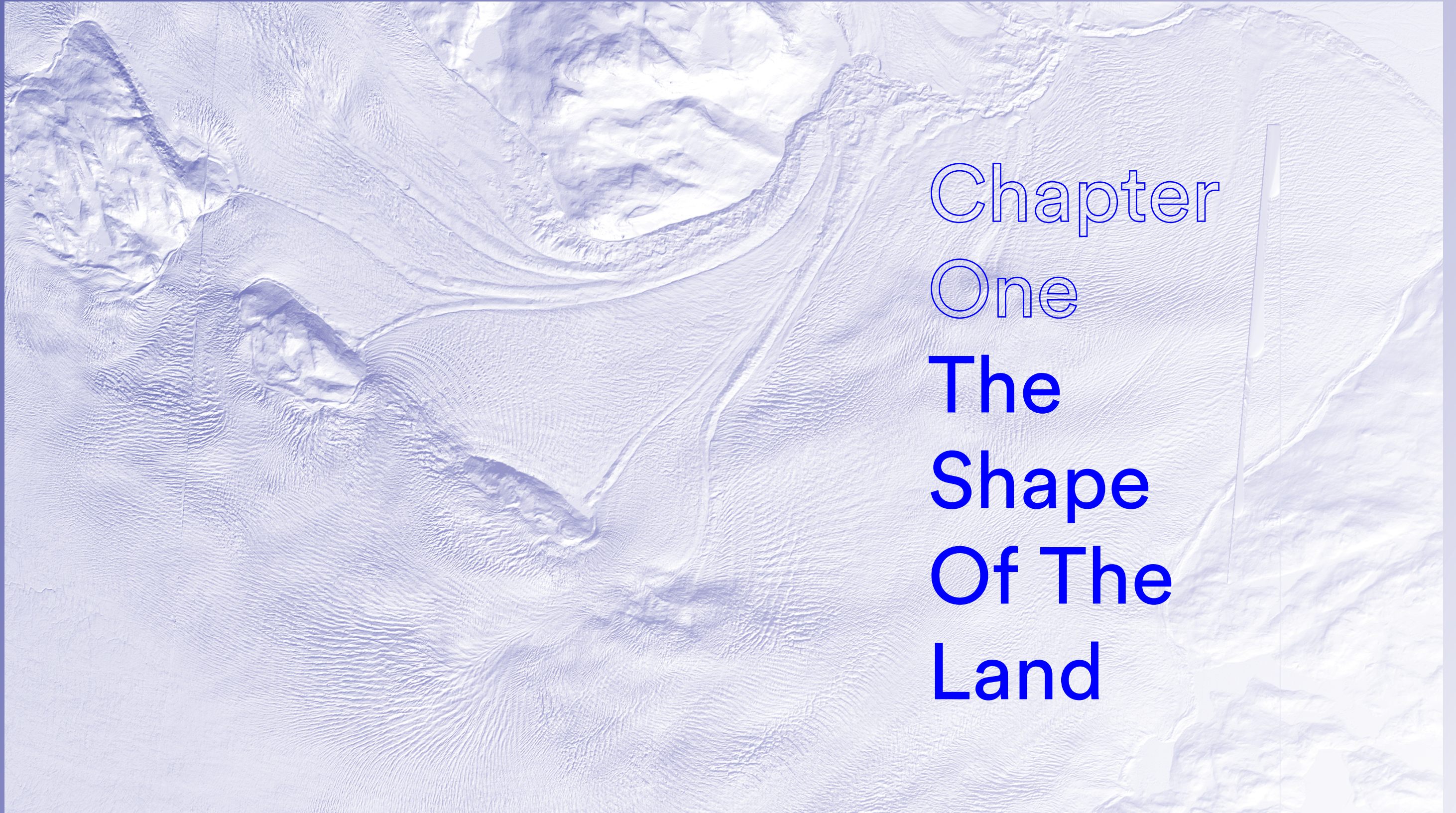
## Conclusions

What does the North mean to us?

**The North is not empty, the North is full.** Full of life and mystery. It is a landscape of phenomenal deception and perpetual gradients, where the ground melts into liquid one moment and fades into the sky in the next. It is not a “no-man’s land”, but a land where the traces of civilization are abundant and unmistakable.

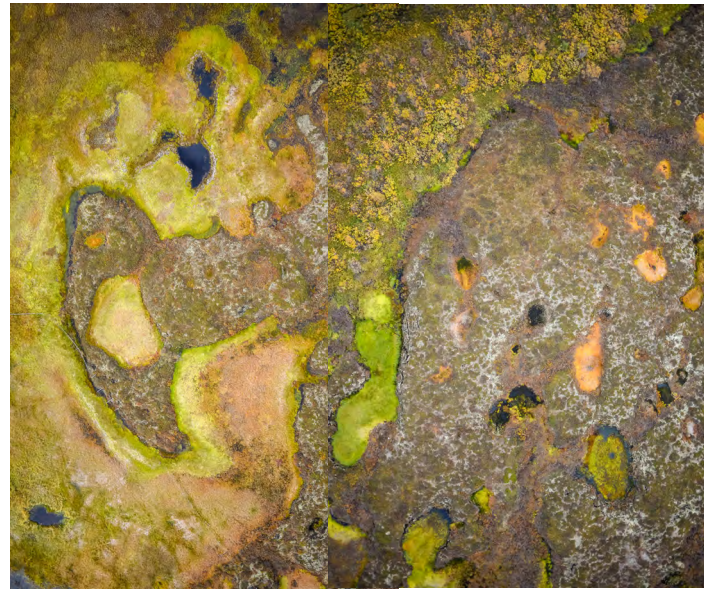
The environment is deeply ingrained in the everyday experience of what people do and how they do it. It is imperative that the post-climate change development of the North respects the importance of the landscape as have critical cultural and ecological value that with a long a rich history. In the age of the anthropocene we must recognize our common humanity and work towards a development model that prioritizes a universal kinship between biota, biophysical processes, climate phenomena and humans. We need landscapes that are by people and for people. We need a Terra Omnis, everybody’s land.



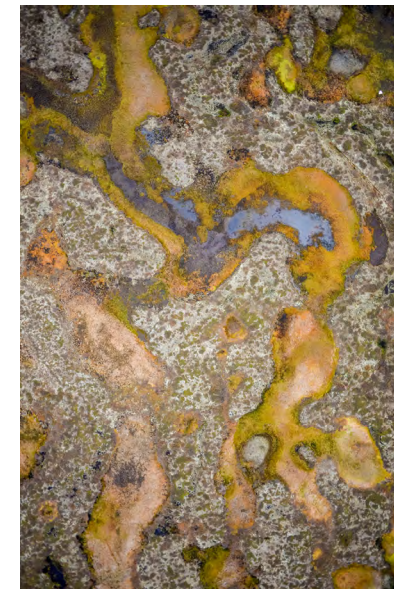


Chapter  
One  
**The  
Shape  
Of The  
Land**

# The Shape of the Land



UAV Imagery of Permafrost alongside a Norwegian Highway. Courtesy of Sebastian Westermann.



**METHODS**

the way it is drawn to divide or unite. The methods for exploration included: the collection of archival maps that depicted the early efforts of the USGS survey team to catalogue and define the landscape characteristics in Alaska, a taxonomic diagramming of the different ways the Arctic is delineated differently by humans and the environment, and lastly an attempt was made to develop an on the ground intervention at the smallest working scale.

**QUESTION**

### How do we reimagine contemporary boundaries in dynamic environments?

*"These 'operations of marking out boundaries, consisting in narrative contracts and compilations of stories, composed of fragments drawn from earlier stories and fitted together in makeshift fashion (bricoles). In this sense, they shed light on the formation of myths, since they also have the function of founding and articulating spaces. Preserved in the court records, they constitute an immense travel literature, that is, a literature concerned with actions organizing more or less extensive social cultural areas." Michel De Certeau, Practice of Everyday Life.*

**INTRO**

The mapping of the Arctic is a practice that spans from the earliest celestial observations and Ptolemaic declarations of the North as the 'frigid zone' to the contemporary effort to photogrammetrically 74,929 DEM (digital elevation model) strips that cover 97.4% of the Arctic at a 2 meter resolution to the Google Streetview that allows us to explore Murmansk, Russia from the comfort of our homes. This fascination with remote areas of our planet displays the simplest human conditions — curiosity, understanding, and connection.

The proliferation of satellite mapping technologies has even brought us to Google Streetview which now allows us to travel to North Pole, Alaska unfortunately to only see that it is just like every other peri-urban roundabout flanked by Taco Bell, Wendys, Pizza Hut, and McDonalds (granted there is the novelty of one of the ten remaining Blockbusters).

Mapping has also played a substantial role in progressing the imperialist agenda in the Arctic. Colonial nations superimpose their political, cartographic boundaries upon the unwilling Arctic landscape. As a divided world we need evidence to

provide proof. ThisW has led to tense geopolitical situations between the 8 nations in the Arctic. This is highlighted by the fight for the final "donut hole" in the EEZ surrounding the North Pole. These claims are rewriting international ocean law through scientific argumentation that the shelf of the ocean belongs to a nation. These claims are important because there are vast amounts of oil and future shipping routes which would lead to further hostility and militarization of these regions. Strategically the air space also holds tremendous value as polar travel can significantly reduce the time for on civilian and military access.

**OBJECTIVES?**

This first phase of research interrogates the various methods used to define territorial boundaries through policy, geospatial information, data, toponymy, cultural practices, ecology, land use, and physical environmental conditions. Each strategy implies a unique story about the landscape and

Top: First Map of Alaska Index of Surveyed Areas, Source USGS 1927. Bottom: PLSS Spatial Landscape Points, A map made consisting of of all the Public Land Survey System points in Alaska.





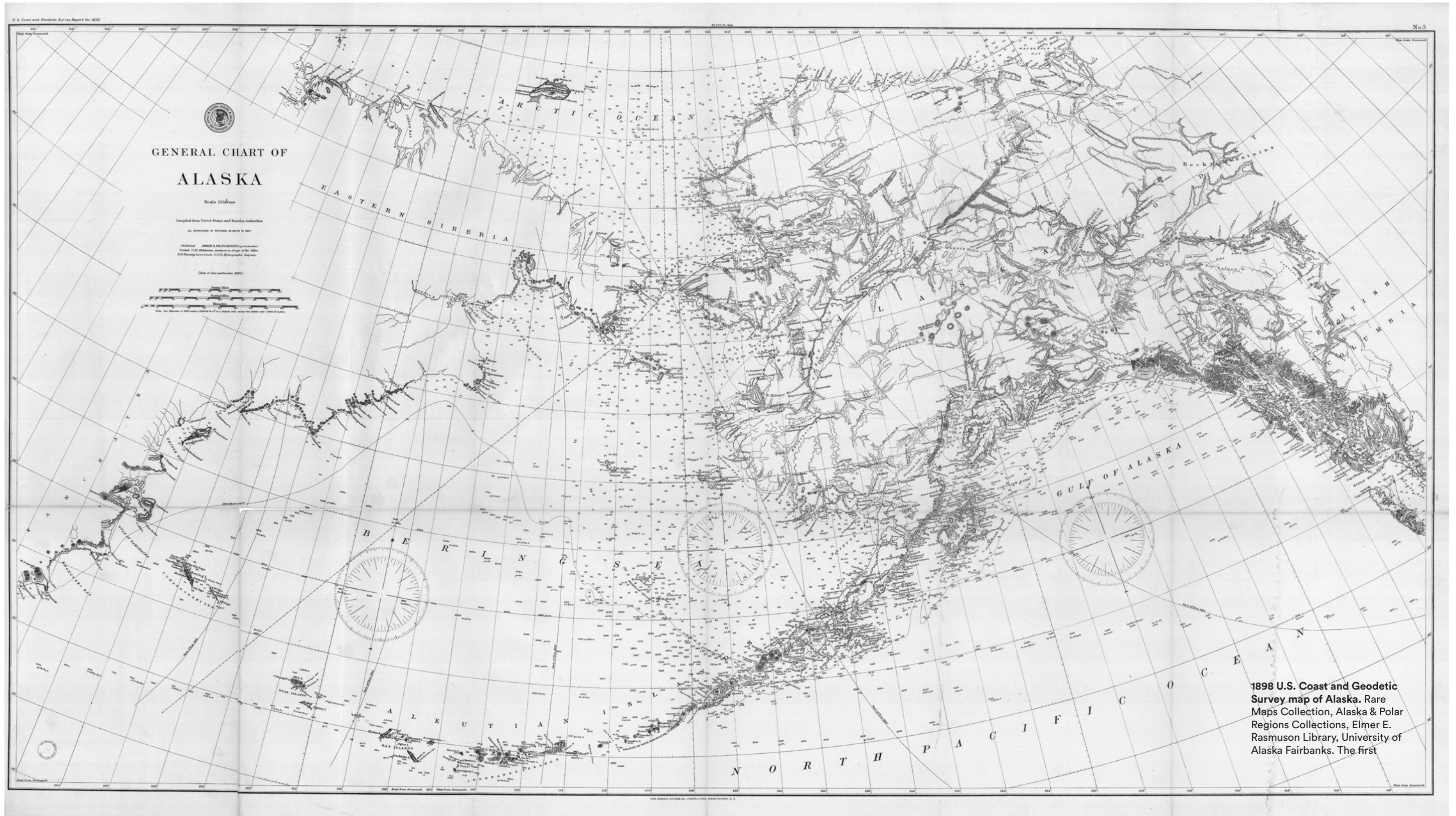
**DISCOVERIES of the Kent Greenland Sub Polar Expedition—**  
 “Rockwell Kent’s original, hand-drawn map of the area around Illorsuit, Greenland, where he wintered 1931-2. Simultaneously whimsical and biting, the map says much about Kent’s anti-establishment, anti-capitalist views. A photographically-reduced version appeared in Salamina (1935), his account of his time in Illorsuit.” Source: Boston Rare Maps

**DISCOVERIES**

[See Chapter XXXVIII] of the Kent Greenland Sub Polar Expedition, 1931-2. Lest the backers of the expedition be disappointed with its results it must be explained that someone, unfortunately, had already given names—and what names!—to the larger bodies of land and water. We have, however, done our best with what remained. But: the expedition—continuing its work through 1934-5-6—is faced with a deficit in cash and supplies. Should there be generous souls or corporate bodies desirous of furthering the aims of the expedition we should feel that it would be advancing the glory of America to write their names upon the map—even if we have to scratch out the old ones. Think of a Ligger & Meyers tobacco co. “peninsular”! Or ———’s Applejack sea!

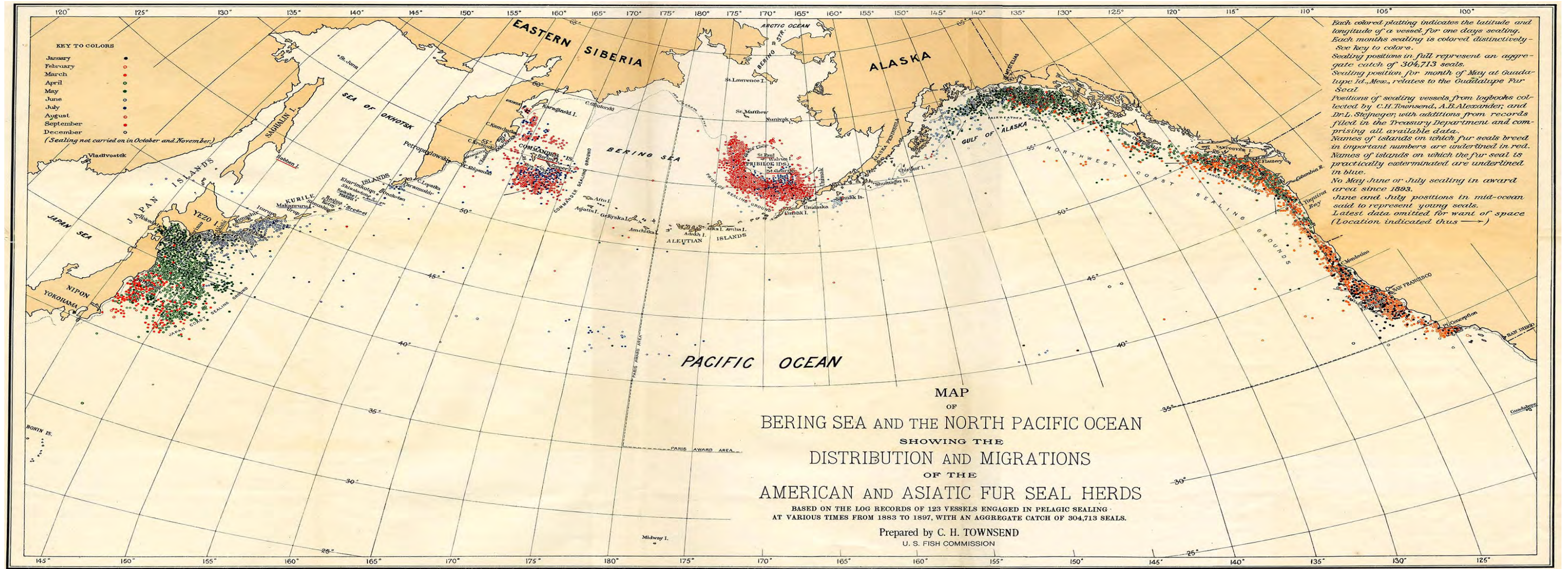


Motor boat of the expedition.  
 Rockwell Kent



1898 U.S. Coast and Geodetic Survey map of Alaska. Rare Maps Collection, Alaska & Polar Regions Collections, Elmer E. Rasmuson Library, University of Alaska Fairbanks. The first

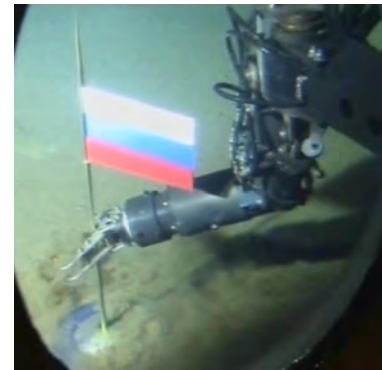




**Map of Bering Sea and North Pacific Seal Migration and hunting.** This map shows how hunting practices start to draw new boundaries in the Arctic. Source: USGS Rare Maps Collection at University of Texas—Austin.



**DEM Strips of Arctic Topography.** With national borders taken away the true physical edges reveal how topography and terrain create different regions in the land. *Source: Polar Geospatial Center*



**Russian Flag on the North Pole Sea Floor,** Just as the US laid claim to the moon Russia is claiming ownership of the North Pole with a flag 14,000 ft beneath the sea ice. *Source: Reuters*

## How do we define the Arctic?

### TERRITORY IN FLUX

The Arctic is in a constant state of flux, a perpetual contradiction between fluid, solid and somewhere in between. The edge between land and sea changes from day to day. This brings up challenging questions when considering the technique for establishing boundaries. Currently the Arctic is defined most commonly by its latitude, anything above 66.66° is considered the Arctic if one uses this description, however there are a multitude of other ways to define this ambiguous territory. The following series of “brainscans” reveals how dynamic flows and static objects mark the territory. Each map represents a snapshot in time when a specific condition was transferred from an observed condition into a static piece of data and therefore all maps are technically inaccurate, but the message and meaning is clear— We need to rethink how we draw boundaries in the Arctic.



ARCTIC BY CLIMATE



ARCTIC BY NATIONAL BORDERS



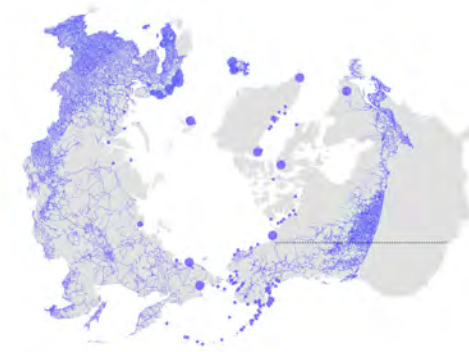
ARCTIC BY INDIGENOUS LANGUAGE



ARCTIC BY ICE EXTENT



ARCTIC BY ECONOMIC ZONES



ARCTIC BY AIRPORTS AND ROADS



ARCTIC BY CRITICAL ECOLOGIES



ARCTIC BY MILITARY INFRASTRUCTURE



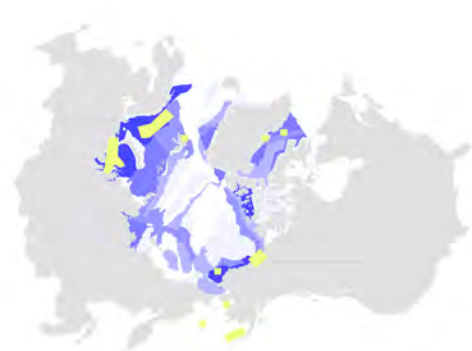
ARCTIC BY SHIPPING LANES AND PORTS



ARCTIC BY SEARCH AND RESCUE



ARCTIC BY MIGRATORY BIRD HABITAT



ARCTIC BY OIL RESERVES



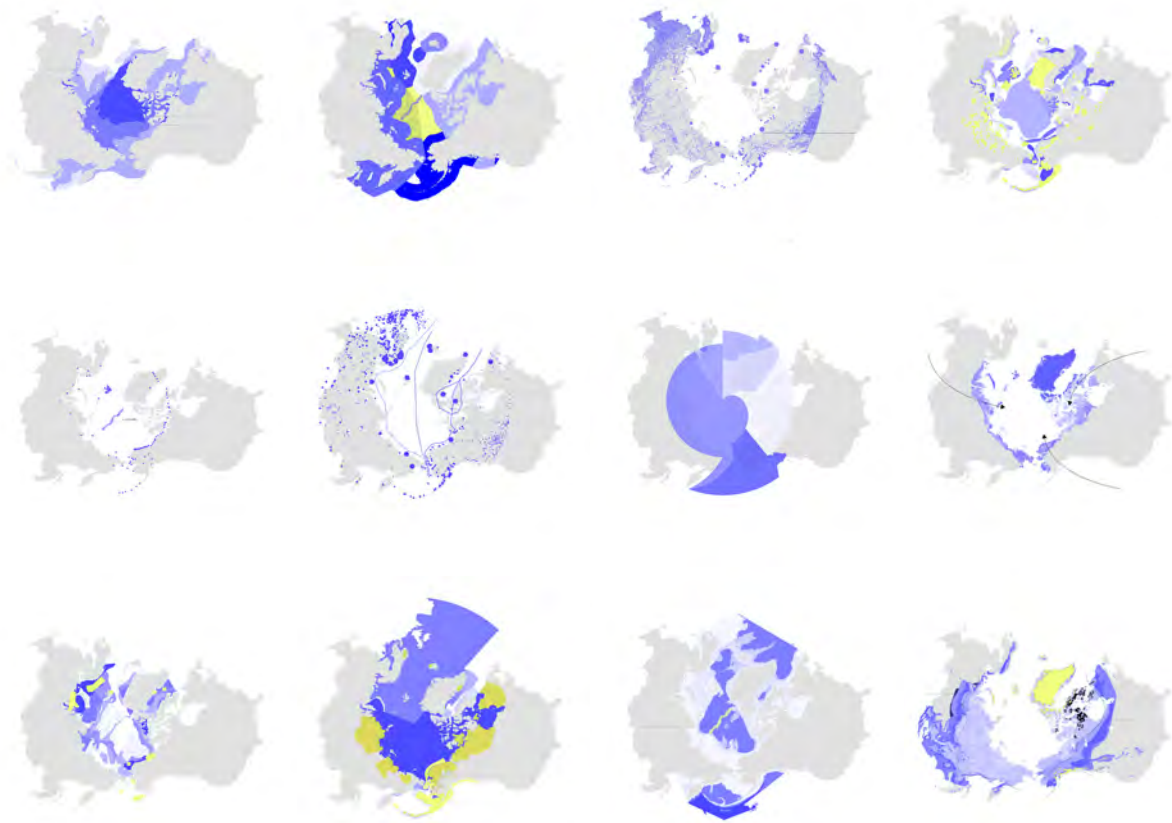
ARCTIC BY HABITAT AREAS



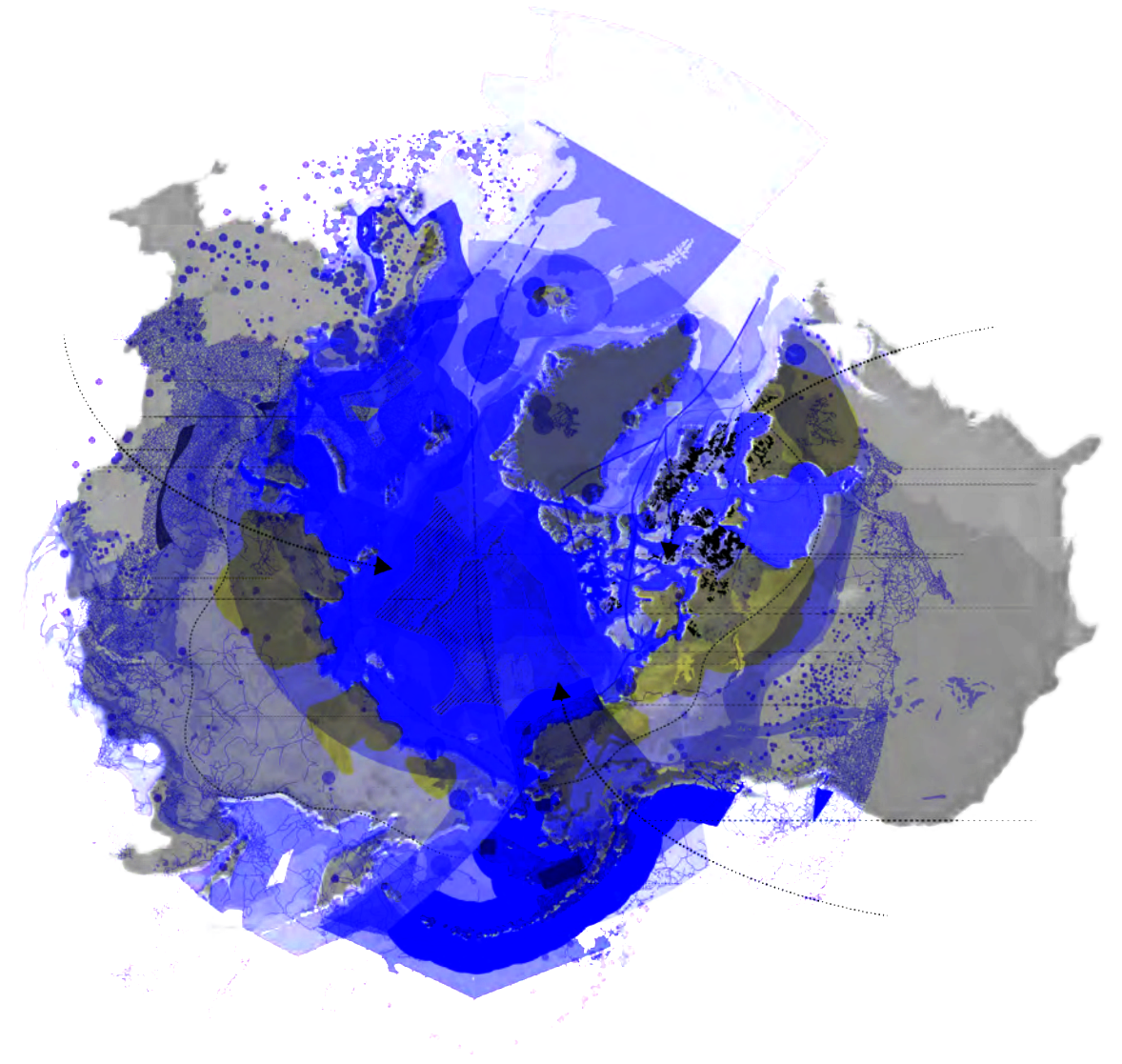
ARCTIC BY OCEAN BATHYMETRY



ARCTIC BY GROUND CONDITIONS

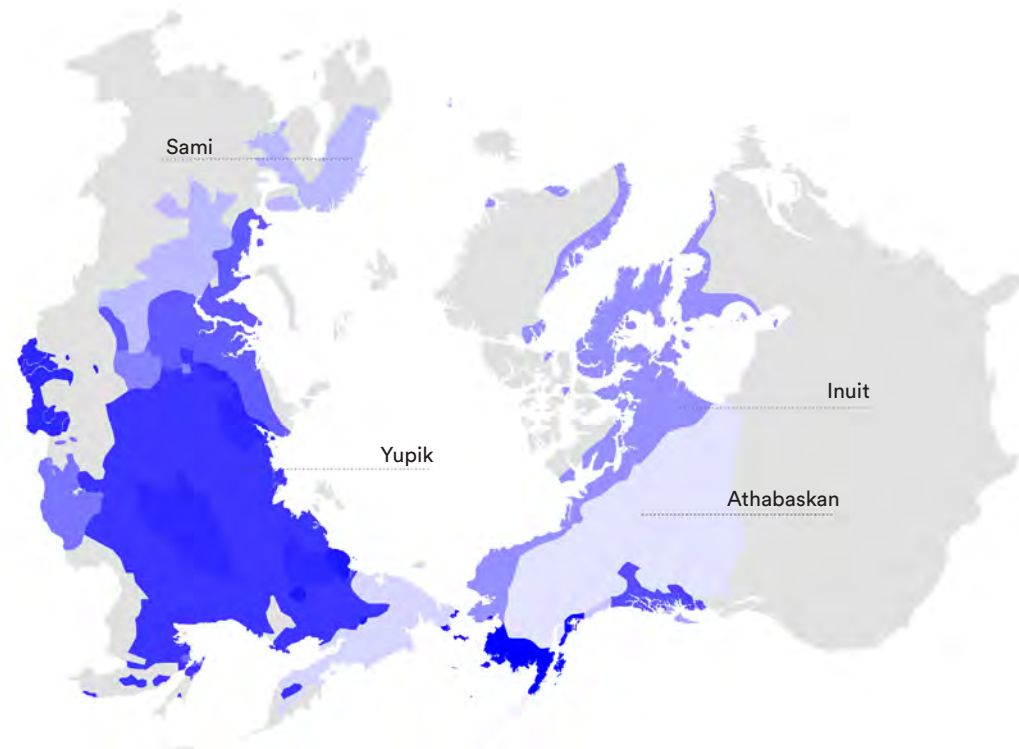




















**Operational Boundaries.** Each map diagram represents a single operating system whether that be ecosystem service or strategic defense.



**Colliding Boundaries.** Superimposing each boundary on top of another reveals just how interdependent and complicated the spatial relationships are.

Indigenous Communities



- |                                                                                     |                    |                                                                                     |                    |
|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|--------------------|
|  | Aleut              |  | Mongolic           |
|  | Athabaskan         |  | Nivkh              |
|  | Chuktoko-Kamchatka |  | Samodic            |
|  | Eyak               |  | Tlingit            |
|  | Finno-Ugric        |  | Tsimshianic        |
|  | Germanic           |  | Tunguso-Manchurian |
|  | Haida              |  | Turkic             |
|  | Inuit              |  | Yukagiran          |
|  | Ket                |  | Yupik              |



Two Inupiaq Hunters Slog through the melting ice of the Chukchi Sea in Barrow, Alaska. Source: Kevin Smith

### Spatial-Temporal Practices of Subsistence

The Indigenous in this region rely on the surrounding environment for food, materials, and cultural tradition. Hunting methods are passed down from generation to generation, less as a rite of passage and more as out of a necessity for survival. The Inuit diet is high in fat and oil as the majority of food comes from large sea mammals such as whale, seal, walrus. As the climate warms it is harder and more dangerous for Inuit to venture out onto the ice to hunt for seal. Each year hunters fall to their death in thin sea ice that would normally be feet thick.

“Our meat was seal and walrus, marine mammals that live in cold water and have lots of fat. We used seal oil for our cooking and as a dipping sauce for food. We had moose, caribou, and reindeer. We hunted ducks, geese, and little land birds like quail, called ptarmigan. We caught crab and lots of fish—salmon, whitefish, tomcod, pike, and char. Our fish were cooked, dried, smoked, or frozen. We ate frozen raw whitefish, sliced thin. The elders liked stinkfish, fish buried in seal bags or cans in the tundra and left to ferment. And fermented seal flipper, they liked that too.”  
**Patricia Cochran** Source: *Discover Magazine, The Inuit Paradox, 2004.*

### January

### Tundra

### Sky

### Shore

### Sea



“We need the ice to go out and fish and hunt. We rely so much on the sea and ice. Climate change refugees are what we’re going to become in the next few decades.”  
Esau Sinnak, of Shishmaref, (2017).



“The need to be able to reach, we lose up to 50 feet of shoreline in one storm. Climate change is happening real fast. Shishmaref is a Shishmaref.”  
(2016)





**Port of Murmansk.** Murmansk, Russia is the largest city in the Arctic circle with over 300,000 residents. The port trades more goods by tonnage than the Port of Boston. In the winter the city gets so cold that cars freeze outside if not left idling. Murmansk is also home to northernmost Big Mac. Source: Trude Pettersen



**Circumpolar Cities.** Over 4 million people live within the Arctic Circle, but the broader influence of the North reaches much further to countries like Scotland, China, and even Singapore. Interest in the North is growing quickly as new economic opportunities arise.





# What Scale Is This Place?

QUESTION

How do landscape architects work at a multitude of scales, from the government and global scale to the scale of a village?

QUESTION

This dilemma is one that has become increasingly important to the field of landscape architecture, and as our discipline expands we grow in our capacity to engage in decision making at a the scale of large systems. It is imperative that we engage in these discussions, but it is equally important that we are able to work iteratively between scales and disciplines to design systems that positively affect the cultures and ecologies deeply connected to these decisions.

Due to the nature of the Arctic and the incredibly complex, interconnected issues and geographies this project operates at 3 scales: governmental, regional, and village. The governmental scale focuses on geo-political issues occurring in the circumpolar territories between the Bering Strait and the High Atlantic Ocean. The regional scale focuses on the Distant Early Warning (DEW) line which spans from the Northwest tip of Alaska across Nunavut Canada and to Greenland. At a village scale the community of Shishmaref, a barrier island facing issues of erosion and displacement, will be the the test site for understanding how these larger scales affect spatial organization at the experiential and material scale.



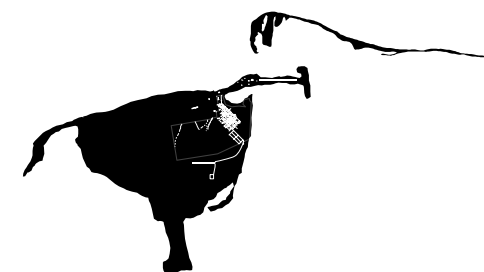
Global Scale

The Arctic Council  
 18 Indigenous Tribes  
 8 Countries  
 13 Observer Nations



Regional Scale

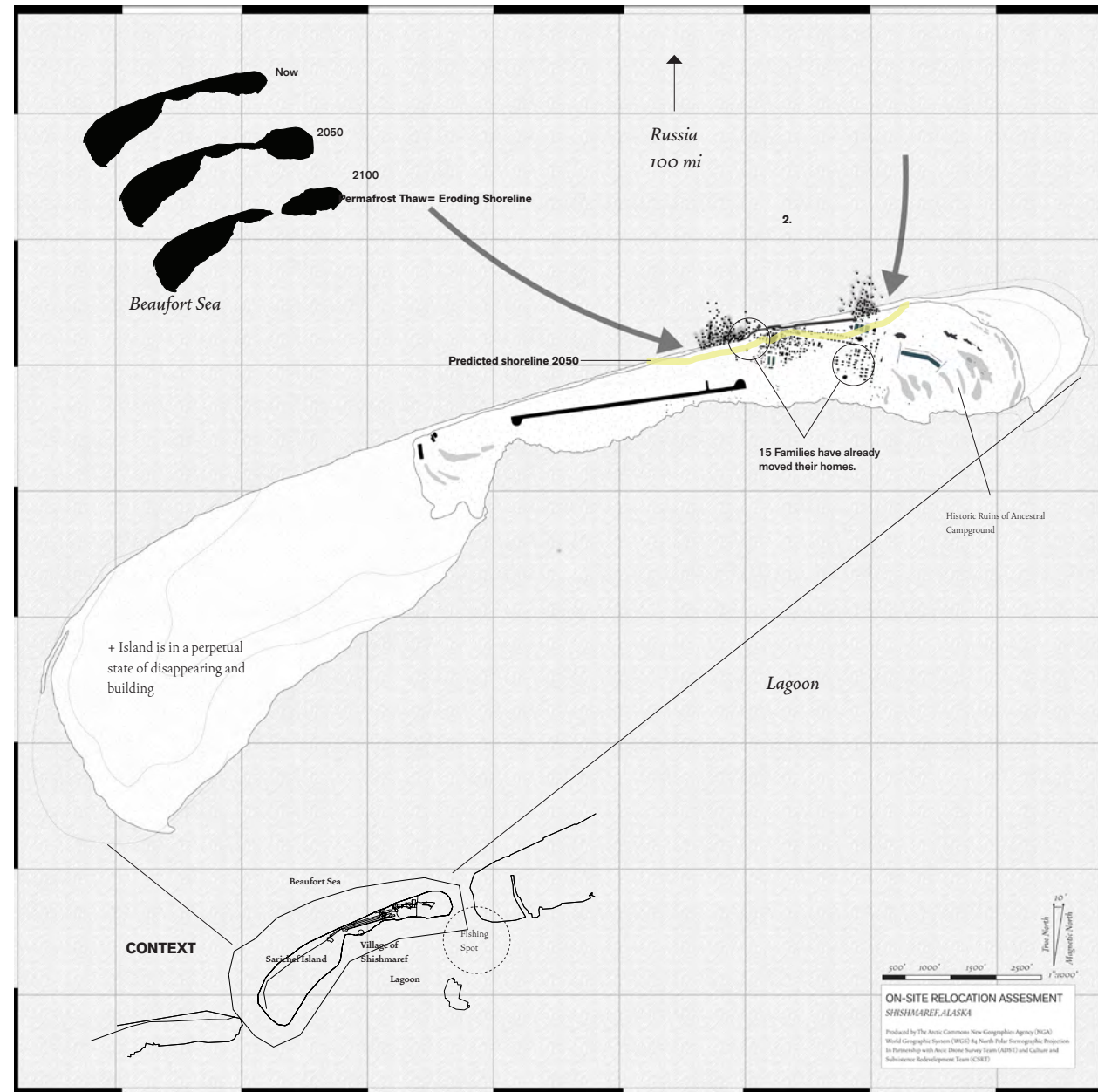
The Dew Line  
 39 Active Stations  
 100+ Deactivated Sites



Village Scale

At Risk Villages  
 32 Villages in Alaska  
 10,000 people

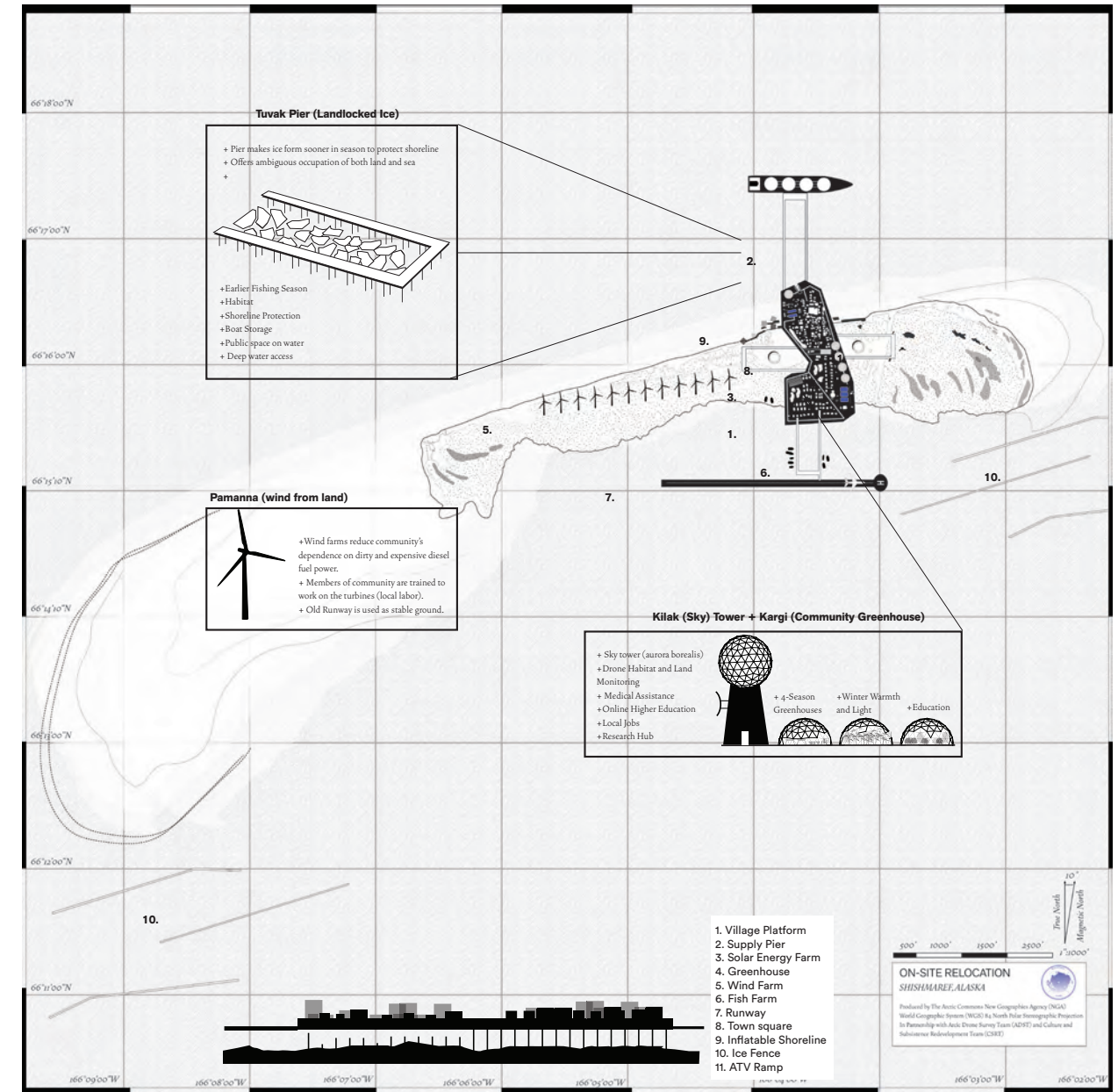
\*Operating at three scales of this drastic difference is quite difficult



**ZOOMING IN**

This exercise was used to dive deeper into the pragmatic design challenges of designing in these extreme environments. The design constraints helped discover more about the conditions that are common in many Northern towns. For instance the majority of villages get their energy solely from diesel generators. Sewage is pumped into open air lagoons. Trash and recycling can only be disposed of once a year. These everyday conditions generate rich questions about how to design better communities. Shishmaref is one of

these towns. It located right above the Bering strait and is home to around 460 people. Shishmaref has been in the national and international news spotlights looking at climate change and the effect on communities. The island loses 50+/- ft of shoreline every year due to warmer ground temperatures that erode when early winter storms come. US Army Corps has led talks of relocation, but this option disregards the near 1,000 years of cultural history embedded in this site.



**DISINTEGRATING SHISHMAREF**

An alternative to relocation or co-location would be to implement a common vernacular infrastructure. The raised platform is used throughout Alaska as a way of reducing heat transfer from the building to the permafrost soils. It is also alludes to the traditional Inupiat Unalut, which was often used as a food storage cache. The columns holding the platform up would incorporate low-tech thermosyphon technology to keep the ground solid throughout the summer months when temperatures begin to melt the permafrost. The concept

of on-site relocation is one that transcends the Arctic and imagines ways in which landscape solutions allow for a more harmonious and stable relationship between dynamic landscapes and cultures.

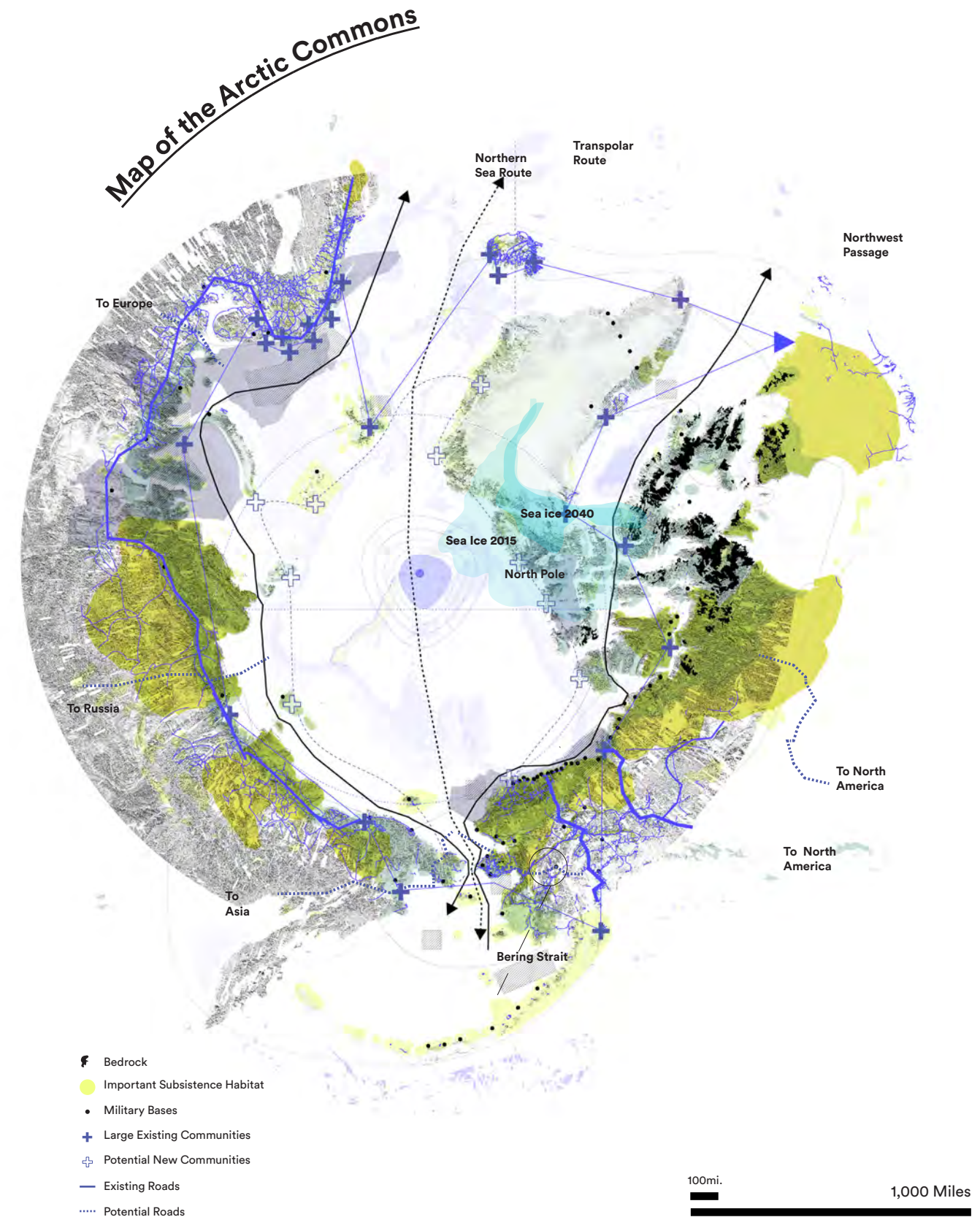
# Mapping The Commons

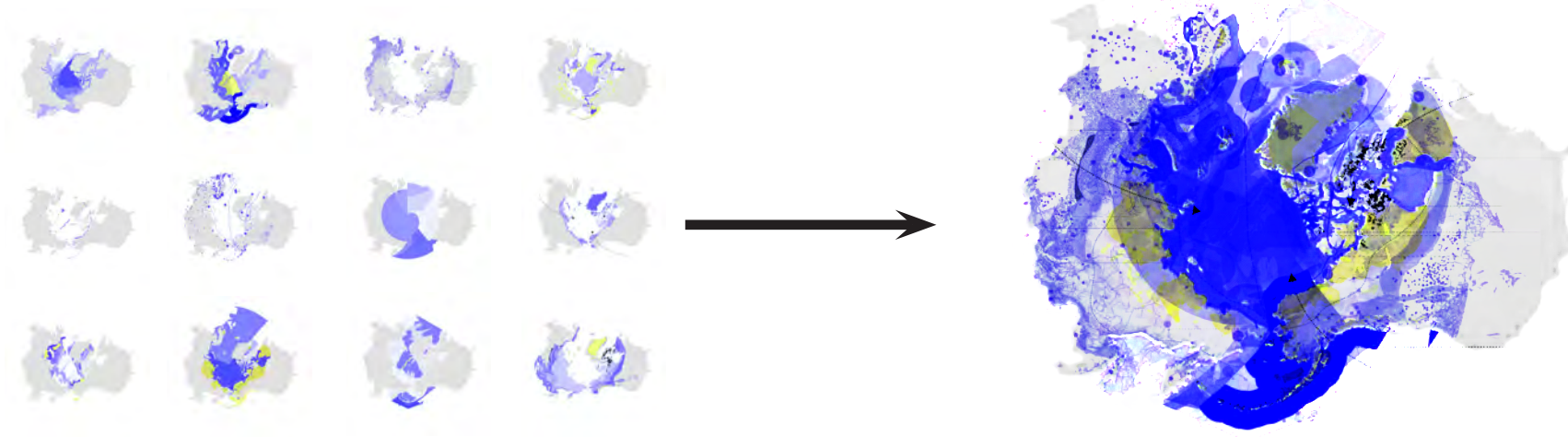
**KEY WORDS**

Glacial Melt, Resource Extraction, Energy Production, Loss of Cultural Landscapes, Sensitive Ecologies, Disaster Response, International Shipping, Transnational Governance, Industrial Activity, Erosion, and Land Emergence

**SYSTEM WITH SPACES**

This map illustrates dynamism of The Arctic Commons and how new networks of transportation, resource management, monitoring, and connectivity draws new boundaries that understand the unstable state of Arctic ground. In the Arctic commons resources made available by climate change are repurposed to combat effects climate change has on communities. Glacial sediment outwash from Greenland can be used as agricultural products to feed incoming populations or to reclaim land from the loss of permafrost. Meltwater from glaciers is diverted from oceans, where it can negatively affect ocean acidity levels, into nuclear powered ships. This water is distributed to communities throughout the region as ice harvesting for drinking water becomes dangerous and less reliable. DEW stations become NEW (Northern Environmental Watch) stations to monitor environment for safe ship passage, subsistence habitat trends, or changing ground temperature. The Arctic becomes a working landscape that prioritizes the fragile needs of local communities, economies, and ecologies.





# Conclusions



## ENTERING THE PROJECT?


This dilemma is one that has become increasingly important to the field of landscape architecture, and as our discipline expands we grow in our capacity to engage in decision making at a the scale of large systems. It is imperative that we engage in these discussions, but it is equally important that we are able to work iteratively between scales and disciplines to design systems that positively affect the cultures and ecologies deeply connected to these decisions.

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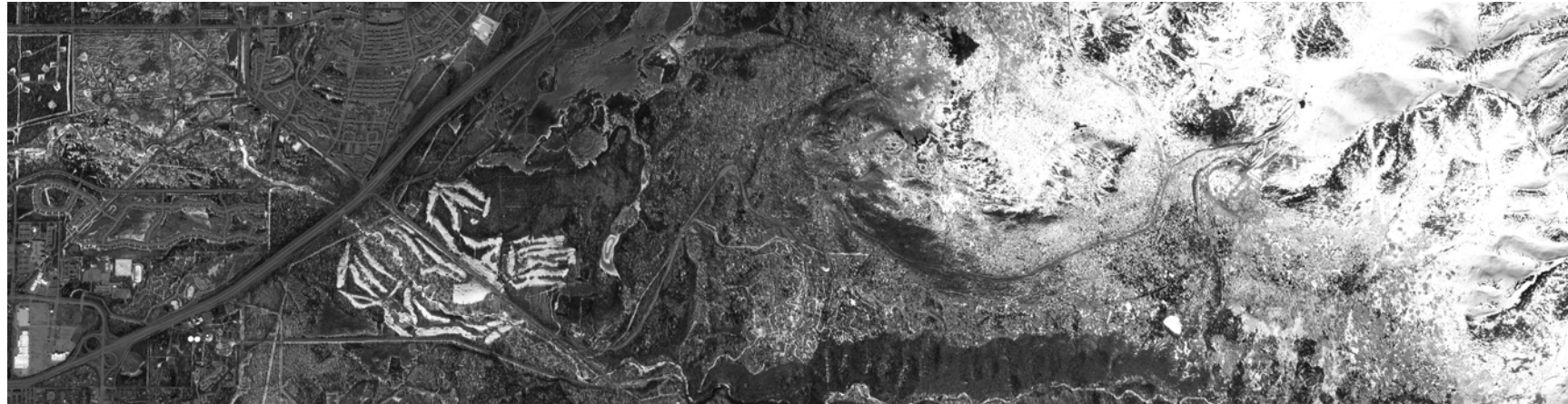
Following this first phase of research I found that the amount of time that I have spent reseraching these topics led me to overlook the importance of supplying the really basic and fundamental information. The context in which this project is operating is a foreign territory to most landscape architects. Moving forward I must clarify this in the visual and written description of the project.

## ASSESSMENT

Overall, it was a relief that the audience was comfortable with me approaching these disparate scales within the scope of this one thesis. Moving forward it will be important to understand the spatial on the ground manifestations of the political notions of the commons. It will also be vital to pull in the intermediary scale to describe how it operates at the inbetween regional level of coordination. This will be a critical opportunity to expose the relationships between all scales. At the village scale it will be important to explore how people occupy space and how infrastructure interacts with the unstable ground and surrounding landscape.



# Chapter Two Common Systems



# Common Systems

## QUESTION

What are the overlapping infrastructural, stakeholder, and environmental systems?

*“Contemporary infrastructure space is the secret weapon of the most powerful people in the world precisely because it orchestrates activities that can remain unstated but are nevertheless consequential. Some of the most radical changes to the globalizing world are being written, not in the language of law and diplomacy, but in these spatial, infrastructural technologies—often because market promotions or prevailing political ideologies lubricate their movement through the world. These stories foreground content to disguise or distract from what the organization is actually doing.” - Keller Easterling, Extrastatecraft: The Power of Infrastructure Space, 2015.*

## INTRO

Expanding on the knowledge gained through mapping the various boundaries that dictate spatial organization, this phase looks to create composite maps illuminate specific areas in the Arctic that offer opportunities for design intervention. Four infrastructural systems were identified as crucial pieces of future development schemes: Shipping, Access, Safety, and Resources. Through the layering of data we begin to see the pressure points of the system and the smaller nodes for connectivity. These new infrastructural systems capitalize on the existing, but neglected, infrastructure of the DEW Line in North America and the newly built state-of-the-art Russian military bases. The Arctic becomes a fully demilitarized zone focused on the communal and collaborative management of resources, logistics, and cultural activities.

## COMMONS?

The idea of a global commons may seem like a utopian daydream but in actuality it occurs in several forms at this precise moment; we see it in the internet, public parks, the oceans, the atmosphere, the wetlands, and the stars. The Arctic Commons subverts the out-of-date “first come, first serve” politics of global development

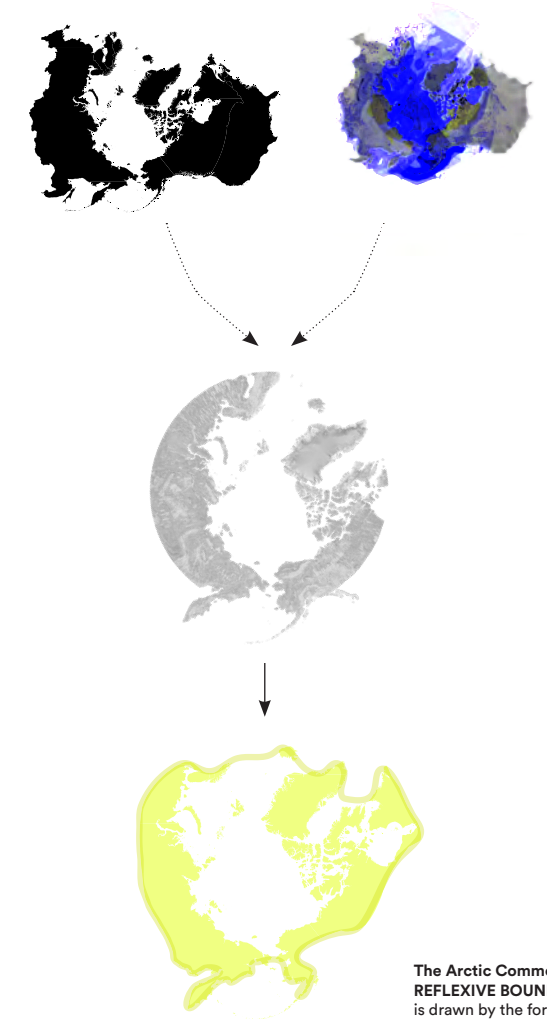
## METHODS

A variety of methods were used to illustrate the proposed interventions including GIS map overlays, satellite imagery analysis, interviews with scientists, photocollage, photo rendering, illustrative sections, axonometric drawing, archival photographic collection, categorization of site conditions, secondary historic interviews with DEW Line personnel and digital modeling.

which forefronts the objectives of a the culturally elite and perpetuates a circulation of wealth among the top tier corporations and managing personnel. Inverting the EEZ to create an IEZ (inclusive) that is delineated not by arbitrary cartography, but by geophysical conditions such as topography or drainage basins we begin to see a global landscape that is by the people and for the people. This new zone is a provocation that the North can be a model for how we come together globally for the common heritage of humanity.

To achieve this we of course need an imaginative and macro-scale infrastructure/logistic understanding, but we also must understand the Arctic as a unique landscape of deep, geologic time. Unlike built landmarks our natural landmarks are irreplaceable. We can rebuild Central Park, but we cannot reconstruct the Grand Canyon or the Pingo National Landmarks. These places are not purely valuable for their aesthetics, they hold the greatest secrets to our world and can open our imagination to a new understanding of how the world works. The image of the Arctic is one of vast and magnificent beauty, but in the thick of it it is a working landscape and has been for thousands of years.

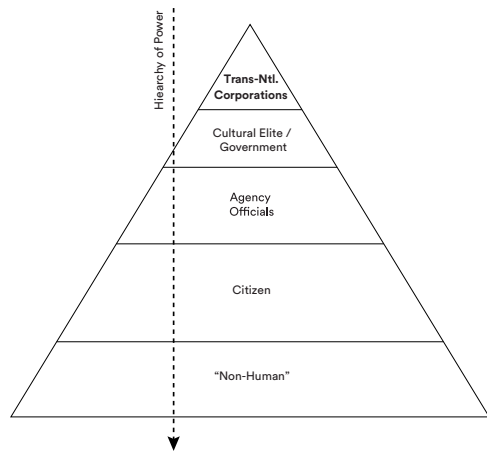
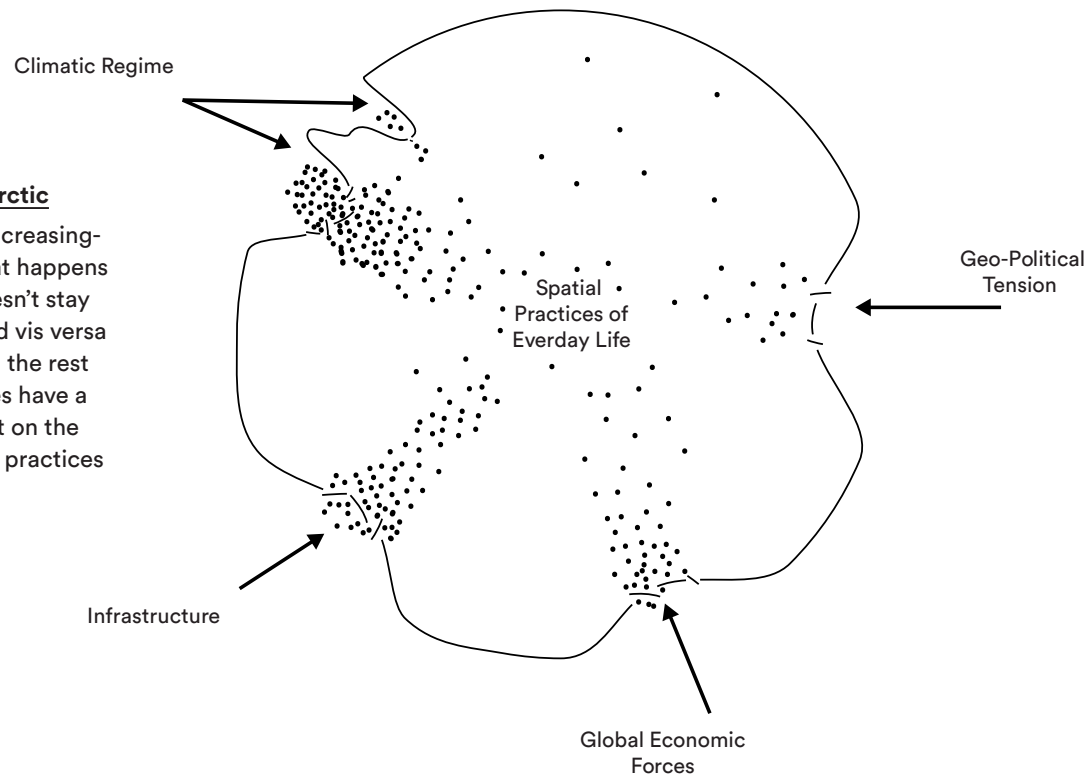
The Arctic Commons resituates infrastructure as an opportunity to enhance the landscape rather than to become an appendage to the landscape. There are 4 distinct areas where infrastructural interventions can improve living conditions of all species in the North; Shipping, Access, Resources, and Response. Each plays a specific and vital role in supporting communities, developing sustainable economic models, and creating a more resilient environment.



The Arctic Common's REFLEXIVE BOUNDARY is drawn by the forces in the environment and is subject to change over time as new conditions emerge.

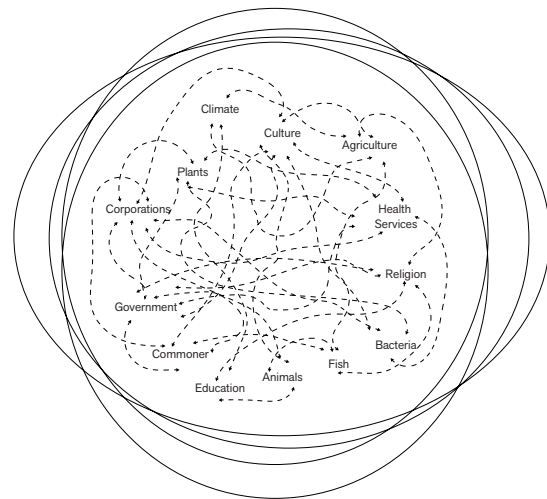
**Forces on the Arctic**

It is becoming increasingly clear that what happens in the Arctic doesn't stay in the Arctic, and vis versa what happens in the rest of the world does have a significant effect on the everyday spatial practices in the North.



**Neoliberal Power Structure**

At this moment in time the combined worth of the 62 wealthiest people in the world equates to the accumulated wealth of half of the global population. This is a prime example of how our world has become divided and common kinships have been lost.



**Common Power Structure**

A commons designates resources and space as belonging to all who inhabit the planet, it requires harmony and balance in decision making and an understanding that these decisions are entangled in an interconnected network of biotic and human relationships.



**Arctic News Clippings.** It seems that every day we are bombarded with breaking news about the Arctic and the dire situation we are in as a result of climate change, but how much do people actually know about the North? In these clippings there is a broad range of sentiments from scientific discoveries to economic policy changes to new cultural precedents. But do these engage the viewers to do something or are they merely updating us how shit of a situation we are in? Source: *New York Times*.



SI

**A wicked mess** — The deluge of various working groups, businesses, cultural foundations, and councils has produced an important dialogue about the Arctic focused on fostering collaboration and cooperation, but within each group is an individual agenda. There is a need to unify as a single entity that truly represents a common goal of preserving the culture and environment in the Arctic while improving capacity for development.



## A Brief History of the Militarized North

### COLD WAR TO WARM WAR

During the Cold War the US and Canada joined together to envision and construct the Distant Early Warning (DEW) Line across the High Arctic North American landscape. The series of military listening stations acted as a tripwire for potential Russian attacks coming across the Arctic Ocean. This joint effort was an unprecedented infrastructural endeavor and required pioneering construction techniques, new logistical innovation, and an extensive aerial mapping and on the ground reconnaissance of these Northern territories.

The construction of the DEW Line was a pivotal moment in the spatial reorganization of the North, but also in drastically altering the lifeways of Northern indigenous populations. These stations are now being seen as blights on the landscape and many are being remediated and removed, but they are an important aspect of the cultural landscape. Many indigenous see the DEW Line stations as embedded in the landscape. They often use the stations as wayfinding landmarks, temporary shelters, and as building material.

The Russian Build Up currently taking place is a strategic military effort by Russia to secure future rights to resources, shipping lanes, and territorial rights. Over the course of the last decade President Putin has constructed over ten new military bases and has carried out two



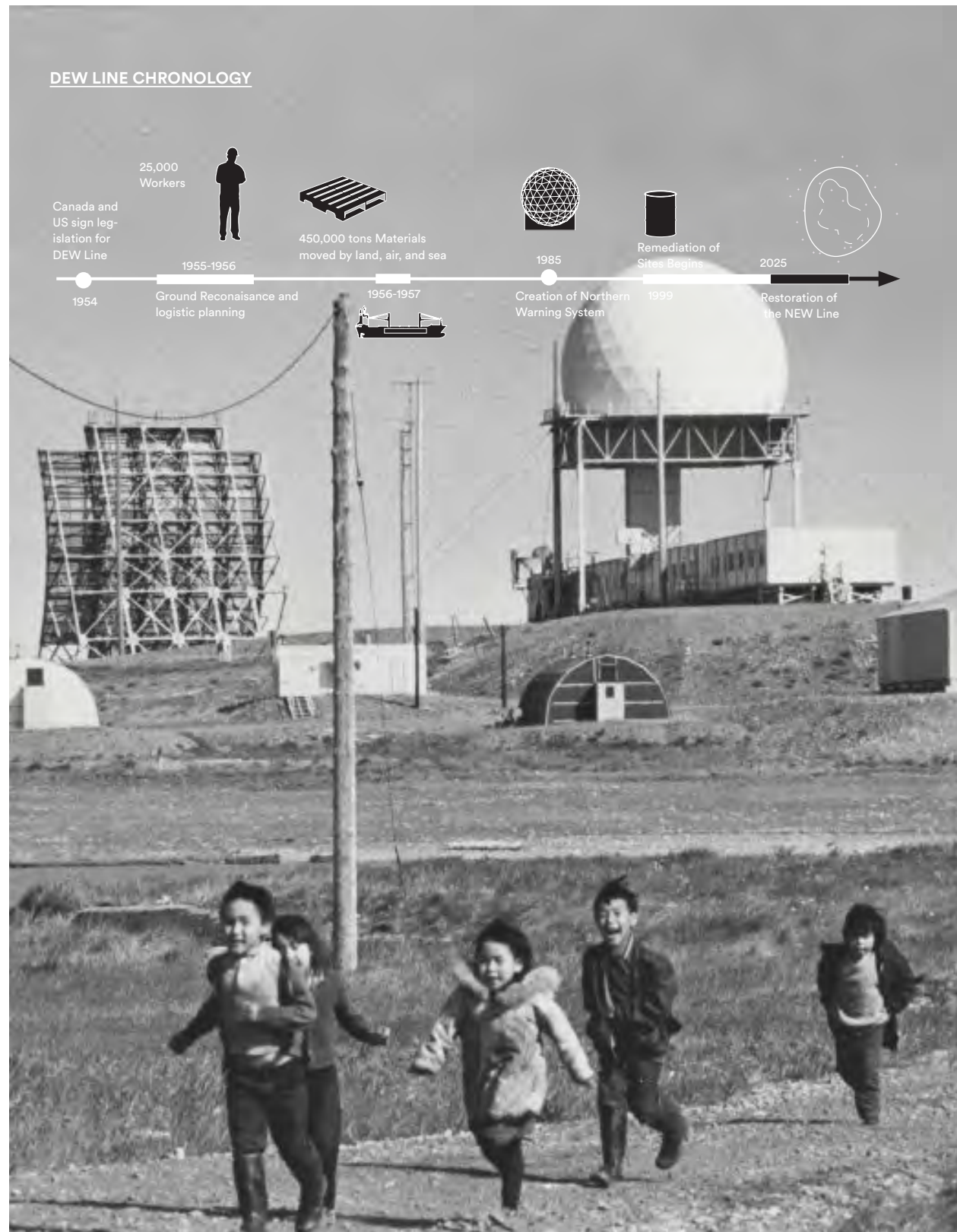
Source: Wikicommons



highly publicized military exercises to demonstrate their military prowess. The stations recently constructed are state-of-the-art examples of innovative Arctic architecture and engineering. Many of the stations are massive compounds capable of housing large populations of troops. These stations offer a similar opportunity for re-appropriation.

We are at a moment where we must decide whether we want to erase the history of these stations and their impact on the northern cultures or if we want to reappropriate this infrastructure to enhance our understanding of the changing Arctic, provide economic opportunities to northern people, and create a connected Northern landscape. The strategic location of these stations make them well positioned to offer critical services for the development of safe, responsive, and productive Arctic infrastructure.







DYE II station is one of 4 American DEW Line bases on Greenland, when it was abandoned in 1988 it was left as is. Today you can still find bottles of beer behind the bar and pool balls on the table. Source: *Line Hárklau*.



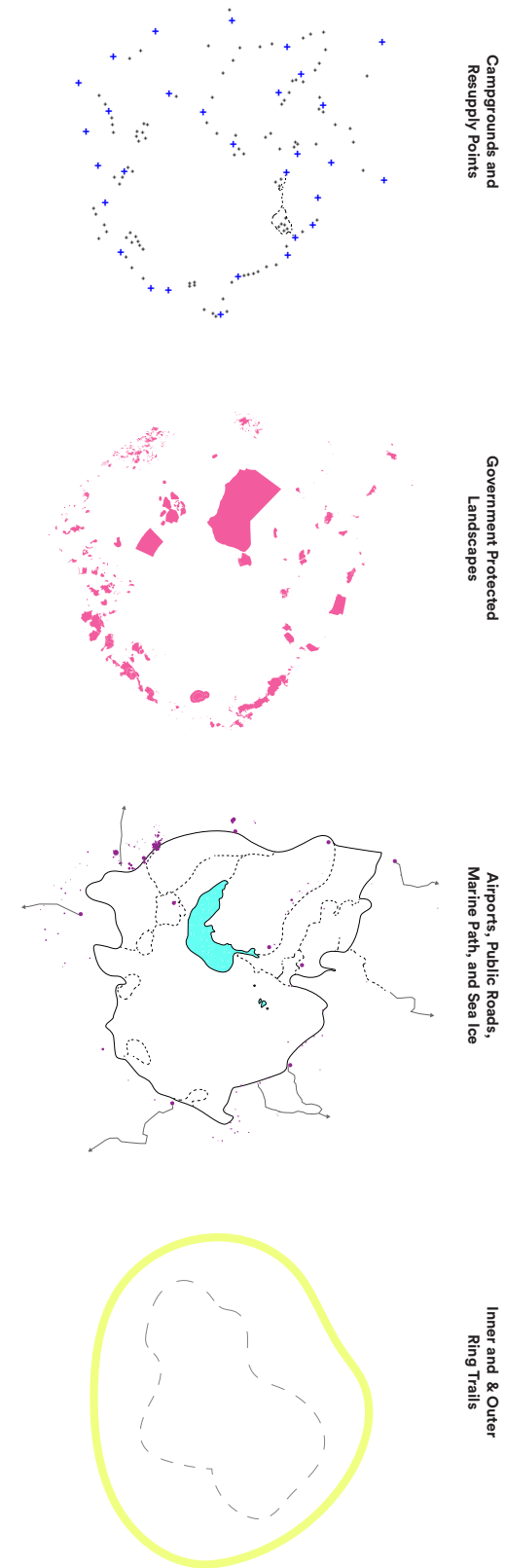
Fogo Island Inn. Source: Alex Fradkin



**PROVIDE Public Acces**

The Inter-Arctic Public Use Shelters

As the conditions become more temperate the region will open up to new tourism opportunities and provide a valuable economic influx to the towns and communities. The Inter-Arctic Maritime Trail provides public use shelters for sailors, kayakers, and hikers but also establishes infrastructure that supports research and indigenous hunting activities.

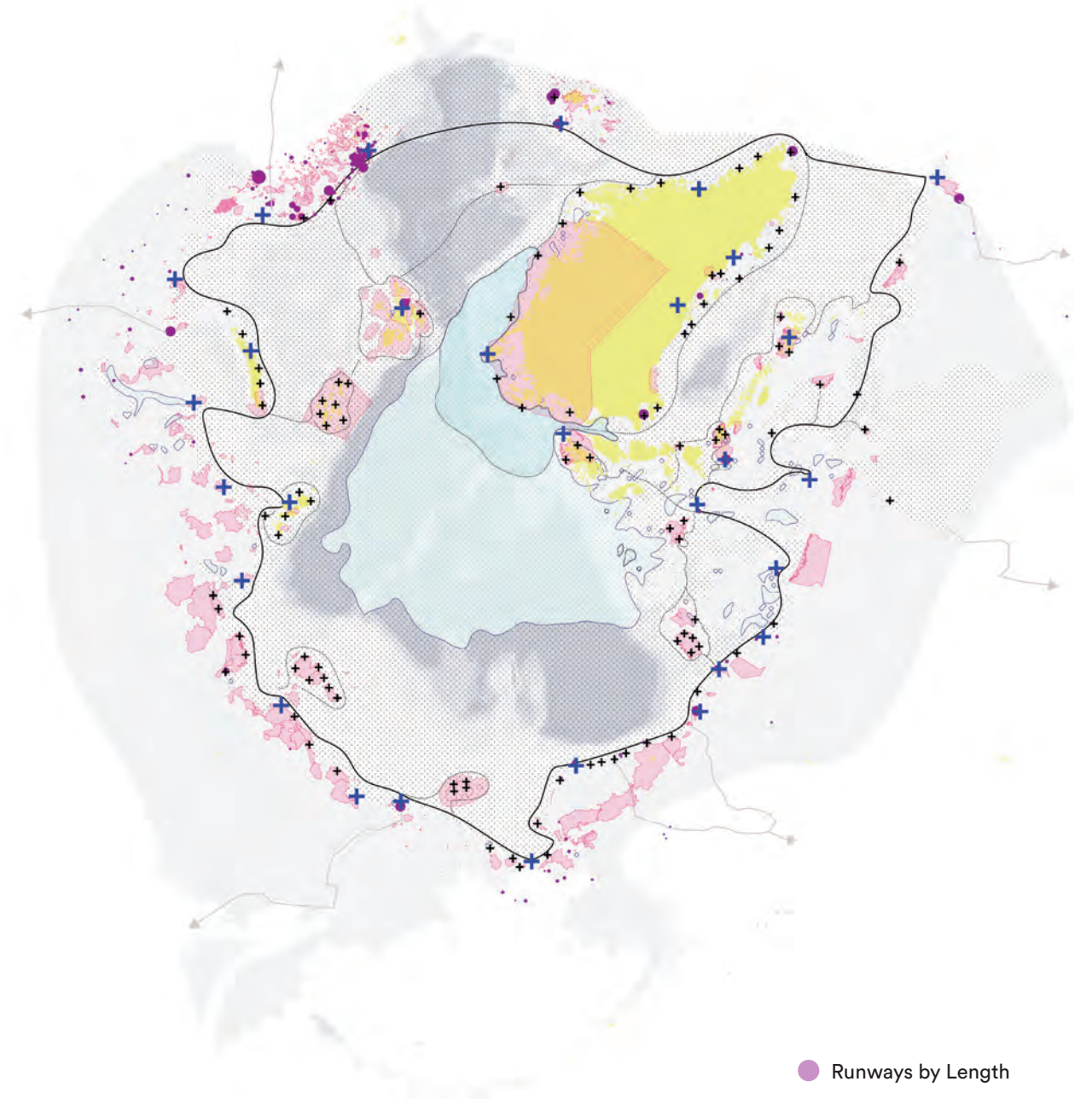


Campgrounds and Resupply Points

Government Protected Landscapes

Airports, Public Roads, Marine Path, and Sea Ice

Inner and Outer Ring Trails



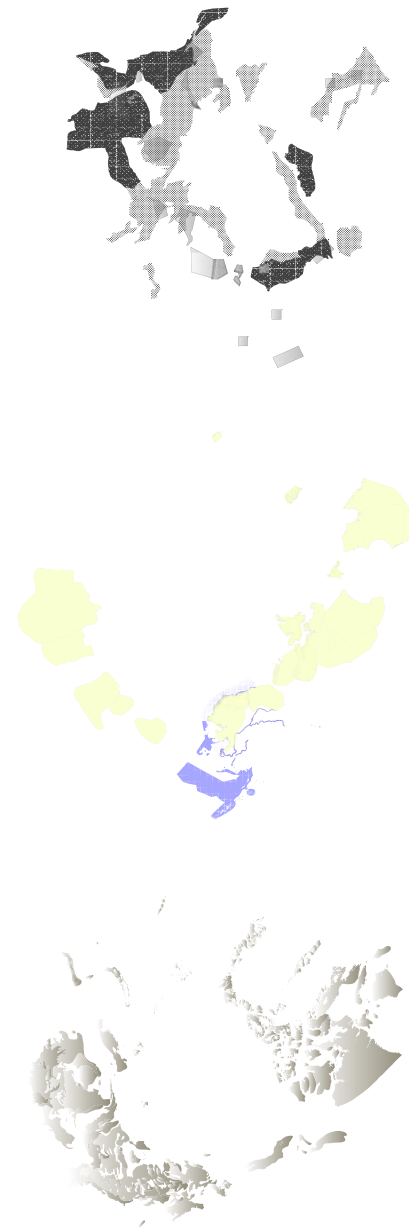
**Network of Camps and Shelters:**  
The proposed network of public use shelters identifies existing public and protected land and existing communities that could serve as resupply points.

- Runways by Length
- Glacial Melt Area
- + Supply Stations
- + Remote Shelters

### SITUATE Response

The Arctic Contingency Team

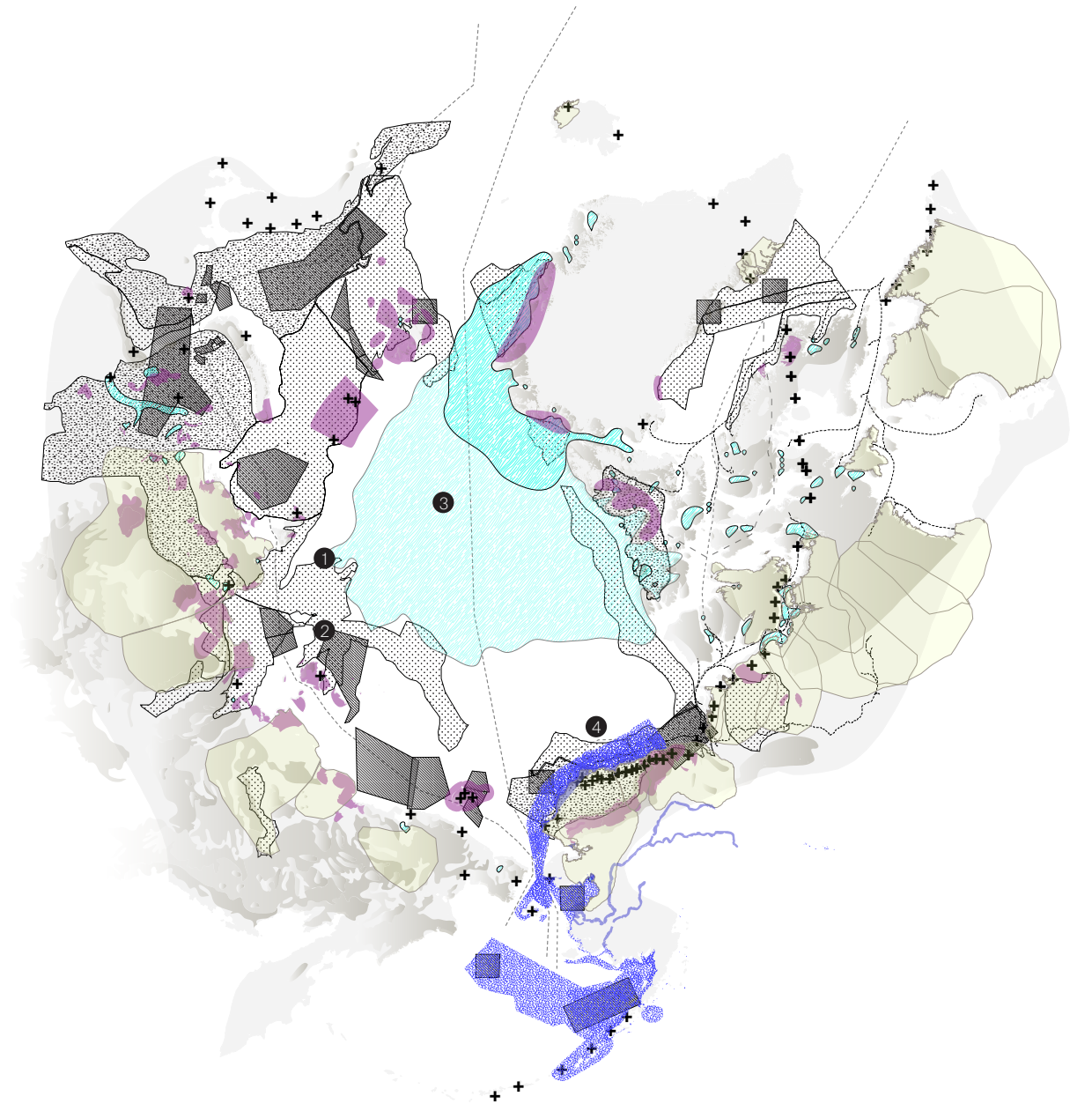
The Arctic is entirely unprepared to handle a number of disasters including shipwrecks, oil spills, disease outbreaks, forest fires, and methane release. There needs to be a unified, transnational organization ready to act when disaster inevitably strikes. The Arctic Contingency Team is comprised of temporary and mobile response team to assist in disasters throughout the region.



Oil Reserves and Current Leases

Caribou Herds and Salmon Habitat

Continuous Permafrost



**Legend**

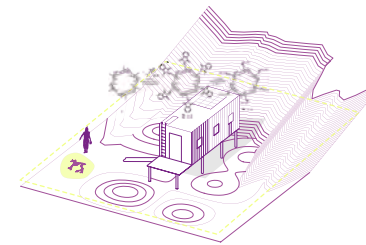
- ① Prirazlomnoye Fields
- ② Yamal Peninsula
- ③ Goliat (Off Shore Rig)
- ④ Prudhoe Bay
- Spawning Habitat
- Aquatic Habitat
- Sensitive Ecologies
- Permafrost
- + Current Bases
- Caribou Herds
- Active Leases

# PUBLIC USE SHELTERS

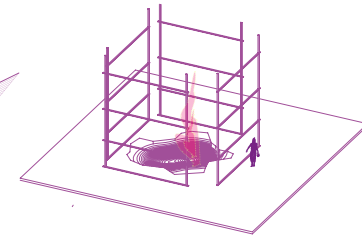
## Dormant Viruses, Lakes on Fire, and Erupting Landmasses

Permafrost has a remarkable capability of preserving and slowing the processes of decay and death. As permafrost melts hibernating organisms start to wake up like the Mollivirus sibericum virus on the left. These viruses are massive in both physical scale (.6mm) as well as their genetic complexity. One virus has been found to have 2,500 genes where HIV has 9. The issue here is that as permafrost thaws and as industry begins to stir up these areas viruses can be released. In 2015 an anthrax outbreak in Siberia left 1 child and 2,000 caribou dead as well as 23 infected. These viruses are terrifying for many reasons, but the most haunting is the fact they we may not know when they have been exposed and we most likely dont have a cure either.

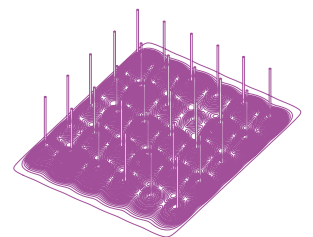
**Alternative Uses:**  
The installed structures can be temporary or permanent. In crisis the shelters can be deployed by heli-crane to remote situations such as virus outbreaks, shipwreck, oil spill, or other disasters that may arise.



DEPLOYABLE CDC CAMP



METHANE COLLECTION



PINGO RESEARCH

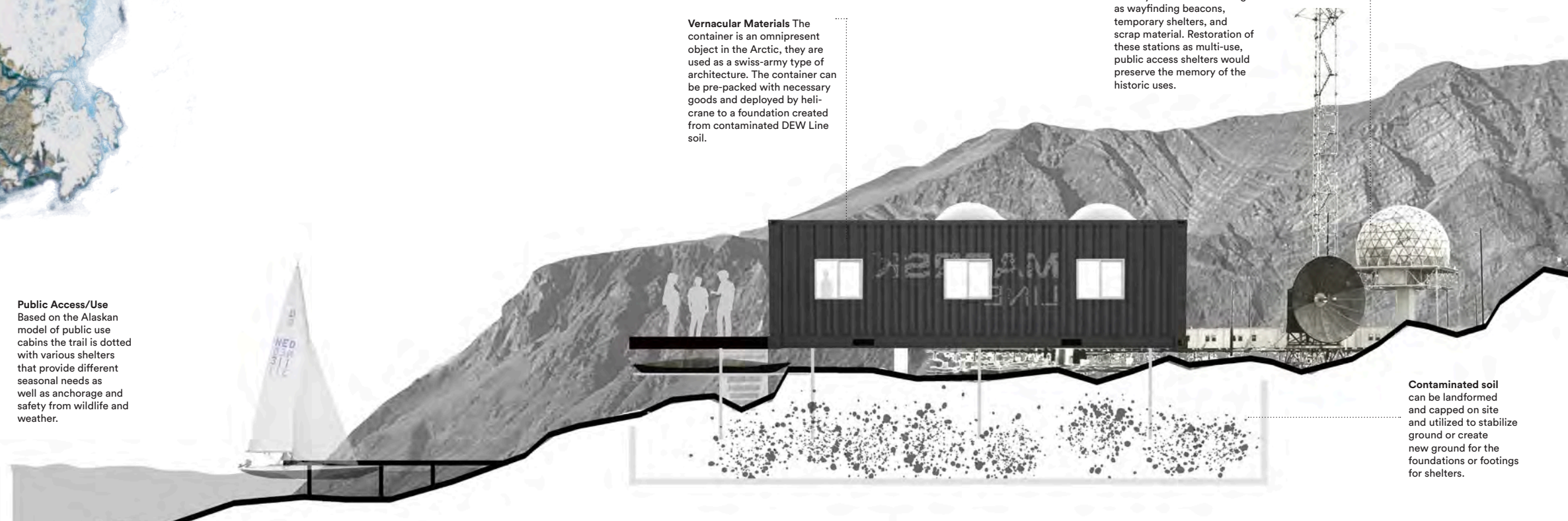
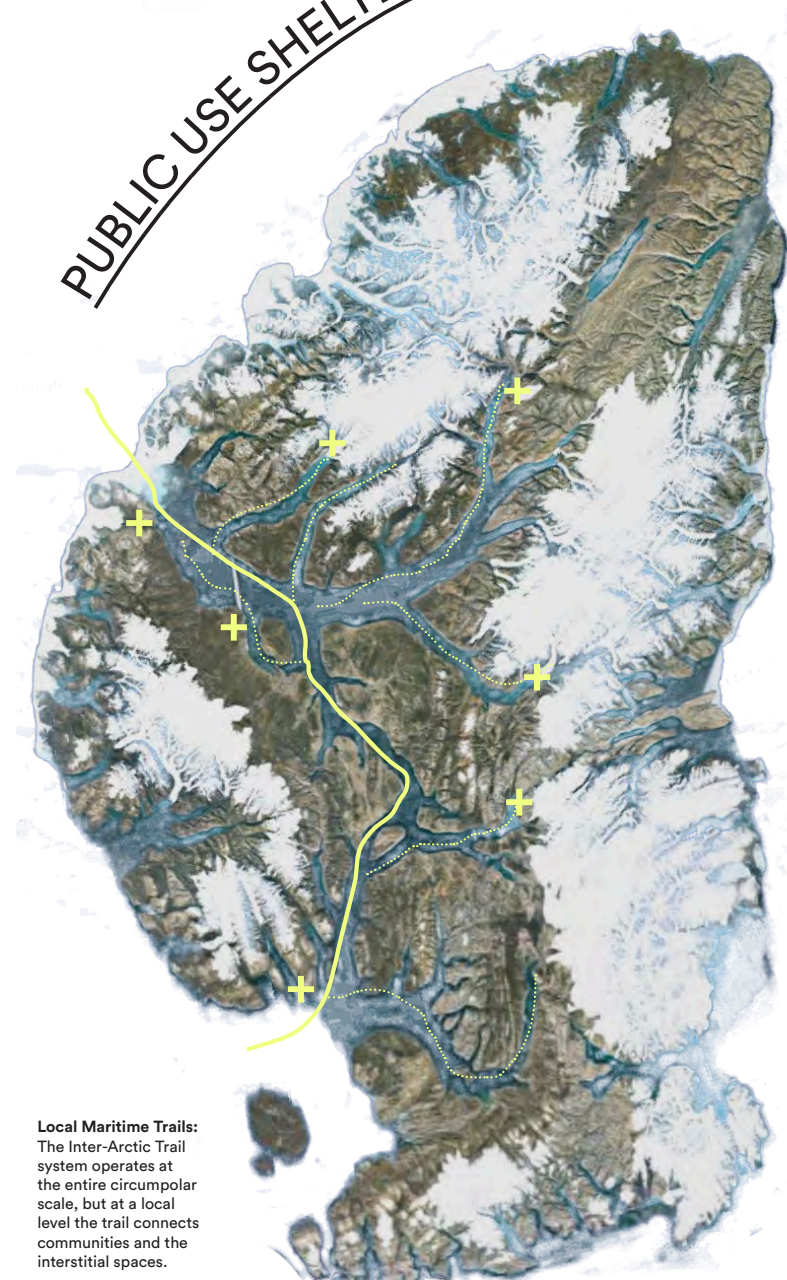
**Vernacular Materials** The container is an omnipresent object in the Arctic, they are used as a swiss-army type of architecture. The container can be pre-packed with necessary goods and deployed by heli-crane to a foundation created from contaminated DEW Line soil.

**Preserve Landscape Landmarks:**  
The Abandoned Military Radar Stations have become part of the landscape serving as wayfinding beacons, temporary shelters, and scrap material. Restoration of these stations as multi-use, public access shelters would preserve the memory of the historic uses.

Contaminated soil can be landformed and capped on site and utilized to stabilize ground or create new ground for the foundations or footings for shelters.

**Local Maritime Trails:**  
The Inter-Arctic Trail system operates at the entire circumpolar scale, but at a local level the trail connects communities and the interstitial spaces.

**Public Access/Use**  
Based on the Alaskan model of public use cabins the trail is dotted with various shelters that provide different seasonal needs as well as anchorage and safety from wildlife and weather.



**Shelter Containers at their Storage Site.** The containers are loaded with the appropriate equipment so that they are ready to be mobilized at any given moment.





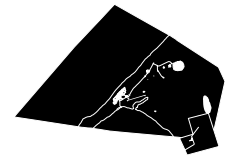


Off Shore Oil Rig Spill. Temporary Camp is set up on shore to provide headquarters and housing.

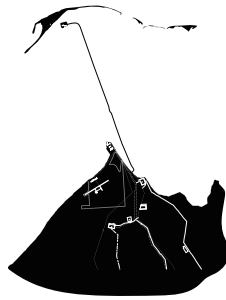
ACTeam  
Contingency  
Arctic



Barrow  
Pop. 4,335



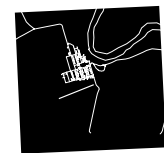
Wainwright  
Pop. 537



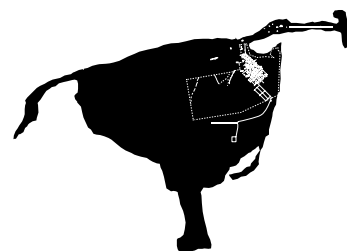
Oliktok  
Pop. 0



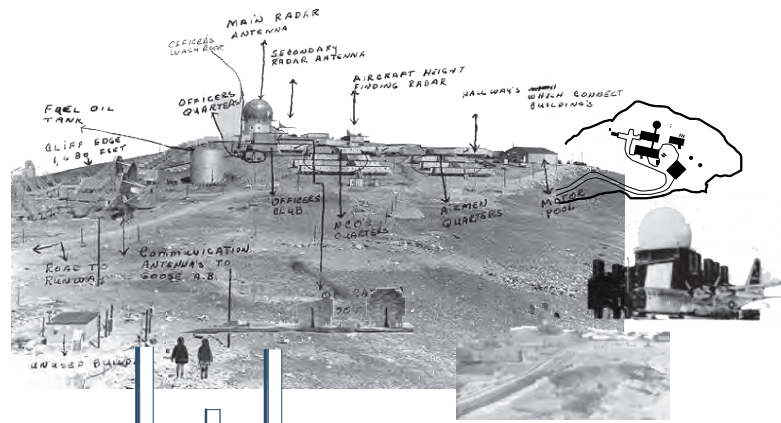
Wales  
Pop. 149



Nulsiqut  
Pop. 471



Kaktovik  
Pop. 241

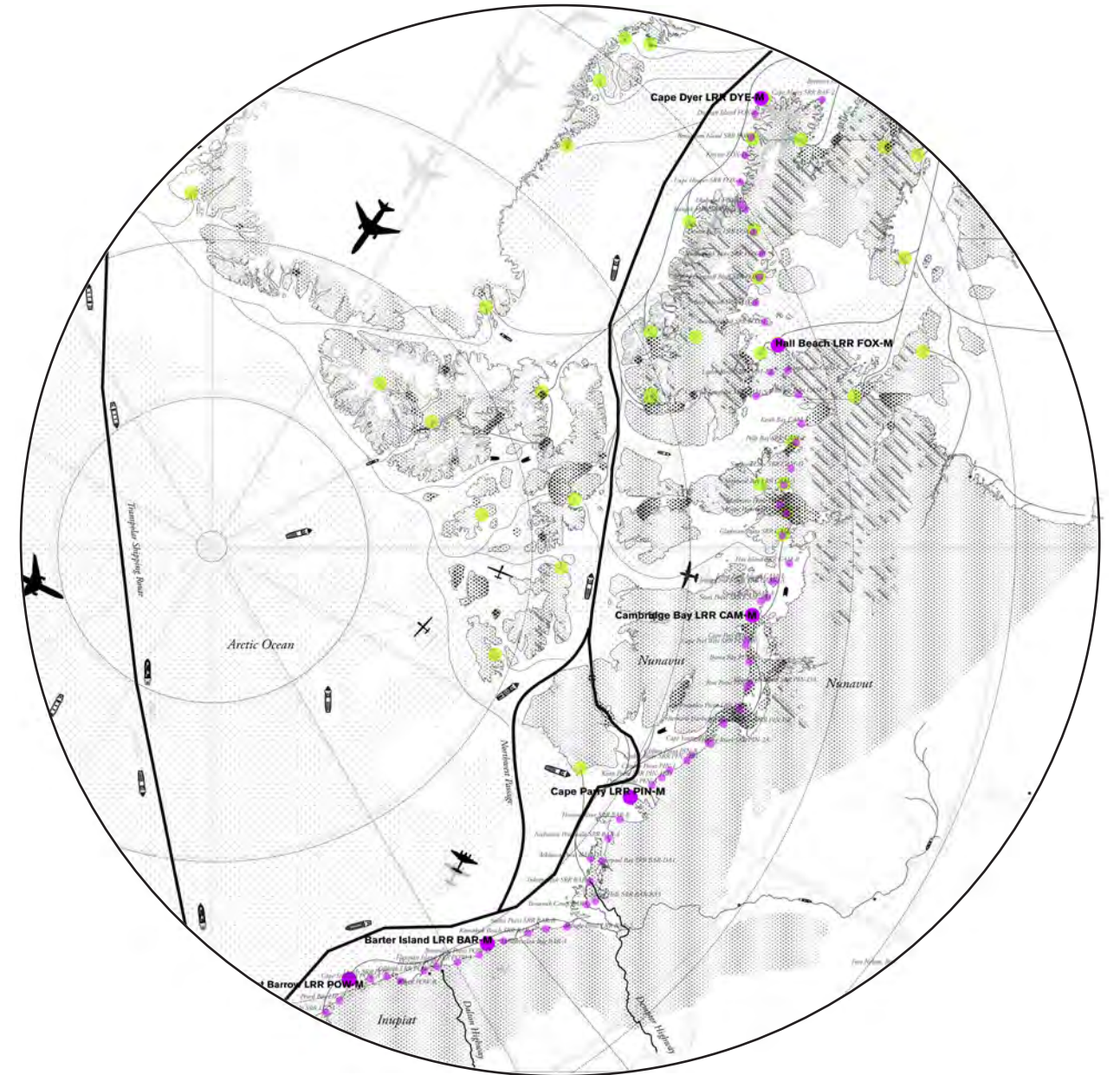


Buildings may be removed, but existing foundations can be reutilized for new buildings and houses.

## VALUE Infrastructural Artifacts

### The NEW Line

The Arctic is a garden of infrastructural artifacts capable of being restored to provide housing and a literal and metaphorical foundation for new settlements. As climate change produces a more inhabitable and accessible Arctic new communities will develop to support new human activities (fishing, mining, shipping). Capitalizing on existing infrastructure can reduce costs



New Activity Along the DEW Line.

Shell's Norwegian Sea Troll (largest concrete structure in world).  
Source: Associated Press



## DECLARE Infrastructure as Monument

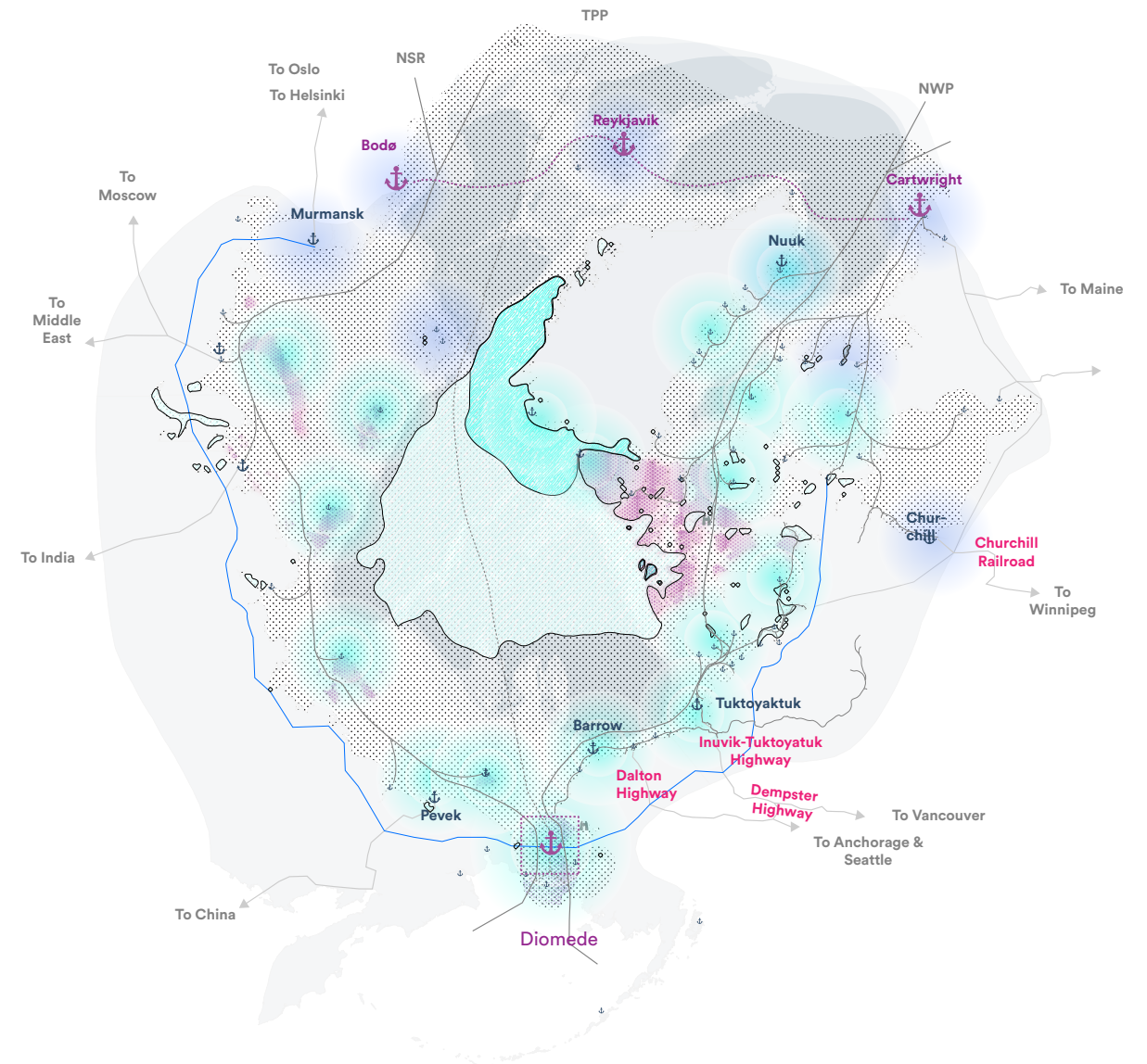
### The Arctic Commons Gateway Park

As sea ice quickly vanishes from the Arctic Ocean shipping companies look to the Northern maritime routes as an opportunity to decrease shipping times and fuel costs. The use of the Arctic as a shipping corridor will inevitably reduce the health of the environment, but the tradeoffs in overall emissions reduction may outweigh these costs on a global scale. There are three major shipping lanes: The Northern Sea Route (NSR), The Northwest Passage (NWP), and the Trans Polar Route (TPR). These have the potential to reduce trip times by 40-50% which when you think about the cost to operate a large cargo ship adds up to millions of dollars of savings in fuel.

All ships traveling any of these three routes must pass through the Bering Strait, the 50-mile channel between Russia and USA. In the middle of this channel there are two islands, Diomedes and Little Diomedes. This will be the site of the Arctic Commons Gateway Park, an infrastructural monument to peace in the North. Straddling both islands the new logistics and legislative building will keep an eye on those who enter and exit the Commons. Each vessel will pay a proportionate fee, based on their intent and size, into the Commons Monetary Fund (CMF) to utilize the commons. This monetary fund is then utilized to improve infrastructure for the citizens of the North. This may be for community

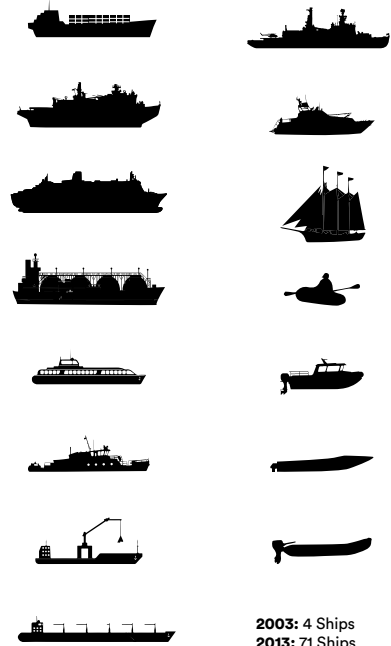


relocation, new coastguard stations, a specific research station, or a cultural amenity such as a theater. This example of trans-national governance will be a global model for communal citizenship and a representation of shared ownership and shared responsibility as a means to protect our common heritage of humanity.

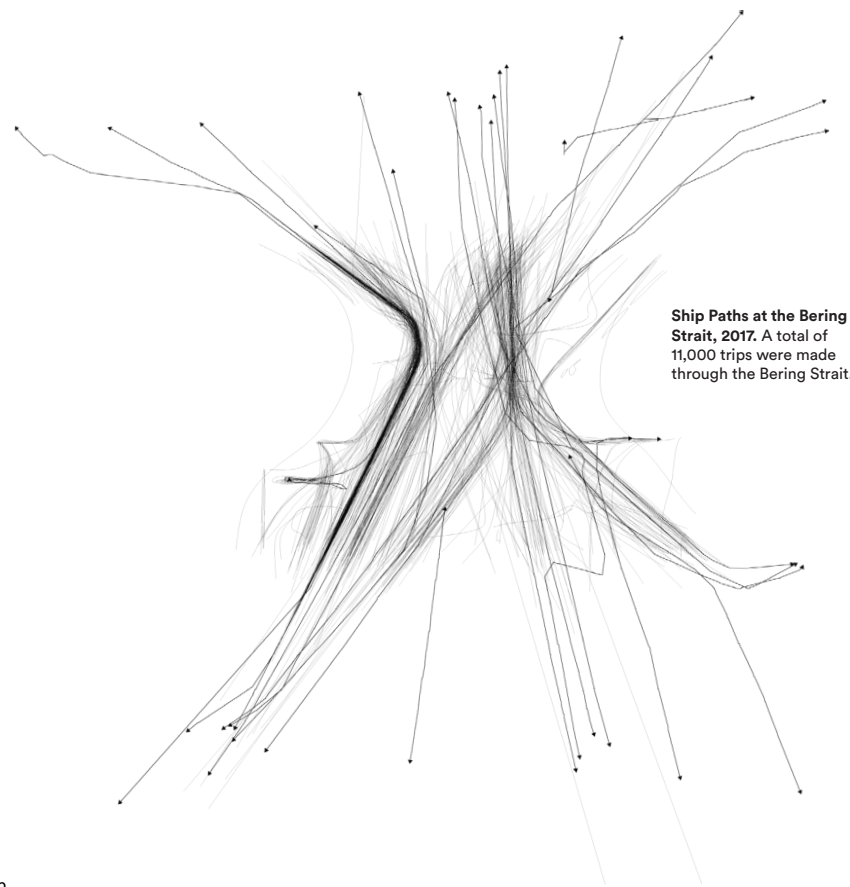


Ports, Navigation Signals, and Shipping relationships.

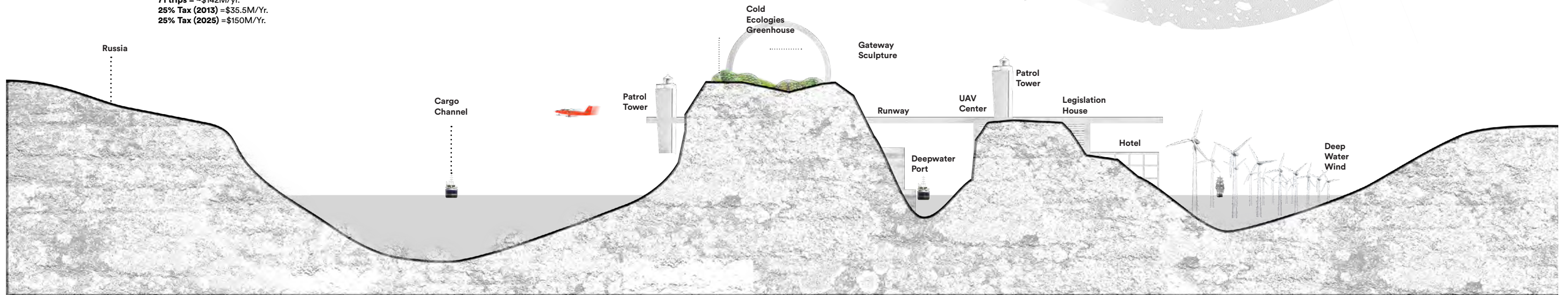
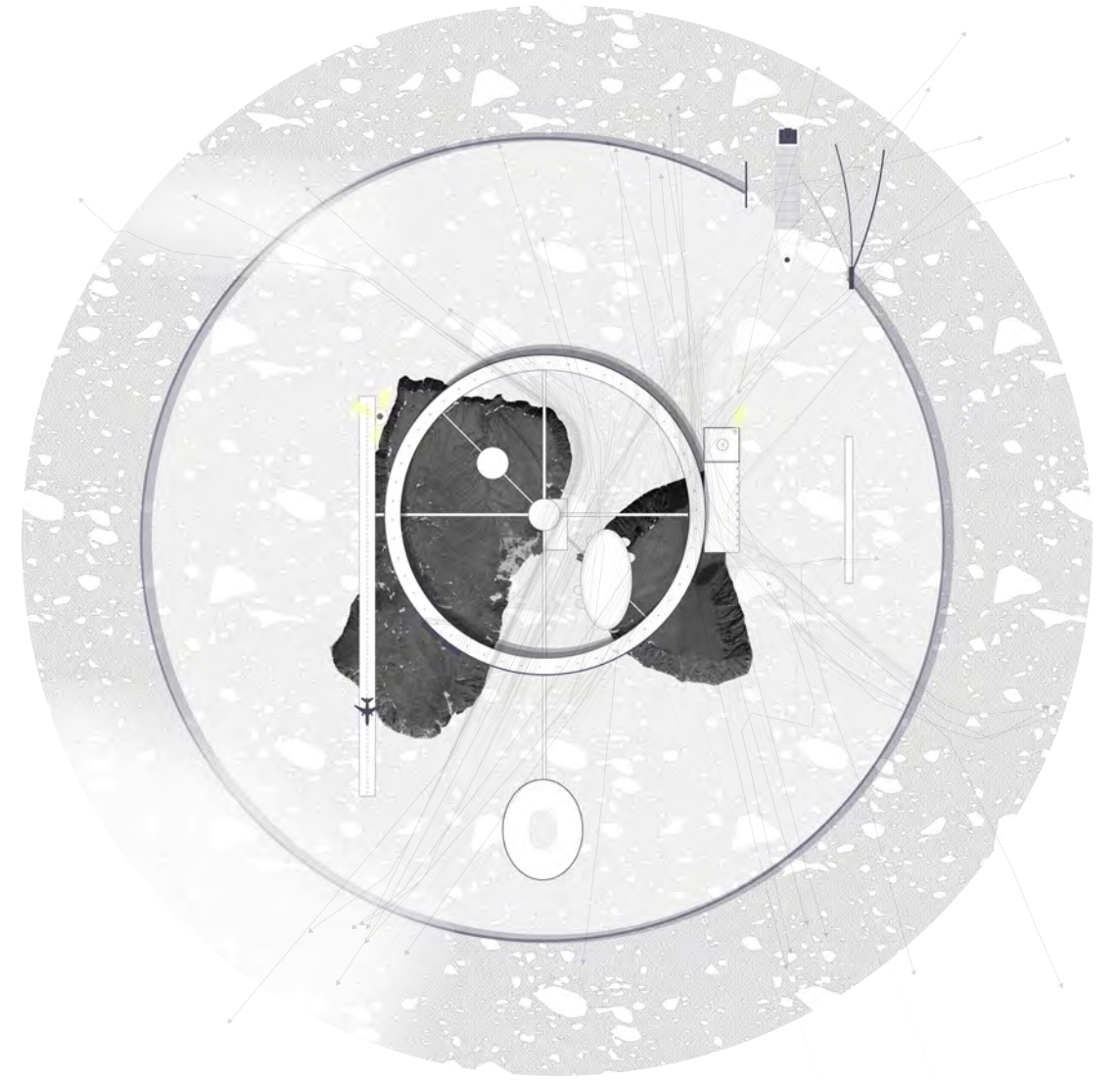
# Arctic Commons Gateway And International Peace Park



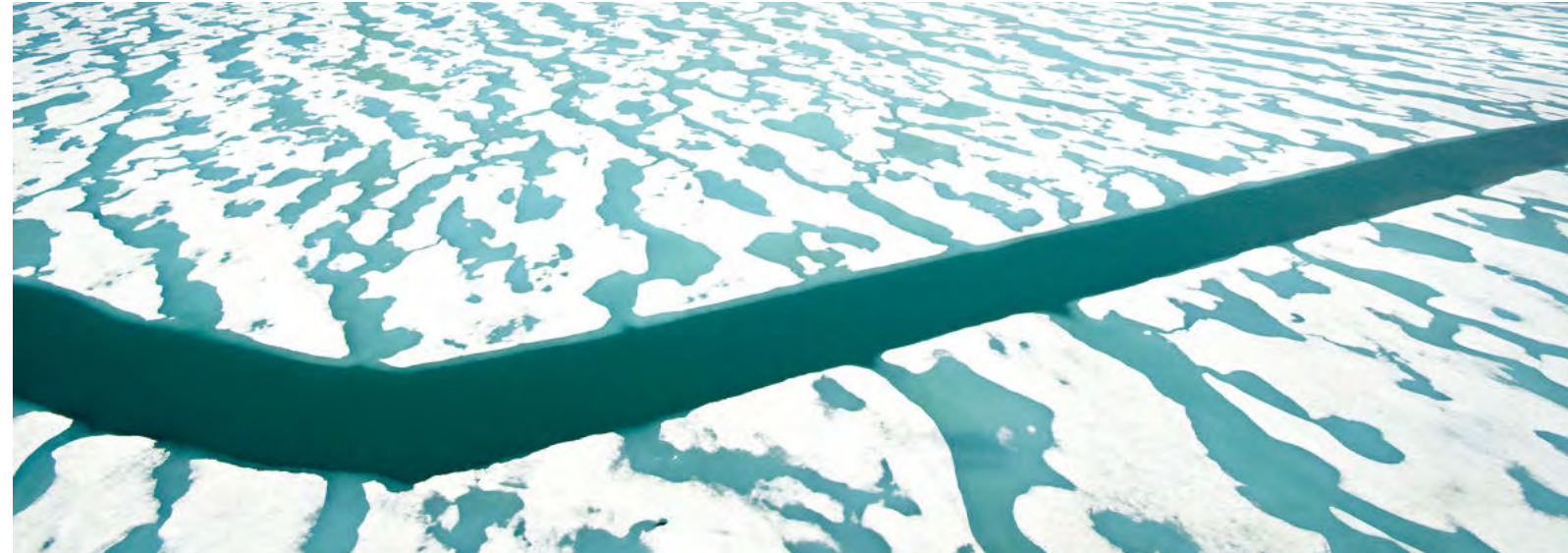
2003: 4 Ships  
 2013: 71 Ships  
 2025: 300 Ships  
 1 Ship Saves ~\$2m/trip  
 71 trips = ~\$142M/yr.  
 25% Tax (2013) = \$35.5M/Yr.  
 25% Tax (2025) = \$150M/Yr.



Ship Paths at the Bering Strait, 2017. A total of 11,000 trips were made through the Bering Strait.



Traces of Occupation. Source: teve Ogle/Getty



## Conclusion

### FINDINGS

The investigation in this portion of the research was to uncover specific systems where design intervention could have spatial ramifications. The series of inquiries proposed ranged in scale, specificity, and intent. The Arctic Commons Center was a symbolic gesture to provoke a pondering of what an international infrastructural monument to peace might look like, where it would be, and what purposes it might serve. The Inter-Arctic Island Trail investigated what opportunities are there for the reappropriation of infrastructure and where are there holes where new infrastructure might need to be constructed. The Arctic Contingency Team was by far the least completed set of interventions, but was helpful in communicating that there are serious problems looming in the Arctic that we are not prepared for. The Global Mud Commons was perhaps the most intriguing in the fact that it is a surreal but plausible concept grounded in ongoing research, but also embodying a scale of thinking fully inline with the concept of The Whole Arctic as a Commons.

The general feedback received was that there was a solid and interesting body of work, but the question of why this is important has yet to be fully and clearly relayed. Regardless of daily bombardment of articles and warnings that the Arctic decline will drastically affect every

aspect of the world it is still lost on us that we should care about this landscape. In the age of the instant it is hard to stay focused, we are captured by things for a short moment but how do you make something stick? The Arctic is a transformative landscape, another world right here on this planet. The Arctic is a garden that breathes and grows, but it is hard to understand this without visiting this place. It is of no surprise that the deluge of maps, statistics, and information doesn't capture this imagination. Moving forward it will be essential to uncover the best way to convey the sense of place and why the issues of Arctic disintegration are important.


### ASSESSMENT

Moving forward I would like to produce work that highlights the aspects of the Arctic that initially fascinated me; the collision of deep time and infrastructure, the sheer beauty of the landscape as a backdrop of intensive and remote industrial activity, and the cultures that truly understand this landscape and its personality.

I want to make this project represent the feeling of an urgent decision related to deep geologic time. I want this project to make people not aware but fascinated in the Arctic and the changes reshaping an environment sculpted by millennium. To do this I need to edit my scope and

refine the things in this project that are most important to the overall goals. One of my goals will be to physically model a select few interventions that embody the principles of the entire project. I would also like to create a video that puts people in the experienced phenomena of the North. I think to understand this work it is imperative that there is an experiential aspect of the final presented work. I plan to also focus on the editing and further defining of the fundamental principles.

The goal for the final phase will be to create an exaggerated model that shows how the small scale interventions become embedded in the larger landscape of the Commons. This should show the interconnectivity, the relationships of infrastructure, and the specific design intentions.

An aerial photograph of a desert landscape. A winding river flows through the terrain, which is characterized by a mix of reddish-brown soil and lighter, sandy areas. A prominent feature is a large, circular, crater-like depression in the center-right of the image. The overall scene is arid and rugged.

Chapter  
Three  
Terra  
Omnis

# Terra Omnis

## QUESTION

What are the spatial interventions that support The Arctic Commons and who are the commoners that use these spaces? Can infrastructure transcend its traditional, functional purposes to enhance cultural and phenomenal experiences of the landscape?

## BY ALL, FOR ALL

In this phase the mission is to distill the complex web of information gathered throughout the thesis investigation and transform the data and information heavy findings into designed, spatial experiences that support culture, economy, and ecology in the Arctic. A decision is made to focus on six categories of future development: shipping logistics, resource extraction, research and response, community relocation, infrastructural artifacts and public access. Within each of these complex systems are working landscapes that support economic endeavors and ecological processes but infrastructure should aim to enhance phenomenal experiences in order to reveal a deeper relationship between humankind and the landscape.

**West Pier Lighthouse, Cleveland, Ohio.** An instance where infrastructure transcends its original purpose (as navigational tool) to become a shrine to the local phenomenon and barometer of seasonal change. *Source: US Coastguard, Lauren Jorgenson.*



## PHASE SHIFTS COME IN WAVES

A third wave of spatial reorganization haunts the future of the Arctic and threatens the common heritage of humankind. This chapter charts out the three phase shifts that have altered the human-environment relationship and attempts to visualize the urgency and moral imperative associated with taking action in the Arctic. Leaving Terra Nullius behind and adopting a mentality of Terra Omnis accepts the reality of the Arctic as a geography deeply connected to cultural heritage, while acknowledging the reality of international geopolitical pressure to exploit the Arctic for fuel-saving shipping routes and natural resources. How can these spaces exemplify a new form of kinship between economic activity, the environment, and the human inhabitants? The spaces set forth serve as provocations of an alternative future, one that blurs boundaries and hierarchies to create common space for a vibrant and thriving Arctic.



**Arctic Whaling, J.L. Munro.** Unlike 19th century romantic depictions of the Arctic this contemporary painting of historic Arctic activities implies a common usage of the Arctic. Source: J.L. Munro, 2008.

## METHODS



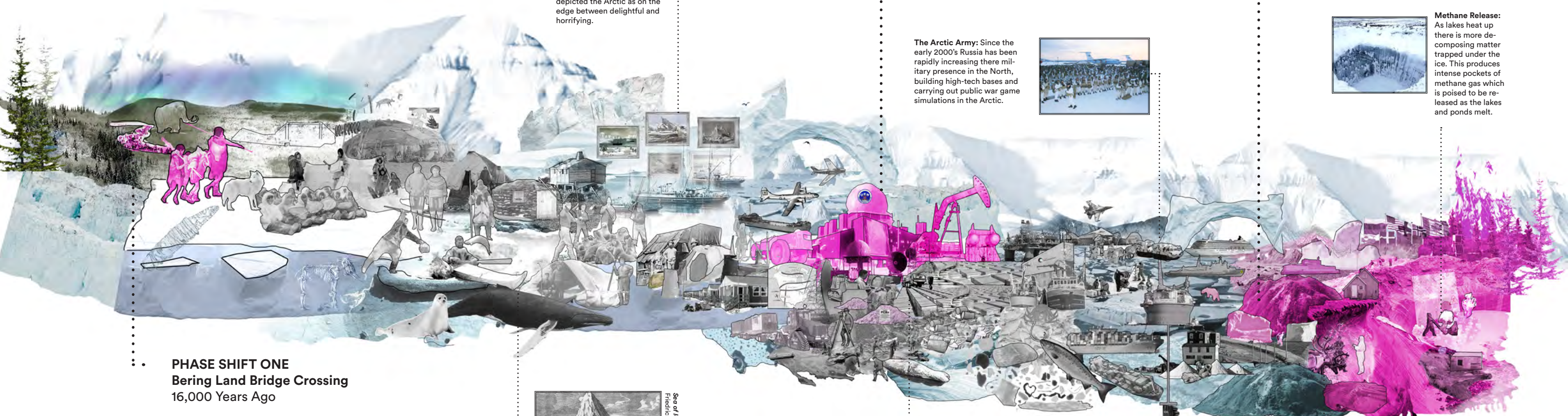
**Crystal Serenity at Pond Inlet.** Access to the North opens up a complicated relationship between tourism and Inuit everyday life. The Crystal Serenity is the first cruiseship to sail through the entire Arctic without icebreaker assistance. More than 1,000 passengers took turns visiting the inuit community in small groups.

The prior two phases focused on information, mapping, and diagramming systems and power dynamics so the main priority in this phase was to explore the experiential qualities of the sites in question. Drawings at the human scale were really important to representing the material and phenomenal qualities of the six different sites. The drawings reappropriate the trope of Arctic image culture focused on representing the sublime, however the new Arctic sublime deals less with the delightful horror of the extreme landscape and more the disintegration of the Arctic as a result of climate change. The images are tweaked to tell a story about the future occupation of the Arctic landscape. To complement the drawings, which deal mostly phenomena, a series of models was built to provide information about the context, scale, and terrain. The models use a material logic of wax, concrete, and salt to represent the various ground conditions; liquid, solid, and in flux.



# On the Brink of Collapse

A Brief History of Human-Landscape Relationships



## PHASE SHIFT ONE Bering Land Bridge Crossing 16,000 Years Ago

During the last ice age Alaska was connected to Russia by the Bering Land Bridge, which was remarkably not covered by the Laurentide Ice Sheet instead it was a jungle of a diverse group of trees. It was also the bridge that may brought the first humans to North America. This group of northern adapted hunters would develop a special relationship with the Arctic environment and slowly migrate East to Greenland



**Whaling Industry:** A Dutch engraving depicts a whaling fleet hunting the Bowhead whale. The overhunting of the Bowhead almost wiped out the entire species in the late 1800's

Sea of Ice by Caspar David Friedrich 1832



Sea of Ice by Caspar David Friedrich 1832

**The Arctic Sublime:** Romantic painters in the 19th century depicted the Arctic as on the edge between delightful and horrifying.

## PHASE SHIFT TWO Radar Stations and Oil 50 Years Ago

Military radar stations and the discovery of oil catalyzed a massive spatial reorganization of the Arctic forever altering the lifeways of the indigenous and non-human inhabitants of the North. Inuits were used as human flagpoles as forced to live in modern homes rather than continue their nomadic hunting traditions.

**The Arctic Army:** Since the early 2000's Russia has been rapidly increasing their military presence in the North, building high-tech bases and carrying out public war game simulations in the Arctic.



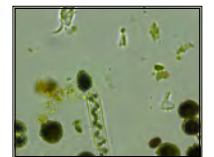
**Contaminated Soil on the DEW Line:** The construction of radar stations and the decades of use resulted in a widespread contamination of the Arctic. A clean up effort began in the 1990's to remediate and remove soil at many sites.

## PHASE SHIFT THREE Global Climate Change Present Day

During the last ice age Alaska was connected to Russia by the Bering Land Bridge, which was remarkably not covered by the Laurentide Ice Sheet instead it was a jungle of a diverse group of trees. It was also the bridge that may brought the first humans to North America. This group of northern adapted hunters would develop a special relationship with the Arctic environment and slowly migrate East to Greenland



**Methane Release:** As lakes heat up there is more decomposing matter trapped under the ice. This produces intense pockets of methane gas which is poised to be released as the lakes and ponds melt.



**Virus Outbreaks:** In August 2016 seventy-two Russian herders were infected by an outbreak of Anthrax killing one child. The thawing of permafrost releases dormant viruses into the air and food system.



Eskimos constructing an igloo out of blocks of cut ice. 1924. Source: Library of Congress.



Drawn by Lionel Beck, R.N.

Engraved by Edw. Pindell.

EXPEDITION DOUBLING CAPE BARROW, JULY 26, 1821.

John Franklin's Expedition. Source: Library of Congress.

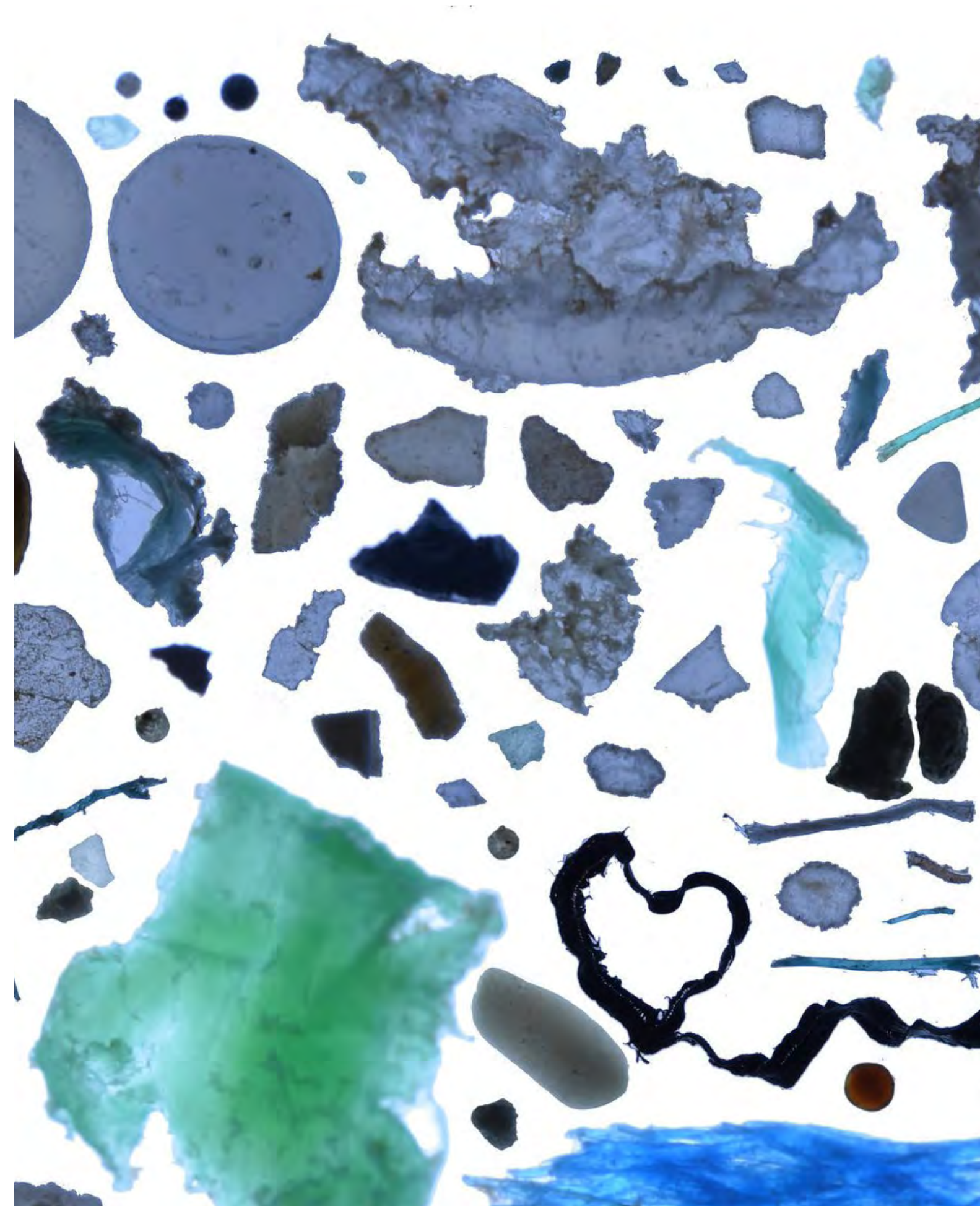
Shackleton's Ship encapsulated in ice. Source: Frank Hurley / Scott Polar Research Institute



"We had seen God in his splendors, heard the text that Nature renders. We had reached the naked soul of men."  
—Ernest Shackleton



Researchers gather water to test for trace plastics. Source: NASA Goddard Space Flight Center



Arctic Ocean Plastic Bits. Source: Andres Cozar.



# WHO ARE THE COMMONERS?



SCIENTIST

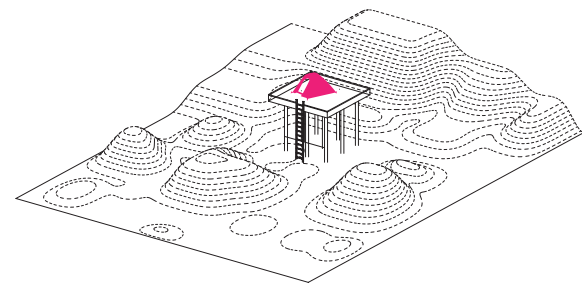
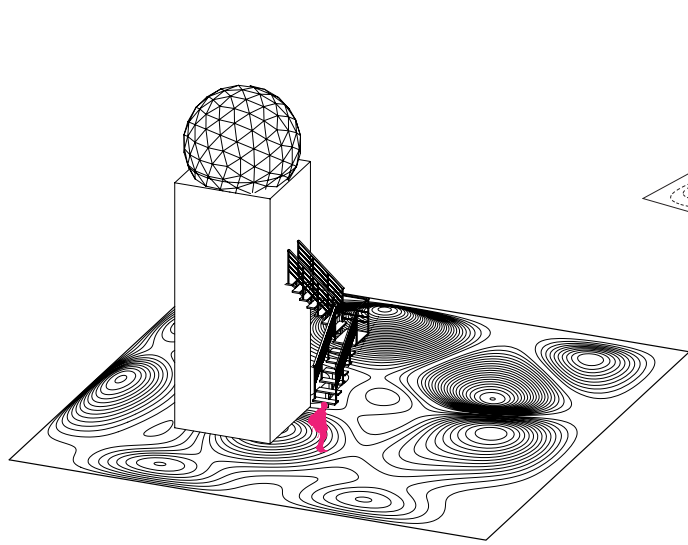
COASTGUARD

HUNTER

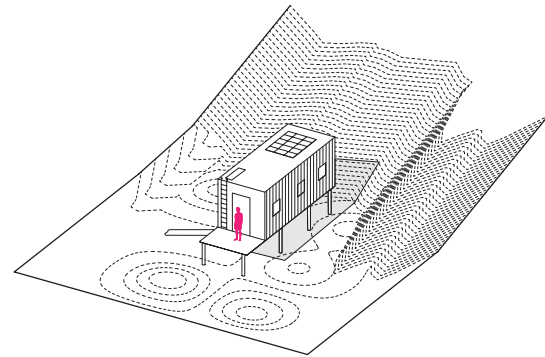


EXPLORER

OIL  
WORKER



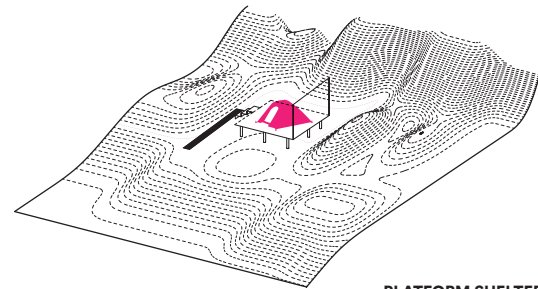
SEA SHELTER



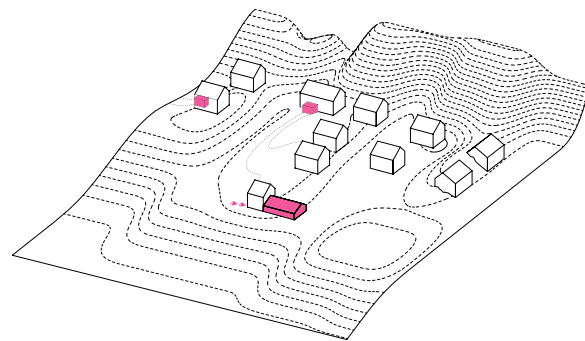
CONTAINER SHELTER



RADOME SHELTER



PLATFORM SHELTER



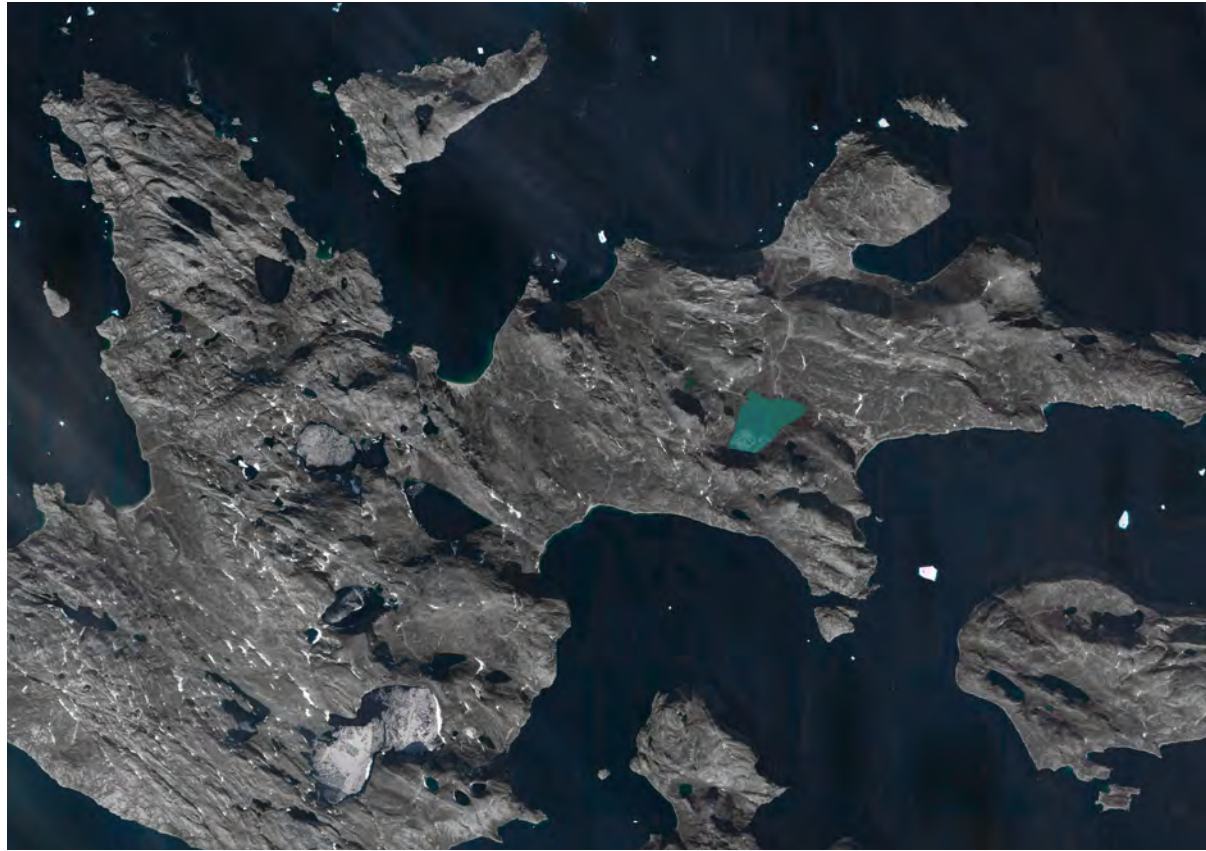
VILLAGE SHELTER

### TYOLOGIES

The demilitarization of the Arctic leaves a scattered trace of military relics strewn throughout the Arctic landscape. The strategic positioning of these bases resulted in a rhythm of bases occurring every 100 miles or so all across the top of Canada and Alaska. The bases should be preserved as cultural landmarks and reappropriated to serve as new shelters protecting hunters, researchers, and tourists from the Arctic elements.



Shoreline Platforms: Provide maritime travelers with solid ground to set up a camp for a night or for an entire summer research season.



**Research Outpost at  
Cape Hooper**

68°26'51.5"N 66°41'57.3"W

Tourists, cargo ships, scientists, and repurposed military stations cross paths at one of the public use shelters in Baffin Bay just west of Greenland.



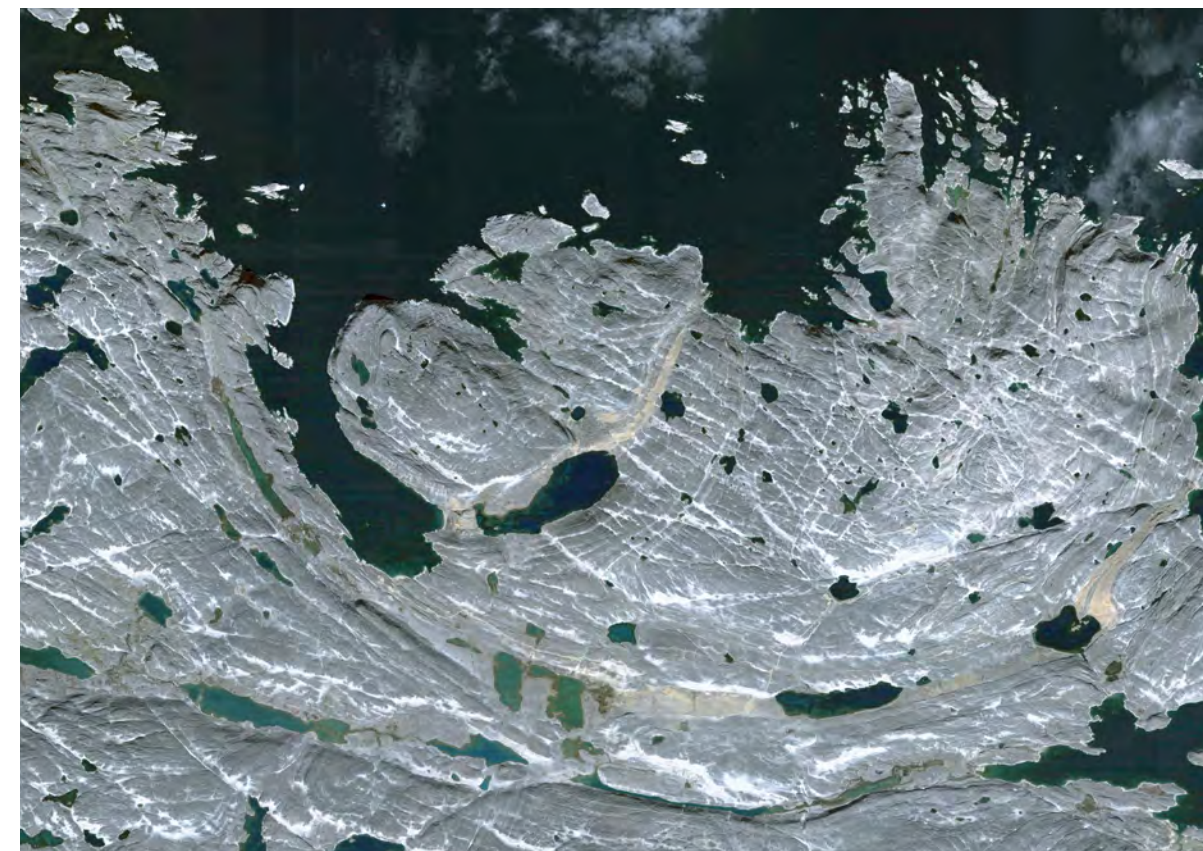




Permafrost Distributed on Tundra.



**Metal Mesh Path from Dock to Shelter:**  
Wax, Wood, Salt, Chipboard, Wire,  
Concrete



### A New Town Emerges

58°29'00.8"N 62°36'36.8"W

The abandoned buildings and foundation footings at Saglek DEW station are resurrected to provide a home to recently displaced Inuit climate change refugees.



Saglek DEW Line Site.



Terraced Community. Concrete, Wax, Wood, Salt, Clay, Paint



**Ice Cach Shelter on  
the Glacial Edge**

82°30'34.6"N 62°11'41.1"W

The “cache” is a northern vernacular structure commonly used to raise food off the ground and out of reach from bears and other mammals. The Ice Cache raises people off the ground away from rough seas and ice. The platform hosts Inuit seal hunters as well as Arctic sailors or sea kayakers.





Giant Melt Puddle Next to A Glacier.



Ice Cache Model. Cast Glass, Wax, Wood, Spraypaint, Fabric, Piano Wire, Chipboard, Clay

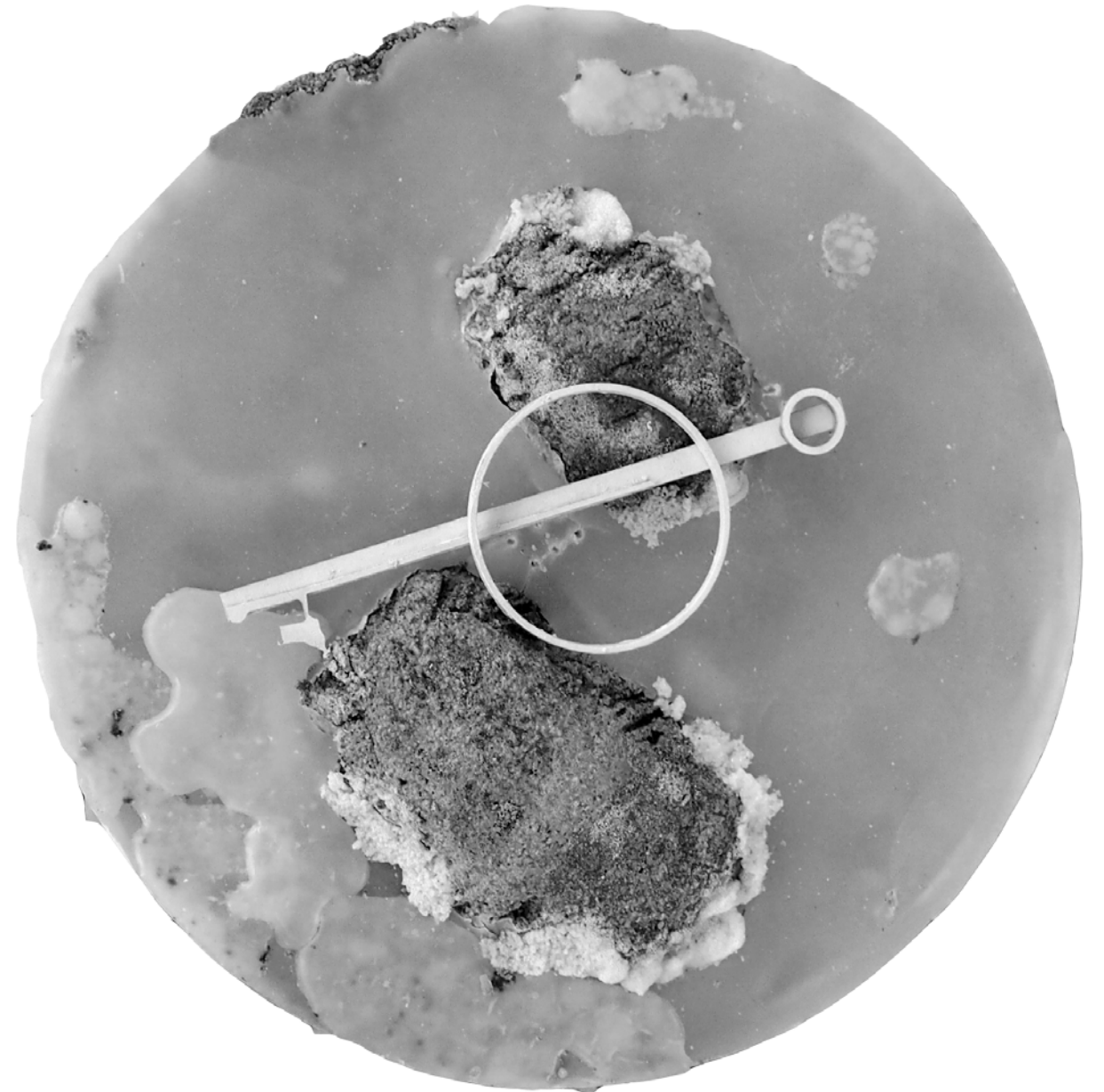


**Diomedede Islands**  
65°45'30.2"N 168°59'31.1"W

The Islands are joined together to create a link between North America and Asian and Europe. This becomes the gateway to the Arctic commons.



Edge of Diomedede Island.



Arcitic Commons Gateway. Concrete, Wax, Wood, Epoxy, Salt



**Path through the  
Permafrost**

70°05'37.1"N 143°42'28.8"W

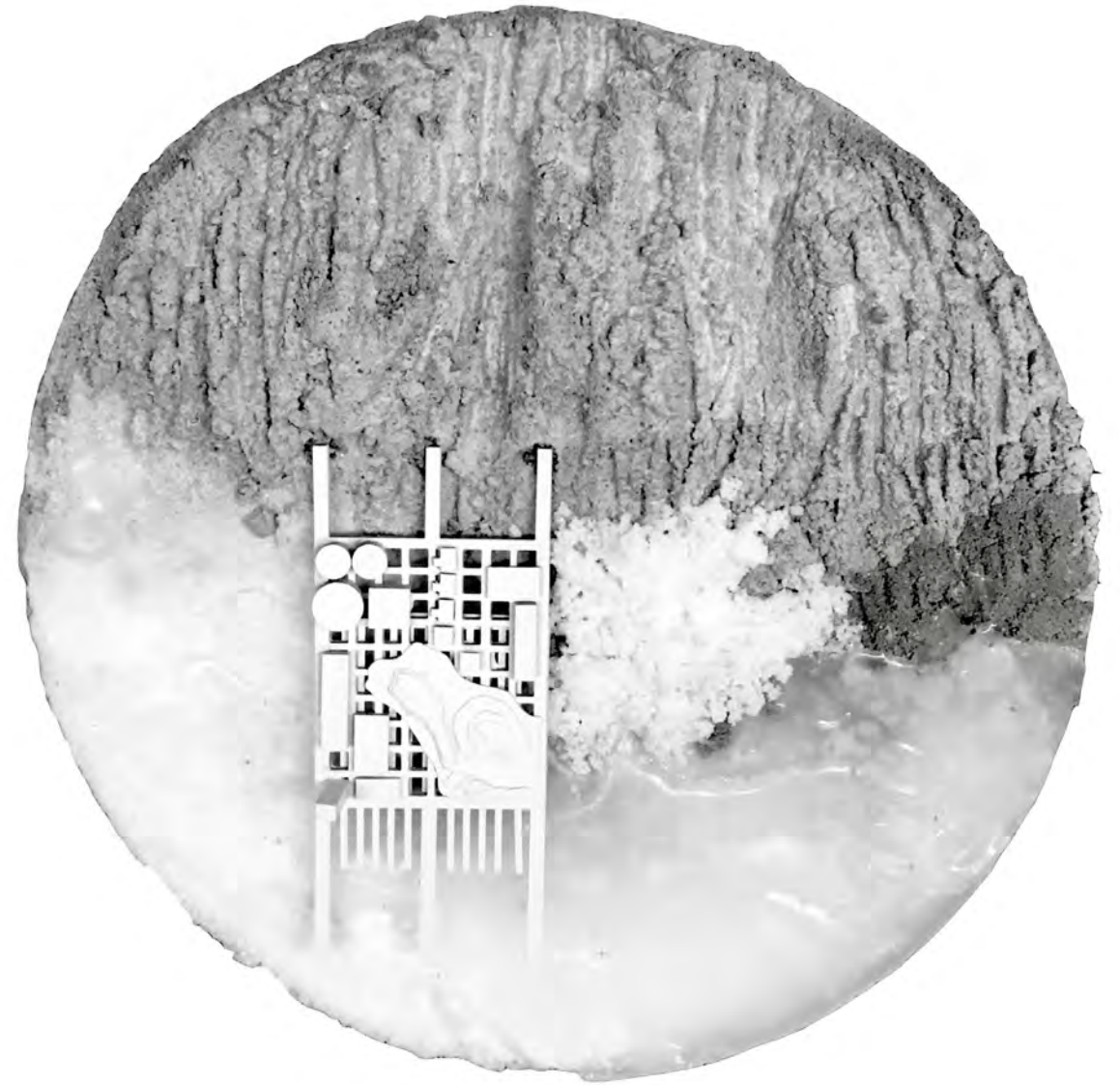
How can we design fixed objects for a fluid terrain? This permafrost catwalk alludes to ways landscape architects can use their typical tools to address changing ground conditions in Northern communities. The bridge is both a functional access path as well as a datum along which to register change and to understand the spatial-temporal consequences of climate change.







Terra Incognita in Alaska.

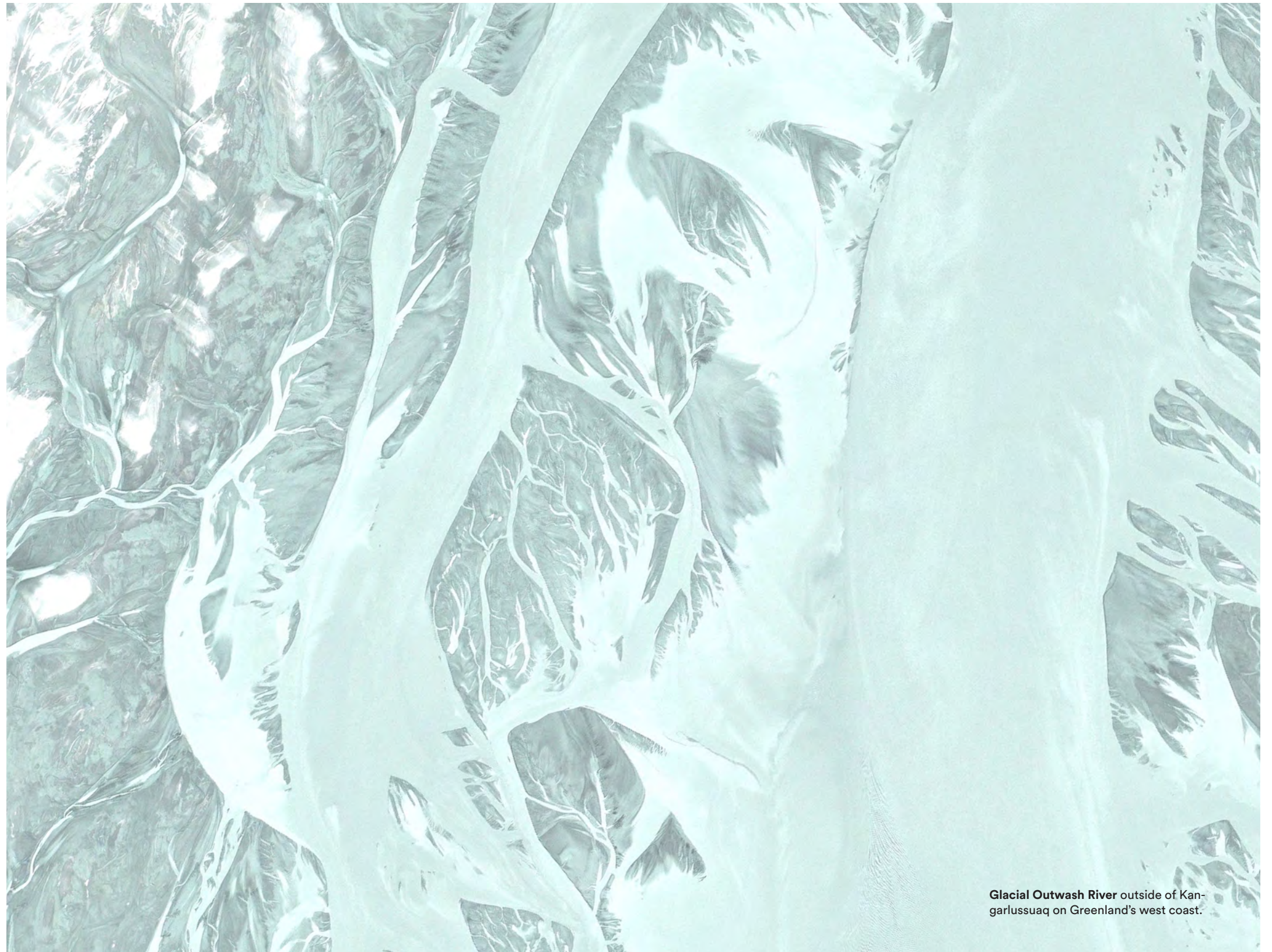


On-Structure Community. Concrete, Salt, Wax, Chipboard, Piano Wire, Epoxy

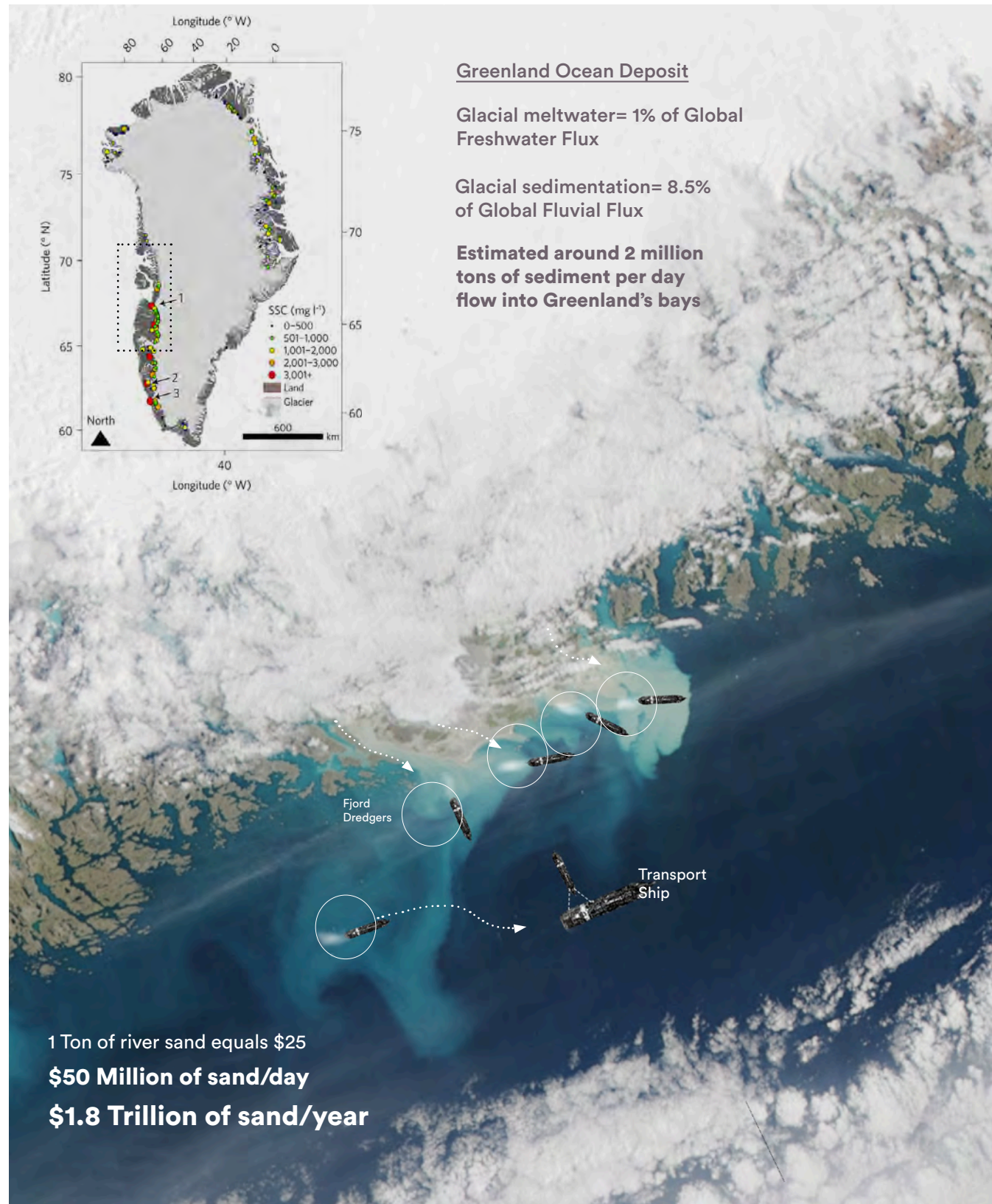
## The Global Mud Commons

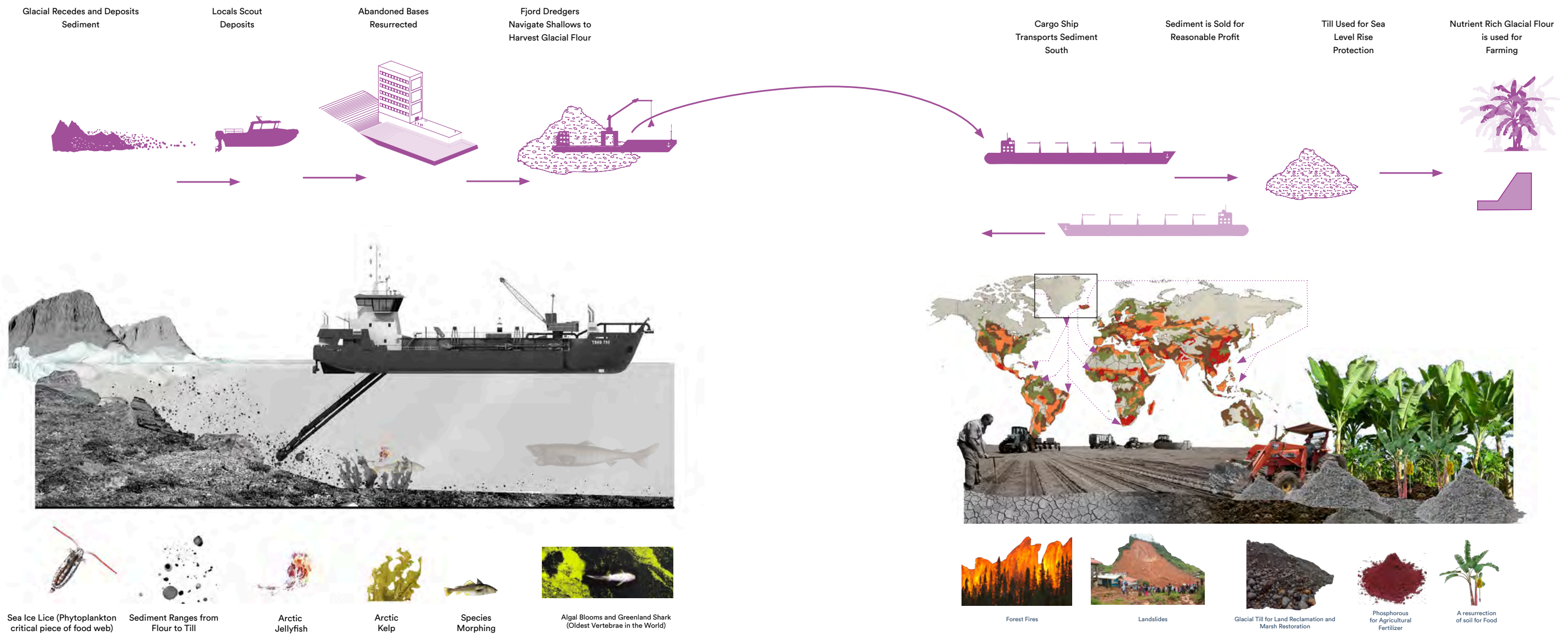
How can we put climate change to work mitigating the effects of its own destruction?

Greenland is covered by the 2nd largest body of ice in the world and contains the largest Laurentide Ice sheet remnant in existence (with ice as old as 1 million years). As the climate warms these glaciers are retreating from their terminus in the fjords and depositing a variety of silts, sands, and glacial flour into the ocean. There is a fascinating opportunity to capitalize on these consequences of climate change to study and harvest these glacial depositions for human use and ecological good.



**Glacial Outwash River** outside of Kangarlussuaq on Greenland's west coast.







**Kangarlussuaq Dredge Headquarters**

67°00'26.0"N 50°42'56.9"W

Industrial operations can be coupled with infrastructure that supports tourism. Here the dredge docks and access walk ways allow for tourists to gain access to the glacier while the landscape remains a functioning resource extraction site.





Glacial River Greenland. Source: Olaf Otto Becker



Glacial Sediment Extraction,  
Greenland Fjord. Concrete, Salt,  
Wax, Chipboard, Balsa Wood, Sand

## Conclusion



Flag of the Arctic Commons. There is not a single nation that uses the color pink in their flag. Pink is used as a symbol of peace and equality in many other flags.

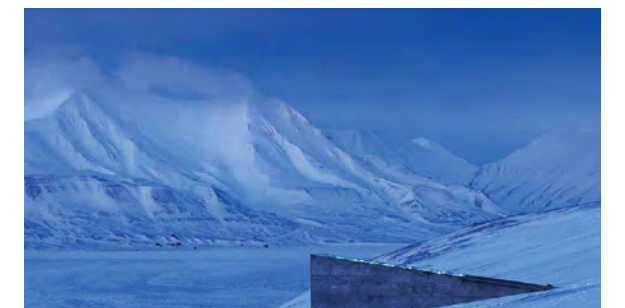
### FINDINGS

The primary objective of this phase was to visualize the moral imperative for action and propose site-based design intentions. The moral imperative was communicated through a visceral chronological timeline illustrating the three main phase shifts that have reshaped and are reshaping the Arctic; the crossing of the Bering Strait, Modernization, and Climate Change. The collage is a critical history of how humans have engaged the landscape of the Arctic and ultimately led it to the brink of destruction. The cliff of climate change is a slipping out beneath our feet, humankind can decide to further erode the base of the cliff or decide to stabilize the cliff. The timeline helped describe the basis for the undertaken this complicated question, but more than anything it proves that representation is an important tool for landscape architects. It's easy to create visceral imagery, but the most important thing to keep in mind is the imagery needs to tell a story and explain the unknown.

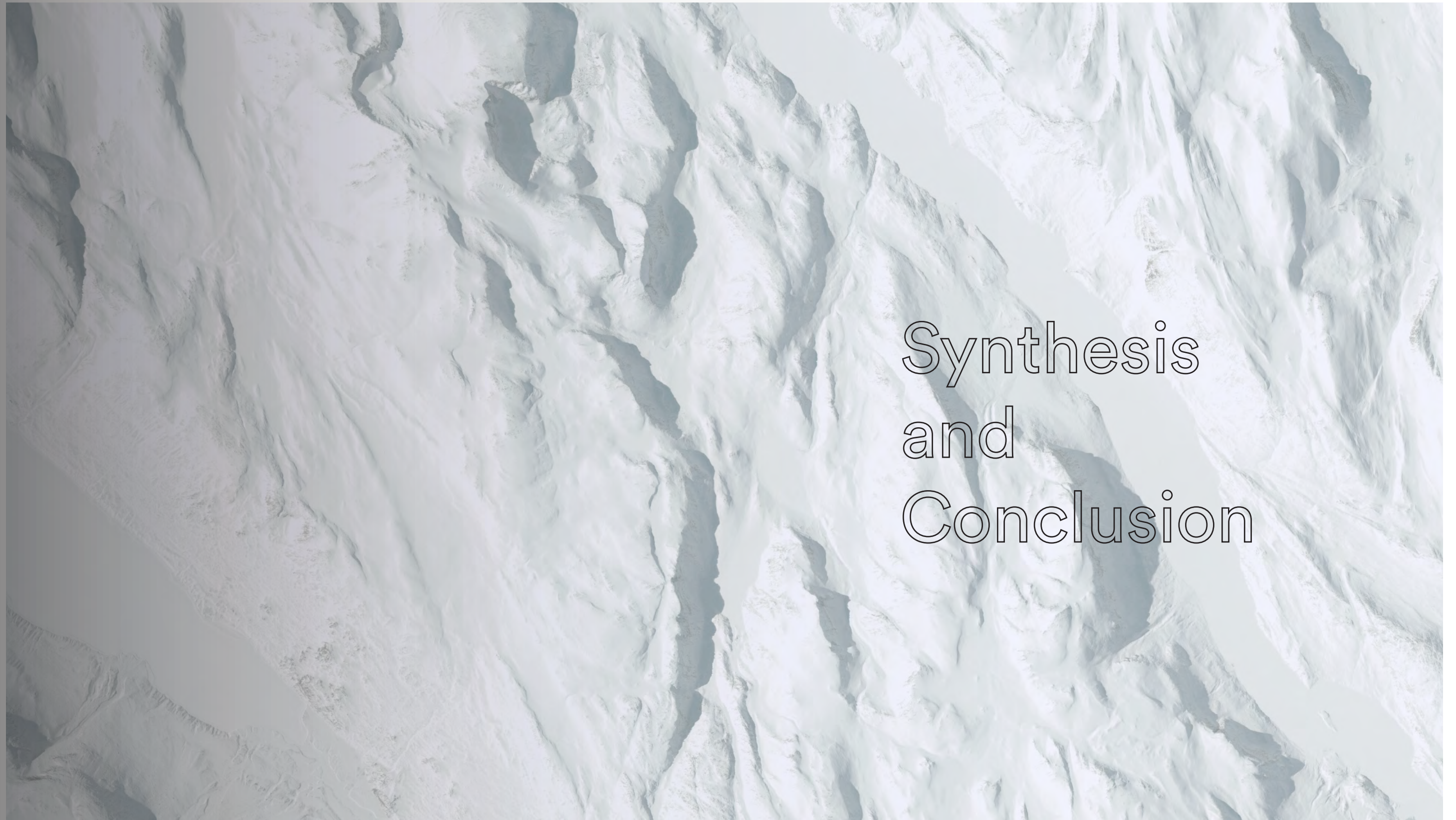
### ASSESSMENT

The series of vignettes depict scenes of co-habitation between indigenous hunter and researcher, community and abandoned infrastructure, tourism and industry, or logistics and the sublime. These perspectives provide a new entry into the project that is vital to understanding how the theoretical proposition of the commons is manifest in occupiable spaces. In each view there is a trio of three parts; the everyday use, the unique phenomena, and the dialectical infrastructure that binds the two. In this series of drawings background images were used that depicted an unoccupied scene of the contemporary Arctic sublime, the photographs are haunting and beautiful but perpetuate an idea that the North is still empty when in fact the sea in those pictures most likely contains particles of plastic from Marlboro cigarette butts flicked into the water in Florida. The idea of the contemporary sublime in the Arctic is linked to the perception of change, but the temporal change is operating not at a seasonal timescale but a geologic scale. Each year the landscape is assumed a new unrecognizable form due to the effects of climate change. The drawings suggest an occupation of this instant geologic change and imagine ways that new cultural traditions merge with the deeply spiritual cultural traditions of history.

Pierre Hughe, Xavier Veilhan, *A journey that wasn't 2005*. An instance where infrastructure transcends its original purpose (as navigational tool) to become a shrine to the local phenomenon and barometer of seasonal change. Source: US Coastguard, Lauren Jorgenson.



*The Global Seed Vault: the cutting edge of the Arctic sublime.* A sharp concrete wedge juts out of the tunnels of an abandoned coal mine in Svalbard, Norway. The seed vault stores and protects 864,309 seeds in case of a global emergency. In 2017 the seed vault flooded due to effects of climate change and increased permafrost melt. Source: Jim Richardson



# Synthesis and Conclusion



# Final Thoughts

## QUESTION

How do we make the Arctic Commons a reality?



## BY ALL, FOR ALL

To implement the Arctic Commons would require a massive amount of political action and unprecedented displays of compromise from all nations who stand to profit from the exploitation of the Arctic. Despite the lack of historic precedent The Arctic is the most well suited place to test this new form of international governance. One of the critics put it best “This is not utopian, this is essential”. If the Arctic is going to be managed and exploited for its resources it must serve the greater good of humankind which is directly linked and interdependent with the ecologies that come with it. The Arctic cannot be thought of as an empty *terra nullius*. We must begin to think in the terms of TERRA OMNIS where all land is understood as being part of a larger common heritage of humankind. We need new methods of creating boundaries for management. These need to respond to physical conditions as well as flows of species and ecological shifts. The Arctic Commons must serve to ensure resources in the region remain intact for future generations.

# Declaration of the Arctic Council

On the forming of  
*The Arctic Commons*

A Joint Declaration By first peoples of the north: The Aleut International Association (AIA), Arctic Athabaskan Council (AAC), Gwich'in Council International (GCI), Inuit Circumpolar Council (ICC), Russian Association of Indigenous Peoples of the North (RAIPON), Saami Council (SC) and the colonial nations of Canada, The Kingdom of Denmark, Finland, Iceland, Norway, Russian Federation, Sweden, and the United States of America, with all global nations as participants and collaborators.

The People signatory hereto,

Having subscribed to a common program of purposes and principles embodied in the Joint Declaration for a truly circumpolar Arctic territories for their persistence, protection, and management. Mark this date June 21, 2020 the beginning of a new global paradigm dedicated to transnational kinship and perpetual peace among all, humans, non-humans, and more than humans.

Being convinced that climate change poses a planetary threat to the perseverance of human kind and devastating consequences to the global ecosystems it is imperative to come together as a unified whole in the effort to responsibly manage and develop our far northern territories to ensure future generations the equal rights to life, liberty and security of person.

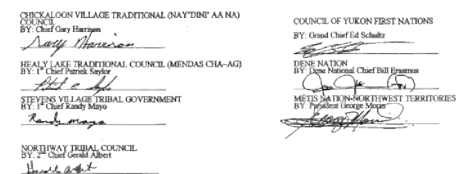
### Declare:

- (1) Each territory pledges itself to employ its full resources, scientific, economic, or infrastructural, in full cooperation of international efforts to cultivate a healthy, vibrant Communal Arctic Landscape that honors the regions traditions and ways of life.
- (2) Each territory pledges itself to peaceful, interactive, and transnational political participation in the management, development and protection of the fragile and vital global ecosystem of the circumpolar Arctic.

3) Each territory pledges itself to transition from a militarized and armed Arctic presence into a logistical support, scientific monitoring, and ecological stewardship mindset. Each territory will work cooperatively to transition existing infrastructure into modern and transnational shared resources.

4) Each territory pledges to prioritize needs and livelihoods of the people inhabiting the Arctic Commons. Economic gains sought through the development of the North shall be distributed through back to the Arctic peoples and environment through infrastructural grants and ecological assistance.

The foregoing declaration may be adhered to by other nations which are, or which may be, rendering material assistance and contributions in the endeavor for world peace and a justly managed balance between all living things.



# References

Aardse, Hester, and Astrid van Baalen. Findings on Ice. Pars Foundation, 2007.

Allen, Stan, and Meredith Baber. Infrastructural Monument. Princeton Architectural Press, 2016.

Anderson, Alun M. After the Ice: Life, Death, and Geopolitics in the New Arctic. New York: Smithsonian Books, 2009.

Arctic Council, arctic-council.org/index.php/en/.

Baldauf, Anette. Spaces of Commoning: Artistic Research and the Utopia of the Everyday. Sternberg Press, 2016.

Bellanger, Pierre. Landscape as Infrastructure: a Base Primer. Routledge, 2017.

Berman, Marshall. All That Is Solid Melts into Air: the Experience of Modernity. Simon and Schuster, 1982.

Byers, Michael. Who Owns the Arctic? Understanding Sovereignty Disputes in the North. Harbour Publishing, 2014.

Bendixen, Mette, et al. “Greenland: Build an Economy on Sand.” Science, vol. 358, no. 6365, 2017, doi:10.1126/science.aar3388.

Certeau, Michel de., et al. The Practice of Everyday Life. University of Minnesota Press, 1998.

Chester, Sharon R. The Arctic Guide: Wildlife of the Far North. Princeton University Press, 2016.

DEW Line, lswilson.dewlineadventures.com/memories/.

DEW Line Adventures, www.dewlineadventures.com/.

Dubord, Guy. “Society of the Spectacle”. (Black and Red, Detroit), 1977.

Emmerson, Charles. The Future History of the Arctic. New York: Public Affairs, 2010.

Easterling, Keller. Extrastatecraft: the Power of Infrastructure Space. Verso, 2016.

Easterling, Keller. Organization Space: Landscapes, Highways, and Houses in America. MIT Press, 2001.

Graham, James, et al. Climates: Architecture and the Planetary Imaginary. Lars Müller, 2016.

Kant, Immanuel. Perpetual Peace. Penguin, 2009.

Kohei, Saito. Karl Marx’s Ecosocials: Capitalism, Nature, and the Unfinished Critique of Political Economy. Dev Publisher, 2018.

Kroon, Aart, et al. “Deltas, Freshwater Discharge, and Waves along the Young Sound, NE Greenland.” Ambio, vol. 46, no. S1, 2017, pp. 132–145., doi:10.1007/s13280-016-0869-3

Linebaugh, Peter. The Magna Carta Manifesto: Liberties and Commons for All, Abridged edition (Berkeley, Calif.; London: University of California Press, 2009).

Lopez, Barry. Arctic Dreams. Vintage, 2014.

Marx, Karl, et al. The Communist Manifesto. Penguin Books, 2002.

McHarg, Ian L., et al. Ian McHarg Conversations with Students: Dwelling in Nature. Princeton Architectural Press, 2007.

Misrach, Richard, and Kate Orff. Petrochemical America. Aperture, 2014.

Morton, Timothy. Humankind: Solidarity with Non-Human People. Verso, 2018.

Morton, Timothy. Hyperobjects: Philosophy and Ecology after the End of the World. University of Minnesota Press, 2014.

“National Snow and Ice Data Center.” Arctic People | National Snow and Ice Data Center, nsidc.org/cryosphere/arctic-meteorology/arctic.html.

Potter, Russell A. Arctic Spectacles: the Frozen North in Visual Culture, 1818-1875. University of Washington Press, 2007.

Shackleton, Ernest. Shackleton: the Polar Journeys. Wakefield Press, 2002.

Sheppard, Lola, White, Mason. “Many Norths: Spatial Practices in a Polar Territory”, (New York, NY; Actar, 2017).

Sheppard, Lola, and Maya Przybylski. Bracket (at Extremes). Actar Publishers, 2016.

Simpson, Leanne. “Restoring Nationhood: Leanne Betasamosake Simpson - YouTube,”, (Simon Fraser University, 2013)

Smith, Laurence C. The World in 2050: Four Forces Shaping Civilization’s Northern Future. New York: Dutton, 2010.

Smithson, Robert, and Jack D. Flam. Robert Smithson, the Collected Writings. University of California Press, 1996.

Tsing et al., eds., Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene (Minneapolis: Univ Of Minnesota Press, 2017).

Virilio, Paul, and Julie Rose. The Futurism of the Instant: Stop-Eject. Polity Press, 2011.

White, Jeremy, and Kendra Pierre-louis. “In the Arctic, the Old Ice Is Disappearing.” The New York Times, The New York Times, 14 May 2018, www.nytimes.com/interactive/2018/05/14/climate/arctic-sea-ice.html.

Zellen, Barry Scott. Arctic Doom, Arctic Bloom: The Geopolitics of Climate Change in the Arctic. Santa Barbara, CA:Praeger, 2009

