Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Laura Langridge
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Studio	
Name / Theme	Delta Interventions
Teachers / tutors	Frits Palmboom, Taneha Bacchin, Jan van de Voort
Argumentation of choice of the studio	To explore, through a design project, water-related issues for architecture within delta regions.

Graduation project	
Title of the graduation project	Ivalo Sandbanks
Goal	
Location:	Ivalo, Finland
The posed problem,	The town of Ivalo, Finland is located over 200km north of the Arctic Circle along the banks of a meandering river. This Ivalo River is a major part of the inhabitant's lives. Historically, the yearly flooding caused by ice breakup and snowmelt has nourished the land for agriculture. In this community there has been a wealth of experience and tradition of living with the river and the flooding it brings, however, as the community is developing, their ability to live with the yearly flooding has decreased. Flood embankments built in the 1980's are becoming fragile and are in danger of collapsing. As the community insulates itself from the river the connection between the river and the daily lives of the people is in danger of being lost – and with it – their ability to adapt to floods. In addition to the dynamic river environment the area experiences extended periods of cold, snow and ice, and 24 hour darkness or light depending on the season. These factors must also be addressed.
research questions and	By exploring built form in a highly dynamic environment how can the culture of river activity be connected to the life and knowledge of the community?

	The northern landscape of Ivalo has drastically shaped the spirit and psyche of the community. How can these same natural forces inform an architecture that reflects the spirit of the place? The people of Ivalo settled in the area in the 1700's because of annual flooding. These people were able to live with the flooding through the design of their architecture. What does living with floods mean today; how can the traditional values of living with water be explored in new architectural interventions? How can a building work with the natural cycles of the river?
design assignment in which these result.	In order to increase the activity on and connection to the river, a series of simple buildings dotted along the river will be designed. This will engage the existing culture of river activity found in and around Ivalo. The sandbanks surrounding Ivalo have been chosen as ideal locations to engage both the river, and the surrounding settlements. Each of these sandbanks will receive a program that engages the community in its area and increases porosity between the community and the river. In order to build in these unique locations, challenges such as changing seasons, extreme temperatures, sedimentation, 24 hour darkness, and flooding must be addressed. The buildings should be designed to function in all of situations with a special focus on the usability of the building during the flooding seasons.

Process

Method description

Layer Analysis – By using a 3x3x3 layer analysis of the site, a clearer understanding of the context can be achieved. The layers of occupation, infrastructure and landscape will be mapped in 3 historical times and at various scales. This will inform decisions and enable a better understanding of the ramifications of any design decision

Site Visit – Visiting the site will create a better opportunity to document locations and conditions. Instead of relying on second hand accounts or statistics, much more can be learned from experiencing a place first hand. A site visit will also give me greater opportunity to conduct local research unavailable through books or the internet. The opportunity to meet with professors or experts related to development in Northern communities may also be a possibility.

Past References – By examining past projects many lessons can be learned.

Modeling – Through the use of physical models, materiality, special arrangement, and from can be explored in a tangible way.

Phenomenological analysis – a study of the perception or experience of a space. In the case of many northern communities, their identity is tied to the experience of the natural environment.

Literature and general practical preference

Text about Ivalo

The following texts are reports made by the Finnish Centre for Economic Development, Transport and the Environment. They aid in the understanding of the situation in Ivalo.

"Ivalon yksityiskohtainen tulvavaarakartoitus." Centre for Economic Development, Transport and the Environment, 2014.

"Tulvariskien alustava arviointi Paatsjoen vesistöalueella." Centre for Economic Development, Transport and the Environment, n.d.

These two texts go into detail about the flooding situation in town of Ivalo river. They covers the geography, history and current situation. The text focuses on the dialogue between the adaptive capacity of a culture and the way this changes as development progress.

Vuojala-Magga, Terhi, and Minna Turunen. "Experiences with an Arctic River." In Climate Change and Flood Risk Management, 190–221, 2014.

Tennberg, Monica, Terhi Vuojala-Magga, and Minna Turunen. "The Ivalo River and Its People: There Have Always Been Floods - What Is Different Now?" 221–61, n.d.

Texts on Winter development

Pressman writes about practical strategies for development in winter cities. He emphasizes a need to enhance winter conditions instead of fighting against them. Strategies for creating microclimates and colourful landscapes are discussed.

Pressman, Norman E. "Sustainable winter cities: Future directions for planning policy and design." *Atmospheric Environment* 30, no. 3 (1996): 521–29.

Dunin-Woyseth, Halina. "Genius Loci: Planning and the Winter Dimension: A Review Article." *The Town Planning Review* 61, no. 3 (July 1990): 341–56.

Precedent Projects

Erskine's Design for Resolute Bay, Canada

This is an early design for a community in the High Arctic in Canada. Although there were good intentions, there were many problems that provide a rich base to further the discussion about development in arctic regions.

Marcus, Alan. "Place with No Dawn: A Town's Evolution and Erskine's Arctic Utopia," 283–310, 2011.

Liquid Commons, Lateral Office

This project highlights a new mindset surrounding development in Northern communities. Instead of focusing on fighting the cold, the project aims to connect remote villages by using the unique conditions of cold and ice.

Kyororo Museum

This project is built in a location which receives extreme amounts of snow. The building is built as a fortress which becomes encased in snow. It almost disappears apart from a tower element that acts as a landmark.

Reflection

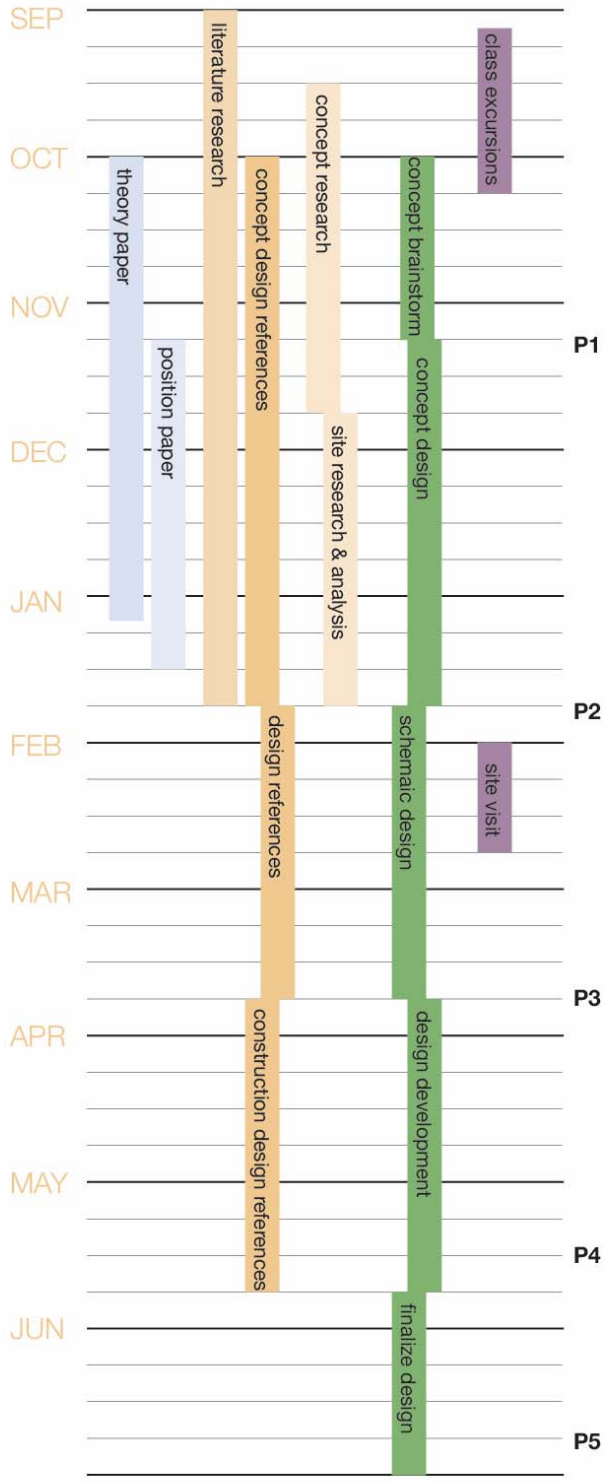
Relevance

The Delta Intervention seeks to study the built environment in areas of the world affected by water. Climate change is altering the environment in which we build. In the future, there will be an increasing challenge of living in close proximity to rising sea levels and increased flooding. Arctic environments are especially susceptible to these changes.

The case of Ivalo offers a unique chance to experiment with the built environment in a dynamic natural environment. As the push for 'living with floods' increases, cases such as this (locations which have had a strong precedent of living with water) may help to develop strategies that can be used in various other situations.

In addition to this, the need in many northern communities is to develop a unique language of architecture that is not merely a direct translation of 'southern' ideals but that is directly responsive to the environment and culture of these unique landscapes. Learning to build with natural forces may benefit northern communities and connect them to their landscape and heritage.

Time planning



Design in Arctic Communities

AR3U022

By Laura Langridge 4420098

Abstract

In the early 1970s Ralph Erskine was commissioned to design the new arctic settlement of Resolute Bay, a remote location in Northern Canada. Erskine's design was indicative of an attempt to create a unique language of the North while dealing with the practical concerns of climate. His attitudes towards designing in a cold climate were also mirrored by Norman Pressman in his practical guidelines "Sustainable winter cities: Future directions for planning policy and design." Both of these emphasize the need not only for climactic comfort but also for a language and identity of place. Modern examples of work in arctic regions also mirror some of these aspirations, but also challenge the prevailing thought of architects such as Erskine. By reviewing the theory of Pressman and the project by Erskine and comparing them to a modern project by Lateral Office, this paper aims to highlight some key considerations for design in northern communities.

Introduction

In the early 1970's Ralph Erskine was commissioned to design the new arctic settlement of Resolute Bay[1], a remote location in Northern Canada. This project was an attempt by the Canadian government to create an architecture that was specifically tailored to the unique situation of the North. The specific needs of winter communities and the planning of these projects was not something that had been given the same considerations as the planning of more southern communities. Erskine was a pioneer in these attempts as was Norman Pressman in his writing of very specific guidelines on the same topic.

Read together, these works emphasize the struggle to find a language that adequately addresses the unique culture and landscape of these places in from the early 70's to the 90's. Today, although work in northern communities is still not given the same consideration as development in more southern locations, work to develop appropriate responses to the unique challenges of landscape, politics and culture are ongoing. Projects such as Liquid Commons by the Toronto based, Lateral Office, build on previous work in northern communities while taking a fresh perspective on many of the issues in these communities.

Pressman's Design Guidelines

(i) Need for a Unique Northern Design

Pressman begins his paper on design in Northern communities by highlighting the unique landscape which does not only act as a source of beauty, but also changes the psyche of the people who live in these communities. The landscape and environment give these places their spirit. Pressman proposes that the genius loci or 'spirit of place' stems from the unique conditions of the natural environment in these situations. Pressman is critical of the trend towards an international style of architecture which creates homogeneous environments weather in Helsinki, Toronto, or Los Angeles. He states, "In the face of increasing architectural homogeneity both in arctic as well as in temperate climates, a special effort will have to be made if a regionally based, northern urban form is to emerge."[2] The changing of seasons, snow, ice, rain, fog, trees rocks, ponds, rivers, lakes, northern lights, midnight sun have moulded the northern psyche. There is a distinctive need to develop a unique langauge of architetcure in northern communities.

(ii) Outline of Practicle Guidlines

From this initial understanding of the situation, Pressman goes on to put forth a series of very practical guidelines for designing in a winter situation. He begins with 10 considerations for planning in northern communities. The guidelines that Pressman puts forth, he notes, would be applicable in any extreme climate condition. The main principals to be observed are that the urban space would have year round usability, contact with nature, user participation, and cultural continuity. Pressman's guidelines are as follows[3]:

1. Compact urban form
2. Orientation of footpaths
3. Enclosed residential courtyard concept
4. Climate simulation modeling
5. Utilize energy efficient principles
6. Provide high-order community services
7. Plan for either total or partial climate-protection
8. Understand the social determinants of design
9. Develop an "Aesthetic for The North"

[1] Marcus, *Place with No Dawn: A Town's Evolution and Erskine's Arctic Utopia (2011),* 288.

[2] Pressman, *Sustainable Winter Cities: Future Directions For Planning, Policy and Design* (1996), 522.

[3] Pressman, *Sustainable Winter Cities.*

10. Test innovative ideas.

Each of these guidelines attempts to enhance the favourable qualities of the winter landscape and climate while protecting against the unfavourable elements. When examined in more detail, many of these guidelines suggest a strategy of design which "walls-out" the surrounding unfavourable conditions. Footpaths, streets and dwellings should be orientated to "mitigate against adverse climatic forces." [4] Courtyards and enclosed public spaces are suggested in order to create zones separate from the extreme natural environmental conditions. Creating microclimates with marginally more comfortable spaces seems to be the main ambition. Considerations of sustainable measureas and one point that touches on the social aspects of northern communities are also present.

In addition to this list of general guidelines, Pressman provides nearly two pages of beneficial physical interventions. These relate to the visual environment, human comfort, protective urban devices/strategies, recreation and leaisure and transportation.

All of these guidelines and examples of interventions are aiming to create a healthy urban environment. Public activity is encouraged, vibrant colours and warm elements are used to create a more cheerful and confortable environment. The underlying aim of these interventions is to bring a colour, warmth, and activity to a dark and uneventful time of the year.

Each of these guidelines can be seen in various degrees in the work of Erskine. Pressman cites Erksine as an architect who "has been the eminenet pioneer calling for a unique "cold-climate" urbanism." [5] Erskine's struggle deals with an actual built environment and Pressman deals with guidelines and generalities. There are some clear crossovers between the methodologies of both, however, as can be seen from the completion of a project, there are also shortcomings these methedologies.

Resolute Bay

(i) Project Background

Resolute Bay, or Qausuittuq, in the Canadian High Arctic archipelago is a small community of 250 people. In the 1970's, Resolute Bay was home to two very distinct populations. A major supply airbase for the High Arctic employed a transient population of military personal from more southern regions of Canada. This base was being considered for an expansion of resource exploration and extraction operations [6]. The other population was composed of a collection of relocated Inuit people from various locations. They had been moved multiple times at the whim of the Canadian government. These people who found themselves in a new location lived largely off the discarded materials from the airbase. Poverty, alcoholism and prostitution were common among the Inuit population[7].

Figure 1. Location of Resolute Bay

In the 1970's, in an effort to improve living conditions in the settlement of Resolute Bay, the

[4] Pressman, *Sustainable Winter Cities,*

[5] Pressman, *Sustainable Winter Cities,* 523.

[6] Marcus, *Place with No Dawn,* 288.

[7] Marcus, *Place with No Dawn,* 300.

Canadian government commissioned Ralph Erskine to design a new town in Resolute. Erskine was an architect who had worked largely in Sweden and was known for his climate responsive designs and social housing projects[8].

Erskine's design for Resolute Bay began with the intention of integrating the otherwise separated Inuit and 'white' populations. There was a complicated relationship between these communities and the Inuit population had been relocated several times. There was also a vaslty different lifestyle and level of affluence between these two communities. The resettlement and integration between the Inuit and white populations provided many social challenges and this project aimed to balance the needs of both populations and integrate these distinct cultures in one settlement.

In addition to these social issues, Erskine also saw the need to establish a unique northern language of

Figure 2. Ralph Erskine, view from the south of the proposed new Resolute Bay town design, c. 1973.

[8] Jull, *Architecture and Urbanism of Arctic Cities: Case Study of Resolute Bay and Norilsk*, 2

architecture. With the same intentions as Pressman, the goal was to create a comfortable winter city in an inhospitable condition.

(ii) Project Description

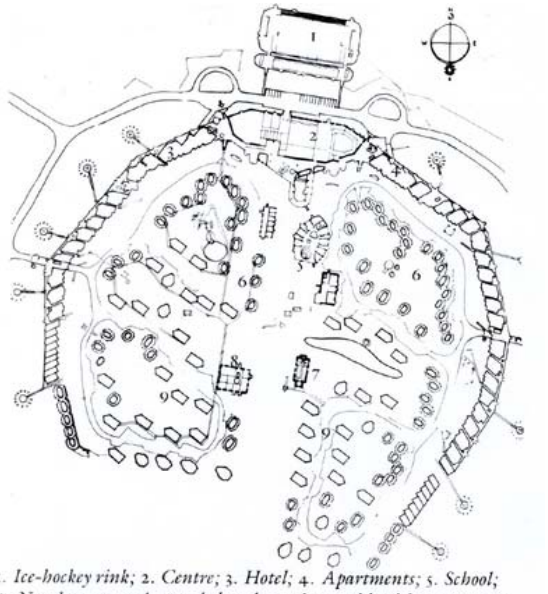
The design of the project began with the selection of a site. Blocking the harsh winter winds became a priority. This aligns with Pressman's very first guideline for winter city planning. He states, "inhospitable surroundings should be "walled-out" by clustering buildings[...]."[9] Erskine selected a site about a mile from the coast situated on a hill[10]. The hill was configured in such a way as that it would help to shelter the site from the harsh winds.

The same idea of shelter from the wind informed the very shape of the city. Instead of traditional walls which were used to protect cities from invaders, this project proposed a horseshoe shaped wall which would protect from the elements. Inhabited apartments would form this wall surrounding and protecting a collection of single family dwellings, a church and school. By doing this, Erskine was attempting to buffer the settlement from the natural environment and make a more hospitable condition inside the protection of the wall. In plan, we can see the southern end of the horseshoe is open to allow sun penetration into the central community area during the summer months.

In addition to the issues of wind, the long dark winters have a negative impact on the mental health of the inhabitants. Erskine renders his design in bright, vivid, and warm colours. Reds, oranges and yellows fill the interior of the settlement while cooler blues and greens can be seen on the outside. The image Erskine portrays is of a vibrant community within a stark white landscape. Pressman too emphasizes the need for colour to add life to an otherwise white or grey scenery.

Pressman suggests inclusing a reacreational componenet of the design which can be used in all seasons by all members of the society. Erskine also uses this strategy. Space has been proposed for winter activities. A skating rink for the traditional Canadian past time of hockey is planned to add public activity in the communal outdoor spaces.

The social arrangement of the community was an odd configuration. The surrounding apartments were to be occupied by 'white' inhabitants whereas the central homes were to be occupied by the Inuit. This lead to a bizarre social arrangement more suited to surveillance of the Inuit than to an integration between populations.



1. *Ice-hockey rink;* 2. *Centre;* 3. *Hotel;* 4. *Apartments;* 5. *School;*
6. *New houses;* 7. *A moved church;* 8. *A moved health-care centre;*
9. *Moved, improved houses.*

Figure 3. Ralph Erskine, site plan design for Resolute Bay, c. 1973.

Pressman makes reference to the need for social understanding of a community in his eighth guideline, *understand the social determinates of design*. He states, "for meaningful, user-reponsive designs to evolve, it is imperative to fully comprehend family structure, freindship networks and patterns, and community goals and include them as determinants of community form."[11] Erskine's design begins to fall apart when this aspect of the design is examined. It becomes clear that although there were good intentions of social

[9] Pressman, *Sustainable Winter Cities,* 523.

[10] Marcus, *Place with No Dawn,* 284.

[11] Pressman, *Sustainable Winter Cities,* 523.

integration, the ambitions fell short of their goals when the designer came with a pre-existing notion and the needs of the population was not understood fully.

(iii) Controversy and Social Issues

Although from the beginning this project was intended as an integrated design approach that worked with the Inuit population, it became clear that the project strongly preferenced the 'white' or 'southern' preconceptions of living in a cold environment and did not engage the Inuit values of an arctic life. In addition to this, although the project seemed to be in favour of living with the cold climate instead of fighting against it, the very basic design decisions are indicative of an attempt to "wall-out" the environment. This assumption creates a language of architecture which turns its back on the environment and neglects to engage with its unique environment.

An example of this conflict began with the very basic selection of the site. As was mentioned before, the settlement was built on a hill about a mile from the shore[12]. Moving the settlement away from the water gave a better view of the bay which was a desired, picturesque feature for the southerners. This however was entirely impractical for the inuit who's main livelihood depended on fishing and access to water. The easy access to boats was closely tied to their relationship to the land and their culture. All other Inuit settlements are located right along the shoreline for this very reason. By removing the settlement from the shore, the Inuit's access to their culture and way of life diminished

Not only the location of the project, but the very idea of walling the outside environment out of the city has its own problems. In a report on the project, it is stated, "the Eskimos were unanimously more interested in reducing the snow clearing problems (i.e., allowing the wind to penetrate the development), than in creating a wind shelter. 'Wind is part of Arctic life.' The whites were, on the other hand, very eager to get wind shelter."[13] The whole language of Erskine's project (and also Pressman's guidelines) maintain a mindset that cities will be better when the wind, an integral part of the arctic experience, is kept out in order to create microclimates. . There is a clear divide in the priorities of each population represented in this design with respect to their environment.

Review of Erskine and Pressman

(i) Lessons

Both Pressman and Erskine set out to engage the unique spirit of these nothern places. This is an important goal and an aspect of their work which should not be ignored.

Pressman starts with this strong aspiration. Most of his writing, in contrast, deals with very basic practical guidelines. It is worth noting however, that Pressman's guidelines were set out to aid in the deisgn of cities which have very difference conditions to those found in remote communities. Although there are differences, these guidelines were still seen as the way to design good northern communities. Considerations such as wind, warmth, social activities etc, which he prosposes are important aspects of creating healthy communities and should not be ignored. The sum of these individual elements will, however, not automatically add up to a good design.

(ii) Shotcomings

Erskine and Pressman seem to expect a one-to-one translation of southern ideals as long as microclimates are maintained. Northern communities are however, not the same as cities in southern regions. Similar goals such year round usability, contact with nature, user participation, and cultural continuity [14] (as listed

[12] Marcus, *Place with No Dawn,* 284.

[13] Boris Culjat, *Climate and the Built Environment in the North* (Stockholm: Avdelningen för Arkitektur, 1975), 92.

[14] Pressman, *Sustainable Winter Cities,* 523.

previously), are equally important, however, the excecution of these ideals cannot be simply a translation of the courtyard typology from soutern regions as Pressman suggests. Norhtern communities have a unique culture and way of life that is more complicated than simply labeling these places as cold. The main issue goes beyond tempurature.

Erskine's project falls short in this regard. The project neglected to focus on some of the most relevant cultural issues at hand and instead fixated mostly on the cold and wind. This lead to a project that did not function well for either population. The construction of the village bagan in the mid 1970s and was abandoned in 1978 after only one section of the horseshoe was completed citing a change in the market for natural resources.[15]

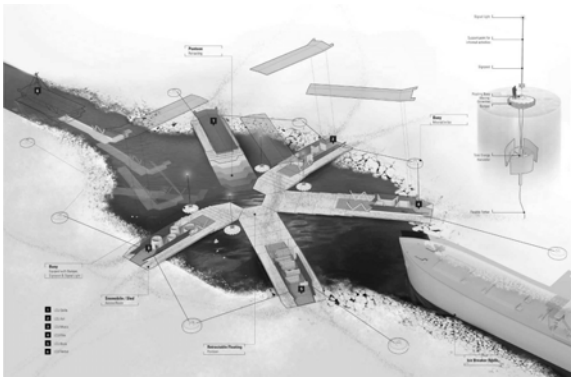


Figure 5. Mooring along the icebreaker route.

Liquid Commons

In contrast to the project by Erskine, a new project by the Toronto based, Lateral Office can be examined. This project does not focus on the mitigating the negative effects of winter and instead embraces the environment as it is and focuses on strengthening networks between isolated communities. Moving the focus away from the negative effects of the cold allows the designers more freedom to engage the culture and particulars of these remote northern communities.

The project looks at a series of small communities. There is a low level of education in these communities and high rates of unemployment. Especially durring the winter months these communities are highly issolated. In order to insrease the connection and flow of information between these places, a mobile library is proposed. This education centre will be designed as a ship that will travel between the communities during the warmer months. In the winter, the vast expanse of ice between these communities freezes. Traditional travel across the ice is blocked by large cuts in the ice which are maintained to allow shipping veicles traverse the Hudson Straight and reach ports in the winter months. In the winter, these mobile schools dock at nodes along the ice break. They provide meeting points in the landscape and also function as bridges across the cracks in the ice, connecting the issolated communities even durring the long cold winter months.

Figure 4. View at point of convergence / bridge.

This project exemplifies an engagement with the natural landscape which is uniquely northern. The aim is not to mitigate the cold climate (which Pressman devotes a large amount of energy), but goes beyond these goals to address relevant issues to the northern populations. The goal to engage the genius loci of the

[15] Marcus, *Place with No Dawn,* 306.

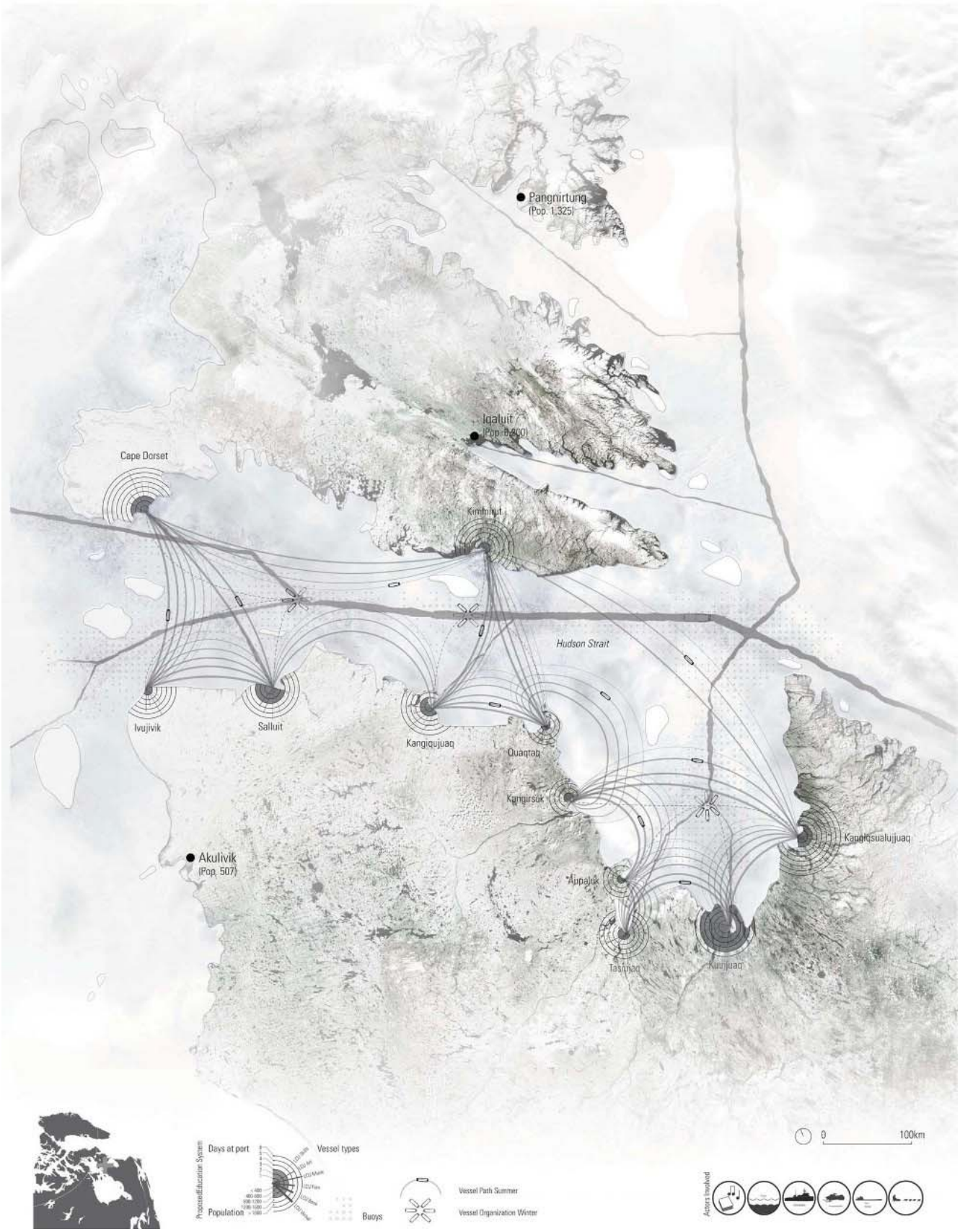


Figure 6. Liquid Commons Unit project map

landscape is carried out, not through a set of guidelines or physical interventions as Pressman suggests, but through a careful understanding of the cycles of the natural environment and the actual needs of the community.

Conclusion

Many proposals in northern regions are typical of an outsider's instinct to harsh climatic regions: to isolate the city from unfavourable forces. Southern ideals of planning become translated to northern communities with the notion that they could function in the same way as long as microclimates were sustained. Northern communities traditionally however, have a distinct culture that is closely tied to the environment. Native inhabitants have been finding ways of coexisting with their environment for centuries. People have been forced to develop effective housing typologies and settlement patterns that reflected their lifestyle and the land they inhabited.

Instead of focusing only on reducing the cold, it is important that interventions in Northern communities foster a sense of place by engaging the culture, climate, and traditions instead of isolating against them. Liquid Commons, a proposal by the Canadian based Lateral Office, searches to find ways to engage in the unique climatic conditions of the North and at the same time build upon the existing practices of the inhabitants.

In all of these projects, Erkine's, Lateral Office's, and Pressman's writing, is is clear that a unique langauge for nothern communities is still being sought. This langauge should engage the unique conditions of the northern environemnt. This language should be more complex than merely mitigating the effects of cold and needs to embrance the social and cultural complexities and particulars of these communities.

References

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Images

Figure 1. Own Illustration. Base map of arctic by FreeVectorMaps.com

Figure 2-3. Jull, Mathew. "Post-Occupancy Report: Ralph Erskine's Experimental Arctic Town." *Graham Foundation*, 2014. http://www.grahamfoundation.org/grantees/5153-post-occupancy-report-ralph-erskine-s-experimental-arctic-town.

Figure 4-6 "Liquid Commons Unit:Mobile Arctic School." Lateral Office, 2010. http://lateraloffice.com/LIQUID-COMMONS-UNIT-2010.