

## **Svalbard Expedition**

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<p>This thesis is a written report on how to organise a trip for a small group of people. This thesis was commissioned by HAAGA-HELIA University of Applied Sciences and the author of this thesis is tourism student from the Bachelor Degree Programme in Tourism Mikko Siikavesi.</p> <p>The objective of this thesis was to organise a trip to Svalbard for a small group of people. The purpose was to arrange a successful trip for the customers. In the future this trip could be implemented by any tour operator.</p> <p>A theoretical framework was based on literature of Polar Tourism and Tourism in peripheral areas as well as a guidebook of Svalbard. The activities that were implemented in this thesis can be sub-categorised as adventure tourism. Polar Tourism remains the main category because activities were executed in polar region.</p> <p>The aim of this thesis was to take a deeper look of how an independent tour operator can work in Svalbard. Which problems may occur and what rules and regulations may apply for non-resident tour operators. Also subjects such as how polar tourism is affecting the fragile environment are covered in this thesis.</p> <p>As a result of this thesis can be said that there are some restrictions for non-resident independent tour operators working in Svalbard. Many of the remote cabins that could be used for overnight base camps are not rented outside of the local tour operators. There are also restrictions for snowmobile routes for non-resident tour operators. Some routes are only available for unaccompanied visitors if they are taking part on an organised tour or accompanying a permanent resident. This thesis will give you an idea of things to consider when planning a trip to Svalbard.</p>	
<p><b>Keywords</b> Polar Tourism, Tour Operating, Adventure Tourism, Environment</p>	

## Table of contents

1	Introduction.....	3
2	Svalbard.....	4
2.1	General Information.....	5
2.2	History.....	6
2.3	Svalbard as a destination.....	7
2.4	Arctic Flora and Fauna.....	9
2.5	Climate & Weather.....	9
3	Polar Tourism.....	13
3.1	Tourism Sectors.....	13
3.2	Tourism affecting the environment.....	14
3.3	Polar Bears.....	15
4	Planning The Expedition.....	18
4.1	Itinerary.....	18
4.2	Special preparations.....	19
4.3	Schedule.....	20
5	The Svalbard Expedition.....	21
5.1	Day 1: Arrival.....	21
5.2	Day 2: Boat Trip to Pyramiden.....	23
5.3	Day 3: Trollstein over Lars glacier.....	26
5.4	Day 4: Foxfonna (Skiing).....	32
5.5	Day 5: Adventfjorden (Skiing).....	34
6	Post Expedition.....	35
7	References.....	36

# 1 Introduction

Svalbard is remote archipelago located in the far arctic. The largest wilderness area in the Europe is now accessible affordably from Scandinavia. This thesis gives any individual traveller or independent tour operator who is planning a trip to Svalbard an idea of what to expect and things to consider. This thesis introduces travelling to Svalbard from an independent traveller point of view.

This Svalbard expedition thesis gives a brief introduction of where Svalbard is located, about its history, and what to expect when travelling to Svalbard. It will give a traveller an idea of things to do in Svalbard as well as where to stay. It will give an idea of the price range Svalbard contains what comes to accommodation and activities. This thesis has information about rules and regulations of renting, handling and carrying a firearm which in Svalbard is essential since you are not allowed to leave the settlement without one. Weather and climate and what hazard comes with it are also covered in this thesis.

All the members of the group in this thesis are experienced travellers and have done various trips both on northern and southern hemisphere. So this thesis does not itemize passport, personal hygiene products or travel insurance, etc. as a gear that should be taken into consideration when planning a trip. These are considered as travel necessities in this thesis.

A theory of polar tourism and what benefits and challenges it brings to the fragile arctic environment will be covered in this thesis. It will give you a brief introduction of polar bears and their habitat as well as what to do and things to consider if you should encounter one while camping and travelling in Svalbard.

This thesis will give you an idea of things to consider when planning a trip to Svalbard. It will also cover what possibilities you have as an independent traveller or tour operator. Some things are only available for permanent residents and local tour operators so it is not possible to initiate all sorts of activities as an independent traveller. In this thesis you can also find a written report of the Svalbard Expedition.

## 2 Svalbard

This chapter introduces Svalbard as a destination in tourism point of view. The main focus will be on amenities, settlements, attractions as well as history. Some main weather conditions that are present in the Svalbard archipelago will be also covered in this chapter. The fragile flora and fauna of the arctic will also be covered as well as geographical location of the archipelago.

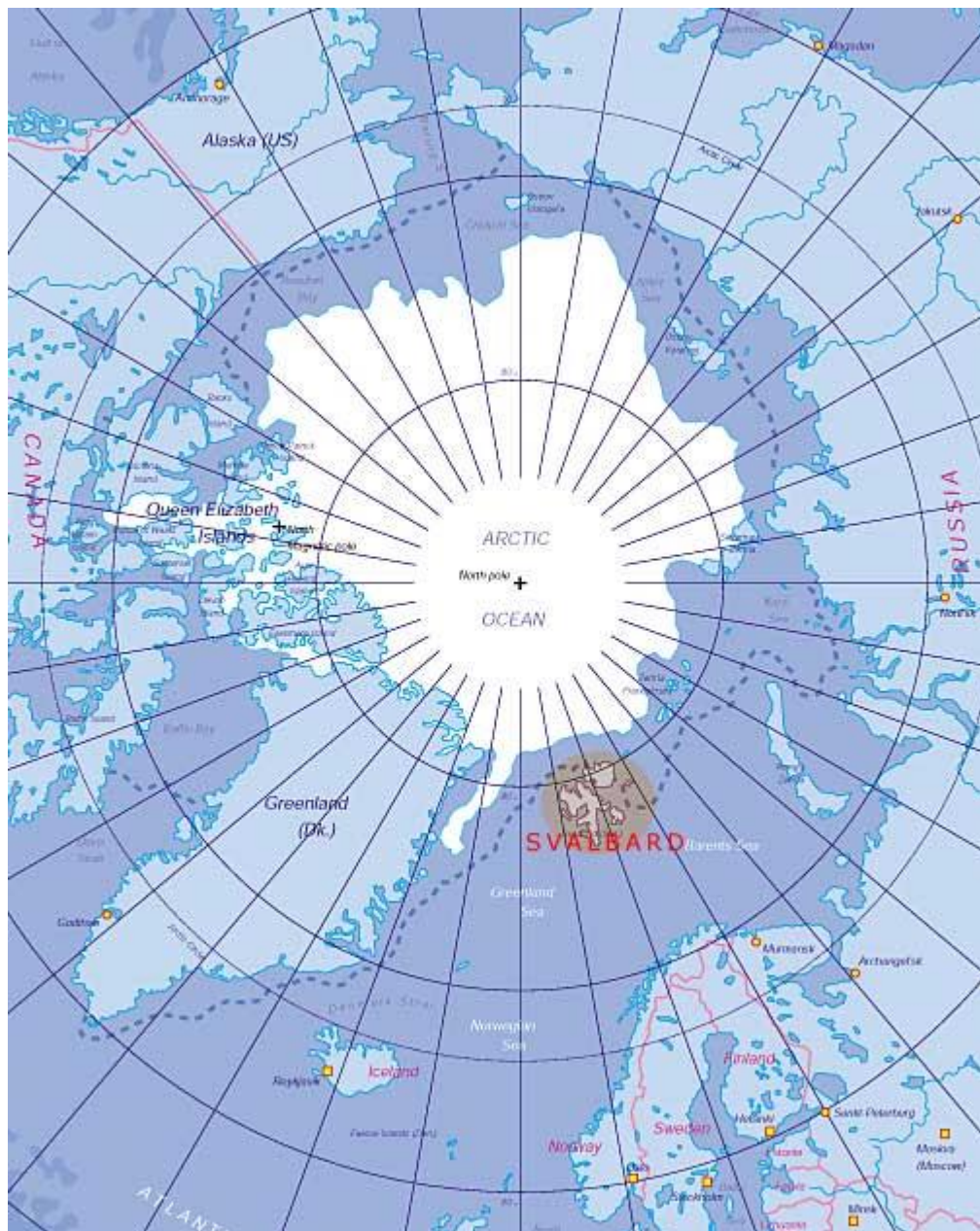


Figure 1. Map of Svalbard (Arctic portal 2015.)

## 2.1 General Information

Svalbard is the largest area of wilderness in Europe. Svalbard lies approximately 1000km south from the North Pole and 1000km north from mainland Norway in the middle of the Barents Sea. The archipelago area covers approximately 62,500 square kilometers with roughly 60 percent of the land area is covered by glaciation, 30 percent is harsh ground (rock, scree, moraines, fluvial sediments, etc) and remaining 10 percent is covered by vegetation. The archipelago of Svalbard consists of three main islands with Spitsbergen being the largest. Two other islands are Nordaustlandet and Edgeøya. Svalbard is almost entirely free of amenities such as urban infrastructure, restaurants and hotels. Only handful of these amenities are based in Longyearbyen on Spitsbergen island. Longyearbyen is the northernmost settlement of the world with approximately 2080 inhabitants. (Bradt 2013, VII, 3; Spitsbergen travel 2015.)

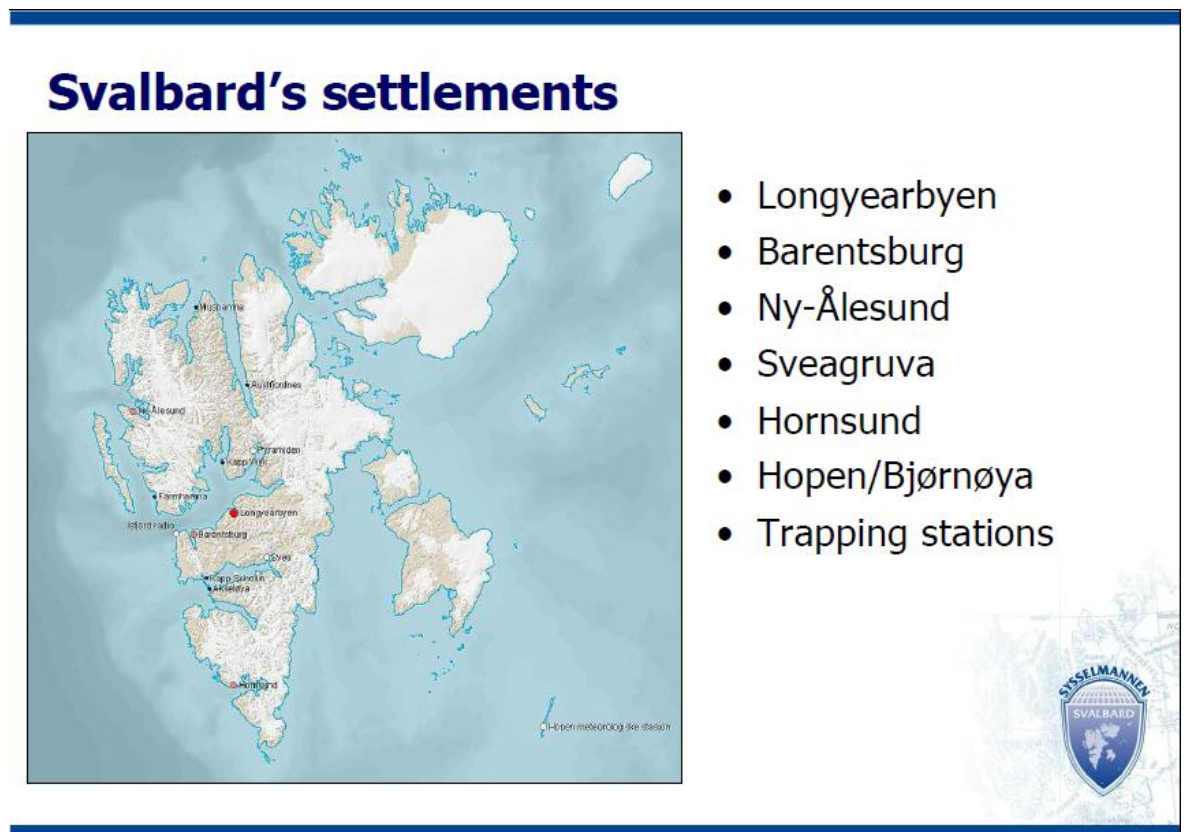


Figure 2. Svalbard's settlements (Unis 2015.)

Svalbard is the largest wilderness area in Europe and it holds the northern most capital of the world. The name Svalbard means cold coasts and it was first mentioned in the Icelandic texts in the 12<sup>th</sup> century. The primary difference comparing to more devel-

opment parts of the world is that Svalbard is almost entirely absent of route descriptions, accommodations recommendations or restaurants. (Bradt 2013, VII.) The Svalbard archipelago offers one of the widest arctic environments. It is estimated that there are approximately 3000 resident polar bears in the archipelago. (Visit Norway 2015.)

## **2.2 History**

Dutch explorer Willem Barentsz arrived in Svalbard in 1596 and named the largest main island Spitsbergen. After Barentsz' had discovered Svalbard it launched a long era of international whaling and trapping initiated mainly by Netherlands and England. During the peak time there were more than 300 ships operating around the archipelago waters. At the end of the 17<sup>th</sup> century the Dutch whaling industry alone had 150-250 ships that caught between 750-1250 whales. (Sysselmannen 2015; Unis 2015.)

From the beginning of the 18<sup>th</sup> century to mid 19<sup>th</sup> century the Russian overwinter trapping was important. The pomors from the northern Russia hunted mainly walrus but also reindeer, birds, foxes and polar bears. During the peak period more than 50 trappers stayed the whole year in Spitsbergen. (Sysselmannen 2015; Unis 2015.)

Research and expeditions played an important role in the Svalbard's history. Around 1830 started the series of well prepared and planned expeditions with a scientific aim to gather information of the outermost area of the known world. The locating of Svalbard in the far north also offered a good starting point for the expeditions to reach the North Pole. In between 1896-1928 a total nine expeditions to reach the North Pole started from Svalbard. (Sysselmannen 2015; Unis 2015.)

In the beginning of the 20<sup>th</sup> century the mining operations started in Svalbard when John Munro Longyear found Longyearbyen in 1906. The coal mining is the only mining activity that has lasted more than hundred years. The other short operations included extracting gold, led, copper, zinc, gypsum and marble. (Sysselmannen 2015; Unis 2015.)

### 2.3 Svalbard as a destination

Longyearbyen has approximately 800 beds for tourists and annual overnight stays are more than 86000. There are various accommodation options available for independent traveller in Svalbard most of them located in the capital settlement Longyearbyen. There are also few accommodations available outside of Longyearbyen. Few of them are located in the neighbouring settlement Barentsburg. One “Isfjord Radio” which is located 90 kilometres from Longyearbyen offers remote accommodation with very expensive price tag. There is also one accommodation called “Ship in the ice” which is only offered as a part of a snowmobile trip. The accommodations in Longyearbyen vary from pricing four star hotels to budget accommodation. The more expensive accommodations are located in the centre of the settlement close to other amenities such as grocery store, restaurants and bars. The budget accommodation is located outskirts of the settlement. There are few restaurants to select from while staying in Longyearbyen. Most of the restaurants are attached to the accommodations. These restaurants are also open for non-guests of the hotel. (Bradt 2013, 167; Visit Svalbard 2015.)

Around Longyearbyen there are various daytrip and attractions to choose from. The Global Seed Vault is just few kilometres from the town centre easily accessible by taxi. The seed vault storages tens of thousands of various Earth’s seeds. The entrance is prohibited for visitors but you can explore the outer parts of the vault. Several boat trips run from the harbour. Boat trips are arranged to the abandoned Russian mining town Pyramiden, Russian capitol Barentsburg filled with living history and to Bore Glacier. There are trekking trips to the nearby peaks. Kayaking can be done in the fjord. Dog sledging as well as snowmobile trips also run from Longyearbyen. (Visit Svalbard 2015.)

Hiring a rifle is essential if you wish to explore Svalbard on your own since you are not allowed to leave the settlement without one. Firearms may be hired at designated stores with a valid licence to carry a rifle or a certification of good conduct. Anyone who is carrying a firearm needs to have experience in the use of firearms. (Sysselmannen 2015.)



Hiring a firearm gives you more flexibility to travel independently. There are snowmobiles available for rent so you can go on designated routes on your own. There are various routes starting from Longyearbyen to explore the surrounding areas. As figure 3 shows there are some restrictions that apply for unaccompanied visitors with snowmobiles. For instance unaccompanied visitors are not allowed to explore the eastern shore storfjorden without taking a part in an organised tour or accompanying a permanent resident.

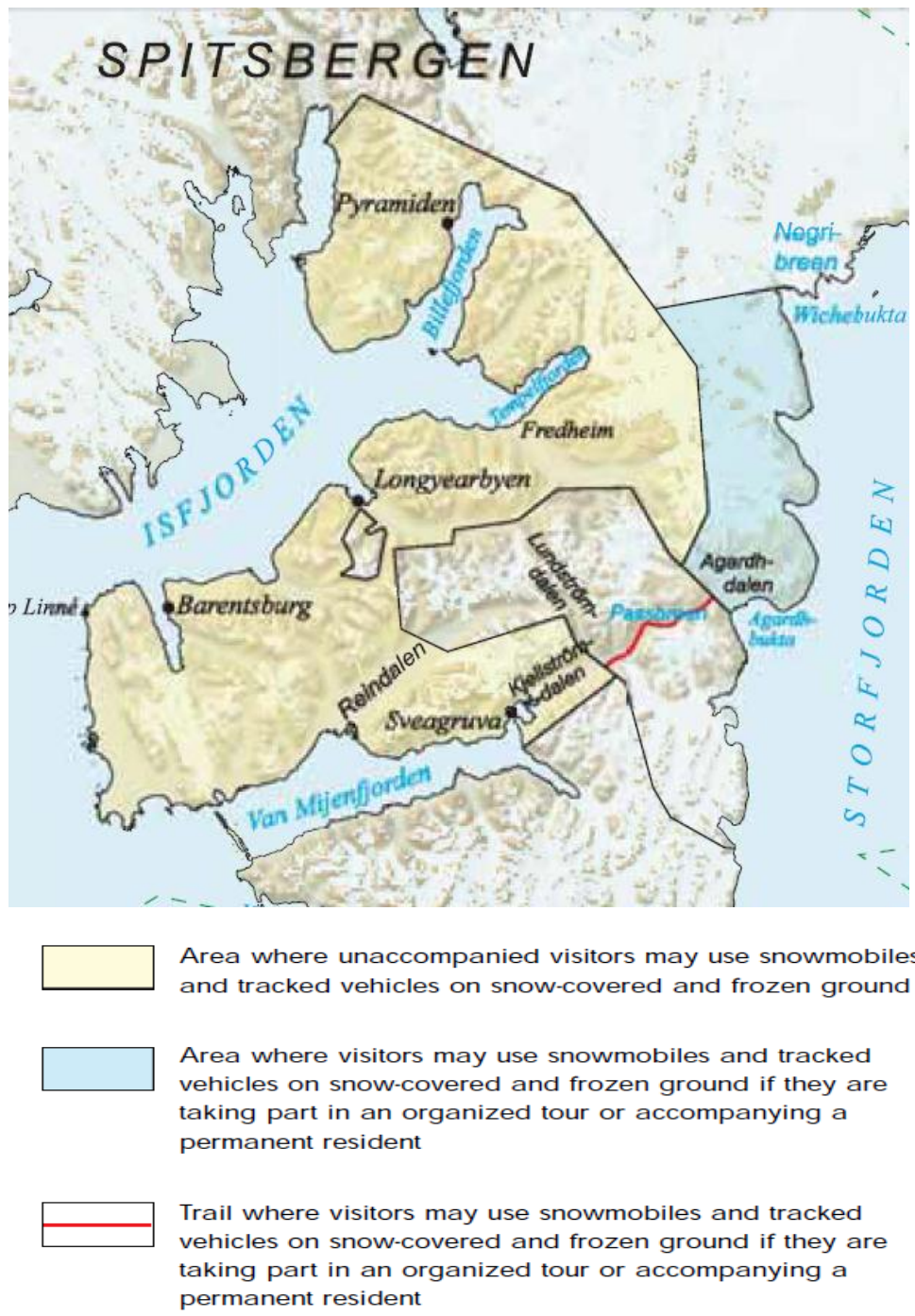


Figure 3. Snowmobile areas (Sysselmannen 2015.)

## **2.4 Arctic Flora and Fauna**

Approximately 60% of the Svalbard's terrain is covered by glaciers. Only 6-7% of the terrain is covered by any type of vegetation. Hardly anything grows in Svalbard because of the short growing season and that only the top metre of the soil thaws during the summer. There is also a very low annual average temperature in Svalbard which makes it hard for species to grow. Nonetheless there have been approximately 170 registered plants in the Svalbard area. (Visit Svalbard 2015.)

Most of the animal life in Svalbard can be found in the surrounding Barents Sea. The Arctic Ocean is a mixture of warm and cold water and therefore has a relatively high organic output. There is a high number of migrating birds in the North Atlantic region. Most common species that can be found are namely auk, kittiwake and fulmar. Most of the species in Svalbard are migrating during the summer months. The only bird that stays on Svalbard during the winter is Svalbard Ptarmigan. (Visit Svalbard 2015.)

There are 19 different species of marine mammals that can be found in the waters surrounding Svalbard. The Arctic Fox and Svalbard reindeer are the sole land mammals that naturally originate from Svalbard. Various seals can be found around Svalbard among others the ringed seal, the bearded seal, the common harbour seal and walrus. There are estimated 3000 resident polar bears in the Barents Sea area. More of polar bears and their habitat are covered in the chapter 3. Various whale species frequently visit Svalbard and the White Whale is the most common. (Visit Svalbard 2015.)

## **2.5 Climate & Weather**

Svalbard archipelago lies far in the arctic region and therefore the weather can be extremely cold, harsh and unstable. Weather can change very rapidly and the wind chill can lower the effective temperature to the very extreme as shown on the table 1 below. (Sysselmanen 2015.)

Table 1. Wind chill chart (Unis 2015.)

Wind force in Beaufort	Air temp.	5°	0°	-5°	-10°	-15°	-20°	-25°	-30°	-35°	-40°	-45°	-50°
	Metre/sec.	Index											
Light air to light breeze	1,5	4°	-2°	-7°	-13°	-19°	-24°	-30°	-36°	-41°	-47°	-53°	-58°
	3	3°	-3°	-9°	-15°	-21°	-27°	-33°	-39°	-45°	-51°	-57°	-63°
Gentle breeze to moderate breeze	4,5	2°	-4°	-11°	-17°	-23°	-29°	-35°	-41°	-48°	-54°	-60°	-66°
	6	1°	-5°	-12°	-18°	-24°	-31°	-37°	-43°	-49°	-56°	-62°	-68°
Moderate to fresh breeze	7,5	1°	-6°	-12°	-19°	-25°	-32°	-38°	-45°	-51°	-57°	-64°	-70°
	9	0°	-7°	-13°	-20°	-26°	-33°	-39°	-46°	-52°	-59°	-65°	-72°
Fresh breeze	10,5	0°	-7°	-14°	-20°	-27°	-33°	-40°	-47°	-53°	-60°	-66°	-73°
	12	-1°	-7°	-14°	-21°	-27°	-34°	-41°	-48°	-54°	-61°	-68°	-74°
Strong breeze	13,5	-1°	-8°	-15°	-21°	-28°	-35°	-42°	-48°	-55°	-62°	-69°	-75°
	15	-1°	-8°	-15°	-22°	-29°	-35°	-42°	-49°	-56°	-63°	-70°	-76°
Near gale	16,5	-2°	-9°	-15°	-22°	-29°	-36°	-43°	-50°	-57°	-63°	-70°	-77°
	18	-2°	-9°	-16°	-23°	-30°	-37°	-43°	-50°	-57°	-64°	-71°	-78°

Apart from the chilling conditions there are also other hazardous weather conditions that are present in the Svalbard archipelago. Frostbite is a medical condition that can develop when body parts are exposed to freezing temperatures. Frostbite is most likely to occur in the areas that are farthest from the heart, body parts such as face, fingers and toes. (Unis 2015; Wikipedia 2015.)

Whiteout is a weather condition where visibility is reduced by snow. The surface and the sky get mixed and you can lose orientation completely. The diffuse of light that is caused by cloudy sky can cause the entire ground definition to vanish. No shadows are cast and it is hard to see how far the snowy surface is. The steepness of the slopes will be hard to evaluate and horizon cannot be identified. Snow covered mountains, sloping ground, overcast clouds, horizon and ground surface can blend into one big saturated mix of whiteness. (Bradt 2013, 20; Unis 2015; Wikipedia 2015.)

Since Svalbard is located close to the North Pole the phenomenon of sunlight all around the clock lasts approximately four months from around 20<sup>th</sup> of April until 22<sup>nd</sup> of August. This phenomenon is called midnight sun or the polar day. During the winter polar nights are present from around 28<sup>th</sup> of October until 14<sup>th</sup> of February. During this period of time the sun doesn't rise above the horizon. (Bradt 2013, 21.)

The Arctic can be defined in few different ways. There is no one single official definition that is indisputable but a number of competing ones: Polar circle or arctic circle is probably the simplest definition to define arctic. Polar circle can be found at 66.5 northern latitude and defines a line at which the sun doesn't set for at least one night at the year. Other main definitions are treeline and 10 celsius isothermal line. Also marine salinity boundaries and distribution of permafrost can be taken into consideration when defining arctic. (Arctic System 2015; Bradt 2013, 18, 19.)

Another definition for arctic is treeline. Maybe more easily recognised and more accurate since not all areas of the world beyond arctic circle are equally arctic when it comes to terrain. Treeline though is only valid definition on land. In the arctic landscape there are no high-growing trees nor bushes. This vegetation type is called tundra. (Bradt 2013, 18, 19.)

The third definition for arctic is 10 celsius isothermal line. It is more theoretical but is valid both on land and on sea. This definition defines arctic all those areas where the long-term mean temperature of the warmest month (July) is less than 10 celsius. Like mentioned above there is no single official definition to define arctic but for instance in natural sciences usually the botanical treeline and ten celsius isothermal line makes most sense when drawing a definition line to describe the Arctic. (Bradt 2013, 18, 19.)

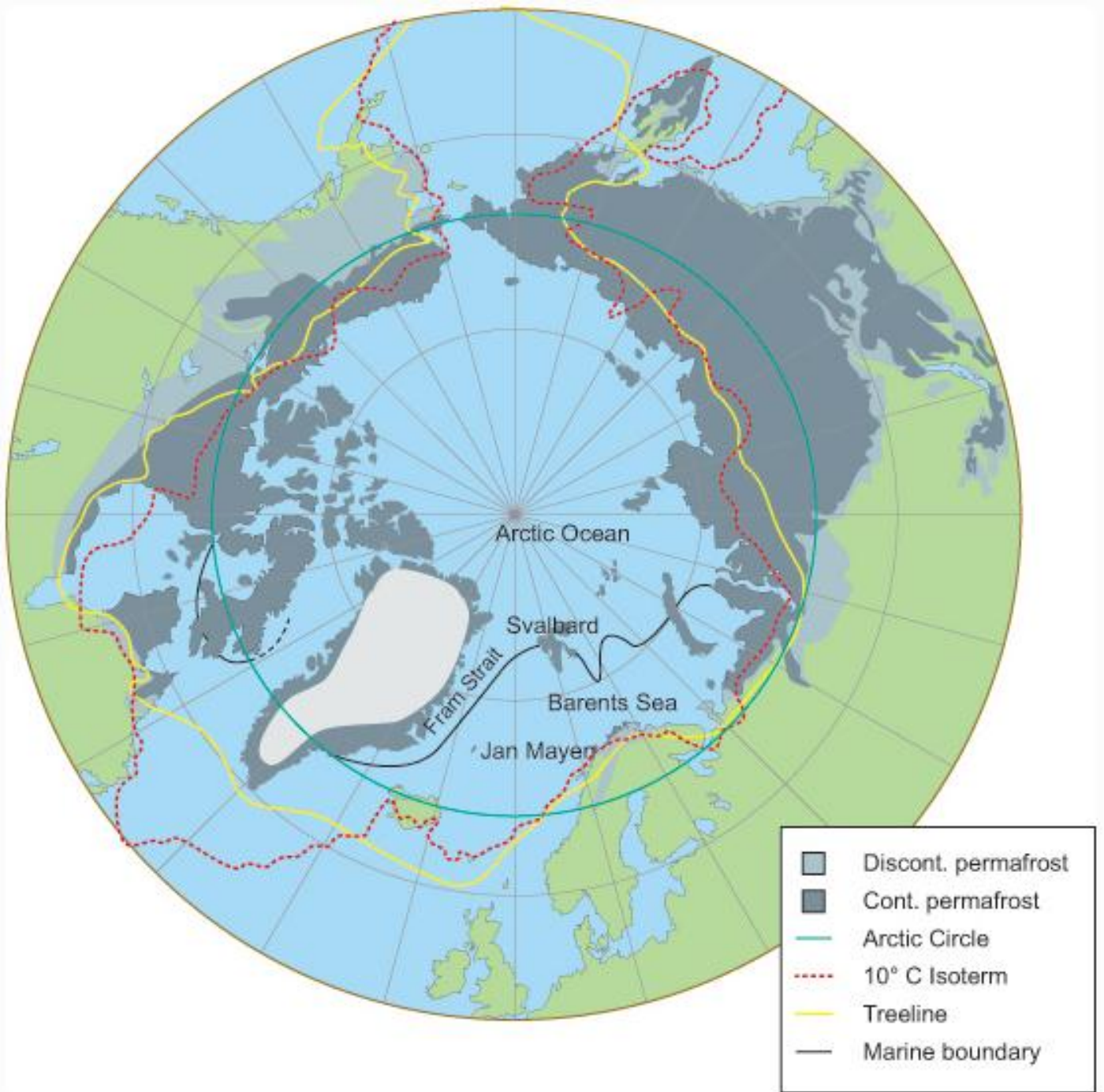


Figure 4. Arctic definitions (Arctic system 2015.)

### **3 Polar Tourism**

There are several ways to define tourism. The 1993 Chambers Dictionary defines 'tourist' as 'a person who travels for pleasure' and 'tourism' as 'the activities of tourists and those who cater for them, especially when regarded as an industry.' Polar tourism then is people who travel to Polar Regions for pleasure. (Stonehouse 2010, VII.)

Polar tourism can be categorised in several tourism markets and in their main attractions and the ways in which those attractions are experienced:

- Seaborne mass tourism
- Airborne mass tourism
- Nature tourism
- Adventure tourism
- Culture and heritage tourism

It is important to classify these tourism markets to understand the expectations of the tourists and the impacts resulting from these activities. (Stonehouse 2010, 30.)

#### **3.1 Tourism Sectors**

Seaborne mass tourism is a sector that offers sightseeing with a comfortable accommodation and a transport. The cruise ship industry is the single largest provider of mass tourism in the arctic regions. It has grown tremendously in the past few decades. Larger vessels and increased numbers of passengers provide evidence of the growth. (Stonehouse 2010, 30-31.)

Airborne mass tourism is a sector that provides fast transportation giving tourists more time to spend at the destination. It has increased the benefits of the cruise industry as well as local economies. There are more diversity of shore excursions as well as boat trips can be more flexible in terms of routing and scheduling. Cruise ship operators and airlines have synchronised their timetables to match passenger volumes and tourist marketing packages. (Stonehouse 2010, 35-36.)



Nature tourism is a sector that focuses for visitors observing wildlife in their natural habitat. The enormous wilderness areas and seasonally rich wildlife as well as tremendous migrations attract nature lovers. National parks, World Heritage Sites, marine sanctuaries and wildlife refuges are the main attractions for nature tourists. Wildlife, bird and nature photography, trekking, hiking, kayaking, cross-country skiing, snow shoeing and dog-sledding are some of the most popular activities among nature tourists. (Stonehouse 2010, 39-40.)

Adventure tourism is a sector that focuses on tourists who like experience challenges and personal achievements. Adventure tourism especially in the arctic can be fatal if you don't have the competence to cope in the harsh environment. Hiking long difficult paths, cross-country skiing long distances or white-water rafting wild rivers are some of the primary activities among adventure tourists. (Stonehouse 2010, 40-41.)

Culture and heritage tourism is a sector that focuses on tourists interested in the native history and cultural backgrounds. Culture and heritage tourists like to visit historic places and interact with the local people. Cultural heritage sites can vary from expedition huts, rock drawings, ancient graves, forts, townships, settlements, old mining towns, facilities of any kind or loose objects. (Stonehouse 2010, 121; Niku 2015; Visit Svalbard 2015.)

### **3.2 Tourism affecting the environment**

The recent changes in the environment can be distinguished into two different categories: "Those due primarily to cosmic events, including the constant redistribution of Earth's crust, and radical shifts in climate, some of which may be triggered or intensified by human activities. Those due primarily to human activities, whether for subsistence or commercial purposes, including hunting, prospecting, mining, landscape modification and tourism itself." (Stonehouse 2010, 61.) Tourism industry itself has caused significant environmental damage and intensified changes to already fragile polar environments. In his book Stonehouse provides evidence of the rapid growth of the cruise ship tourism. This brings a very real threat to marine incidents in the polar waters. An-

nually tens of thousands tourists visit areas that are normally free of human impacts. (Stonehouse 2010, 73-74, 101.)

### 3.3 Polar Bears

Polar bears are closely related to the brown bear, mainly demerging by the white fur. Some sources say that there are twenty different polar bear populations that are recognised whereas for example World Wide Fund for Nature (WWF) only recognises 19 populations (See Figure 4 below). It is estimated that there are 20 000 – 25 000 polar bear individuals at the moment. The polar bears in this section are referred to as the Barents Sea population. The Barents Sea population consists approximately of 3000 bears. (WWF 2015; Polar Bear Safety 2015.)

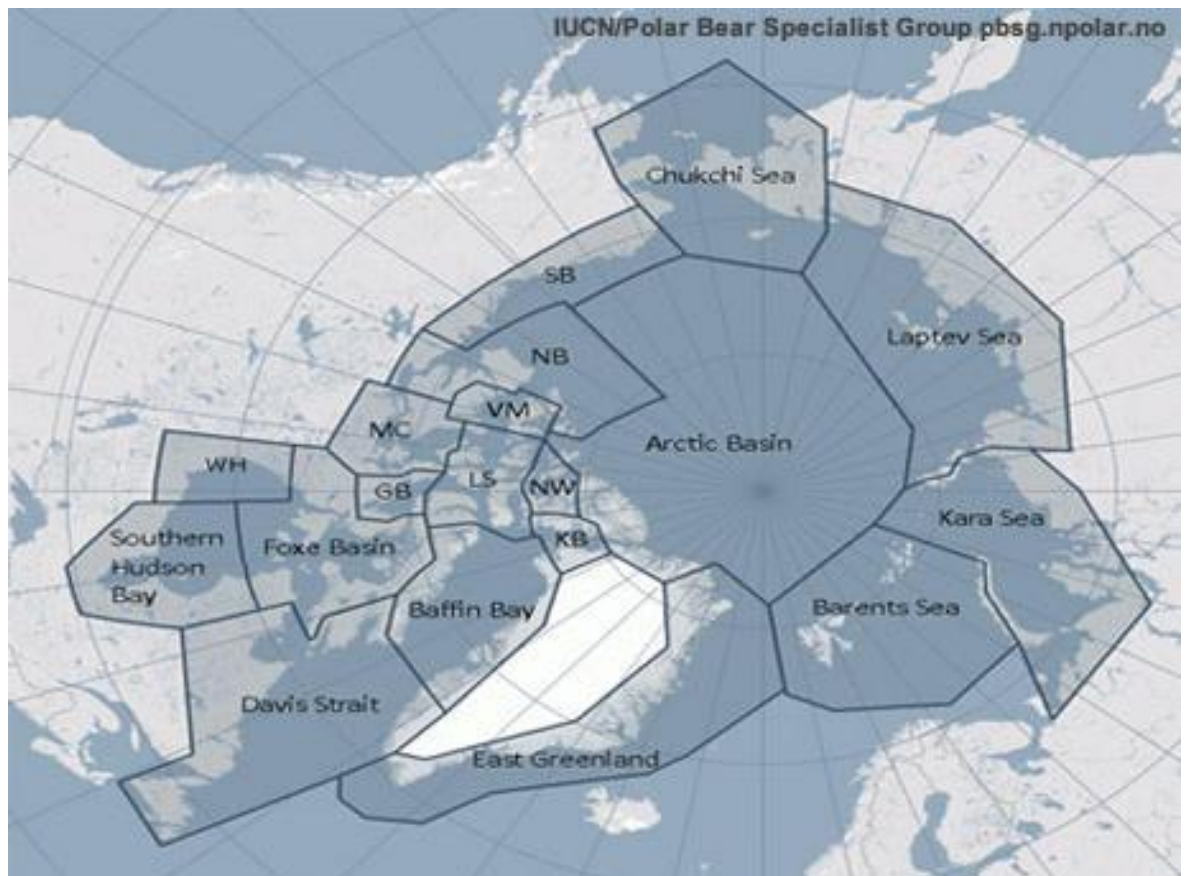


Figure 4. Polar bear populations (IUCN 2015.)

Polar bears are on top of the arctic food chain. Their most common prey is ringed seals and bearded seals. Polar bears are classified as marine mammals even though most people see them on dry land. Polar bears spend about fifty percentage of their time hunting. Adult polar bear need to eat approximately 50-75 ringed seals annually to



meet their energy requirements. They can also eat berries, grass and seaweed. Polar Bears are excellent swimmers and can swim great distances if required to do so. (WWF 2015; Polar Bear Safety 2015.)

Polar bears are potentially dangerous animals and you should never travel in a polar bear territory without being well prepared. A high calibre rifle is a mandatory when leaving a settlement in Svalbard and is the best option for protection against polar bears. An alternative weapon for protection against polar bears is pump action shotgun with rifled slugs. When travelling in polar bear country a few simple procedures can be followed to avoid fatal confrontations. Gain knowledge about polar bears before you enter the polar bear territory. Avoid confrontations by observing your surroundings and have sufficiently powerful weapon at hand while you travel. (Polar Bear Safety 2015.)

While camping in polar bear country there are things that need to be taken into consideration. You should avoid camping close to the shore as polar bears usually follow the shoreline. A trip wires with exploding and burning flares is one of the most used polar bear detection system in Svalbard. Alternative systems are well-trained dogs or rotation watch, the latter used particularly during nights where one keeps the guard for several hours as others sleep. Dogs can smell a bear from a long distance but if a bear approaches from downwind there is a chance that the dog might not pick up the scent of a bear. When cooking be extra caution as polar bears are attracted by the odour of the food. You should not cook inside the tent as the odour of the food most likely will stick in the canvas making it more attractive for the bears. (Polar Bear Safety 2015.)

Polar bears do not usually search humans as prey but young and old individuals that are having a hard time to catch a prey may be dangerous to humans. If you encounter a polar bear, assess the situation and try to move away from its path. If the bear moves directly towards you make yourself visible and make noise. If the polar bear still shows curiosity towards you or the camp make sure you'll have signal pistol or weapon at hand. Flare shots are the best option to make the bear to withdraw. Aim so that the flare lands between you and the bear. If you do not have a flare gun and you are pursued to use your rifle to scare the bear away; aim either on the ground in front of the

bear, or on the other side or above its head. Make sure you don't accidentally hit the bear. If you have trained dogs with you they can be set loose to chase the bear away. If you have to shoot the bear; aim for the chest below its head. Do not aim for the head as polar bear skull is very tough surrounded by heavy muscles. (Polar Bear Safety 2015.)

## 4 Planning The Expedition

“If you are planning a trip on Svalbard, there are special regulations and local conditions that you need to be familiar with. You should also know that there are different rules applying to visitors, residents, tour operators and researchers.” (Syssemmann 2015.)

In this section is covered how the arrangements were made. Arrangements and planning the expedition included: Timetables, accommodation, flights, safety at the destination, activities and arctic equipment.

### 4.1 Itinerary

Planning the expedition started more than six months before the actual departure. One of the main reasons to start planning the trip well in advance is the price rise in airfares and accommodation. The closer the departure date is the more expensive are the airfares and accommodation. (Eela & Kauppi 2007, 89.) As an independent tour operator my aim was to tailor a trip that was same time affordable and efficient. I browsed through various tour operators and airlines and managed to find flights with Scandinavian Airlines. Itinerary was from Helsinki to Longyearbyen via Oslo.

The group consisted of three persons including myself. All group members were male aged between 27 to 30 years. After the plane tickets had been purchased I needed to start looking for accommodation for our group. My understanding was that accommodation in Svalbard is expensive and even the budget accommodation is very much at a premium. I also thought of an alternative to camp outdoors in a tent. After reading through various articles and a guidebook I decided that it was not serving the purpose of this trip to camp outside. There is a lot of additional gear that you need to have when camping outdoors, especially in Svalbard. Not only you need a tent for harsh conditions, a sleeping bag suitable for the season, but you need also devices to protect camp and to drive off polar bears. These devices may be for instance flare guns and tripwire with flares.

### ***Tripwire with flares***

*Used to fence in a camp. The fence, as such, consists of four poles with attached flares. The flares are linked by a tripwire. If a polar bear comes too close to a camp it will hopefully trip over the wire and trigger a flare so that you wake up. The scheme has its drawbacks and should not be trusted blindly.*

Figure 5. Tripwire with flares (Unis 2015.)

After camping outdoors was off the table I started browsing through internet searching for accommodation in Longyearbyen. I managed to find few hotels offering accommodation for more than 200 euros per night. Spitsbergen Guesthouse which was located just outskirts of the settlement offered 62 euros per night which was more reasonable price range for our group. I booked the guesthouse for 5 nights to act as a basecamp for our journey.

Now that the indispensable matters had been taken care of I summoned a meeting with my group to discuss what sort of activities they would like to have on their trip. Daytrip activities in Svalbard include sea kayaking, dog sledging, snow-mobile excursions, trekking, cross-country skiing, boat trips, sight-seeing etc. There are also available overnight trips. From a single night up to 18 day skiing expedition where prices range up to more than 7000 euros per person. (Spitsbergen Travel 2015.)

## **4.2 Special preparations**

Some of the special preparations that were needed for this kind of a trip to Svalbard included a permit to rent a firearm. Having a permit to carry a rifle is essential for independent traveller in Svalbard because you are not allowed to leave the settlement without one. Firearms may be hired at designated stores with a valid licence to carry a rifle or a certification of good conduct. Anyone who is carrying a firearm needs to have experience in the use of firearms. (Syssemmannen 2015.)

General requirements for a permit to hire a firearm included:

- Applicant must be sober and responsible.
- Minimum age 18 years (21 for pistol and revolver)
- Must be registered in the population register for Svalbard
- Foreign citizens must provide a certificate of good conduct from their home country (no older than six months).

(Sysselmannen 2015.)

Other special requirements for independent traveller in Svalbard include:

- Warm, wind-resistant clothing suitable for the season
- Bivouac supplies with reserves for low temperatures
- First-aid kit
- Emergency signalling apparatus SARSAT for example
- Camp alarm system if camping (Figure 5.)
- Provisions for some extra days for unexpected situations

(Bradt 2013, 105)

### 4.3 Schedule

Travel schedule for the trip was naturally built around to the flight schedule. SAS Flight SK 2707 was scheduled to depart 7:30 in the morning on Wednesday 21<sup>st</sup> of May from Helsinki-Vantaa International Airport and land in Oslo around 08:10 local time. The connecting flight SK 4490 was set to depart to Svalbard 10:15 from Oslo Airport and arrive to Longyearbyen at 13:05 in the afternoon.

The schedule for the expedition was planned so that there was activity for each day. I contacted the local tour operator that provided boat trips and reserved a daytrip on a boat for three persons for Thursday 22<sup>nd</sup>. The price for the boat trip was 169 euros per person. For Friday the 23<sup>rd</sup> we had planned to do trekking to Trollsteinen over Larsbreen glacier. This required rifles for protection against polar bears and food supplies. For Saturday and Sunday we planned to rent skiis to do some cross country skiing. Flight back to Helsinki was scheduled to depart from Longyearbyen airport on Monday morning at 4:40am. The return flight route was also via Oslo.

## 5 The Svalbard Expedition



Figure 6. Expedition group (Mikko Siikavesi 2015.)

As an outcome of planning and preparations the expedition was arranged to Svalbard during 21.5.-25.5.2014. The group consisted of three people including myself (Figure 6). During the expedition the author of this thesis worked as a guide and took care of the group's safety and travel arrangements. This section covers how the actual expedition was implemented on daily basis.

### 5.1 Day 1: Arrival

We had decided to meet at the airport hour and a half before the departure just in case to avoid any hassle. SAS Flight SK 2707 departed 7:30 in the morning on Wednesday 21<sup>st</sup> of May from Helsinki-Vantaa International Airport and landed in Oslo around 08:10 local time. The connecting flight SK 4490 departed towards Svalbard 10:15 in the morning from Oslo Airport and arrived to Longyearbyen (Figure 7) at 13:05 in the afternoon.

Once we arrived in Longyearbyen International Airport and claimed our baggage we hopped in on the airport shuttle that was waiting there to take the passengers to their accommodations. Tickets could be purchased at the bus. There was a small tourist information desk on the airport that offered few brochures of things to do in Svalbard as well as information of the accommodation opportunities. Also taxi was available but we preferred to use the shuttle.

There is only one solitary road in Longyearbyen connecting the Airport to the settlement. It took approximately 20 minutes by bus to get to the Spitsbergen Guesthouse which was also the final stop located just outskirts of the settlement. Once we had checked in we headed to the town to get everything sorted for the expedition. This meant getting all the local necessities that was needed for our expedition including food, beverages, rifles, skis, etc... Later in the evening we had a nice dinner in a base-camp restaurant before heading outdoors the next day.



Figure 7. The town of Longyearbyen (Mikko Siikavesi 2015.)



## 5.2 Day 2: Boat Trip to Pyramiden

On Thursday morning we gathered around 7am for a breakfast that was served in the reception building on the other side of the road of our barracks. Breakfast was included to our accommodation package. Pick up for the boat trip was at 8:30 so we had a good time to enjoy our breakfast. After the breakfast the bus came to pick us up and took us to the harbour for our boat trip.

Vessel we boarded was MS Langøysund (Figure 8) her home port being Longyearbyen. She was a basic steel boat with capacity to carry 70 people. We were approximately 30 to 40 people on board. Our guide introduced the crew to us and told us a little bit about the history of Svalbard. Shortly after that we set sails towards Pyramiden, a Russian mining settlement which was abandoned in 1998.



Figure 8. MS Langøysund (Mikko Siikavesi 2015.)



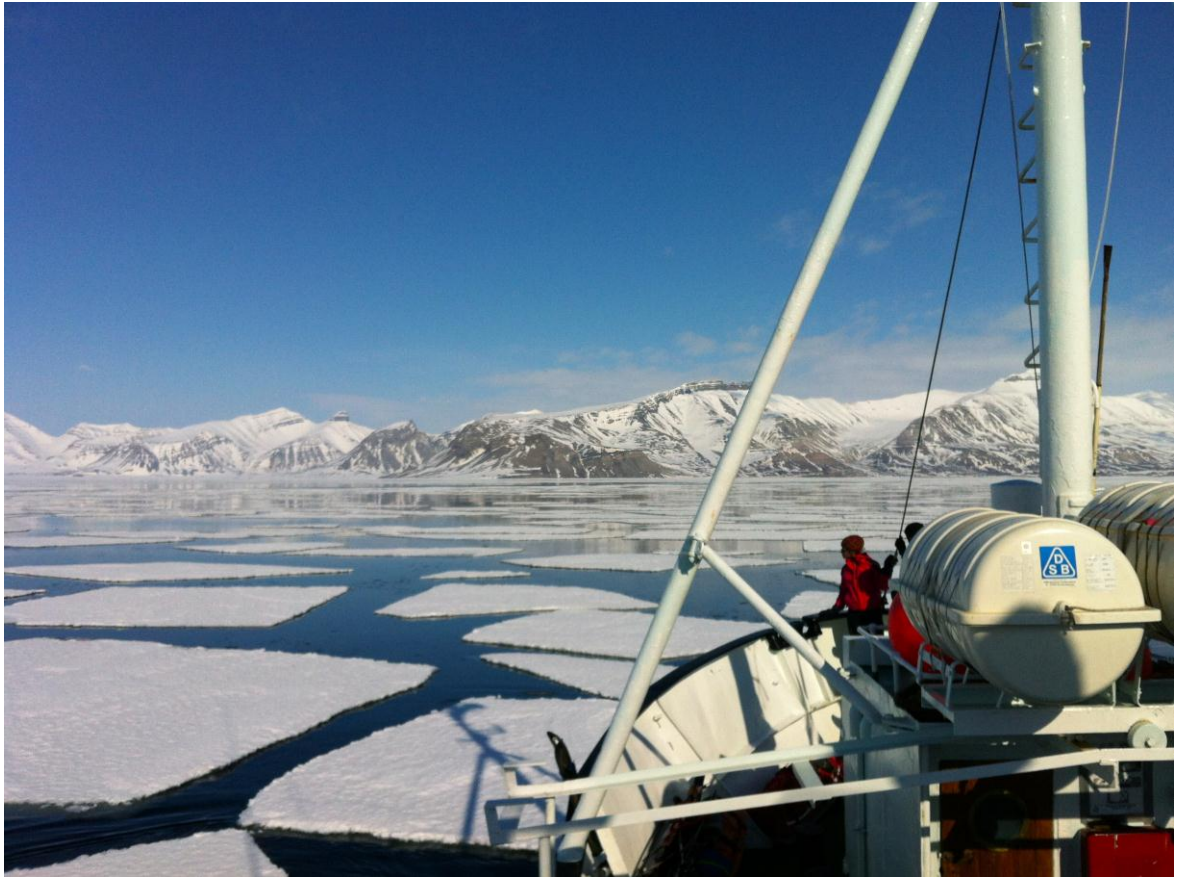


Figure 9. Drift ice (Mikko Siikavesi 2015.)

Not too long after we had left Longyearbyen we passed by the bird cliffs where migrating birds were nesting. In the north, straight ahead we could see the cathedral-like temple mountain standing estimated 716m above sea level. After we passed the temple mountain and entered the fjord the swell started to disappear. The crew began to prepare our barbeque lunch on board. Whale and salmon was on the menu.

During the lunch our guide told us that after the lunch we will evaluate the condition of the drift ice to see if we could dock to the pier. As we continued deeper in to the fjord the drift ice started to increase (Figure 9). Ringed seals (Figure 10) were lying on the drift ice as we passed by towards the edge of the sea ice. As we made it to the edge of the sea ice we could see that there were still couple hundred meters of sea ice attached to the shore, making it impossible to dock to the pier.



Figure 10. Ringed seals (Mikko Siikavesi 2015.)

At this time the currents were also changing and the drift ice started to pack again towards the sea ice. We were caught in the middle with our vessel and excellent seamanship was required to navigate through the drifting ice (Figure 11). Cooperation with the captain and the guide we managed to get out of the drift ice and started sailing back towards Longyearbyen. A good three hour sail towards Longyearbyen and we were back in the harbour. Bus took us back to our accommodation.



Figure 11. Drift ice (Mikko Siikavesi 2015.)

### 5.3 Day 3: Trollstein over Lars glacier

As yesterday we started the day with a breakfast. After the breakfast we started preparing ourselves for the hike to Trollstein. I went to the IGP store to hire a rifle to protect us against polar bears during the hike. Rifle I rented was Mauser 30-06 with applicable ammunition. Now that there was no legal concern to leave the settlement I met with my group outside of our accommodation to start the journey to conquer Trollstein.

The hike started just outskirts of the settlement not too far from our accommodation. There was a narrow trail with moderate ascend. We decided to have a break after 30 minutes of climbing. During the break we enjoyed iced coffee and nutrition bars which we had bought from the store the day before yesterday. Whenever we were having a break we named one member of the group as a spotter to spot potential polar bears (Figure 12).





Figure 12. Hike to Trollstein (Mikko Siikavesi 2015.)

The rocks that were pointing out of the snow before started to disappear entirely. We were closing in Lars glacier. On our way we decided to also climb Sarkofagen which was a peak on 696 metres above the sea level. We had our second break on Sarkofagen while we enjoyed the stunning views over Longyearbyen.



Figure 13. Lars Glacier (Mikko Siikavesi 2015.)

It had been a sunny morning and now we had to cross the Lars glacier (Figure 13). After nearly on the other side of the glacier we discovered an ice cave entrance on top of the glacier. There was an aluminium crate which held all necessary mountaineering gear and ice climbing equipment needed to enter the cave (Figure 14). Including ropes, harnesses, helmets, ice tools, etc...

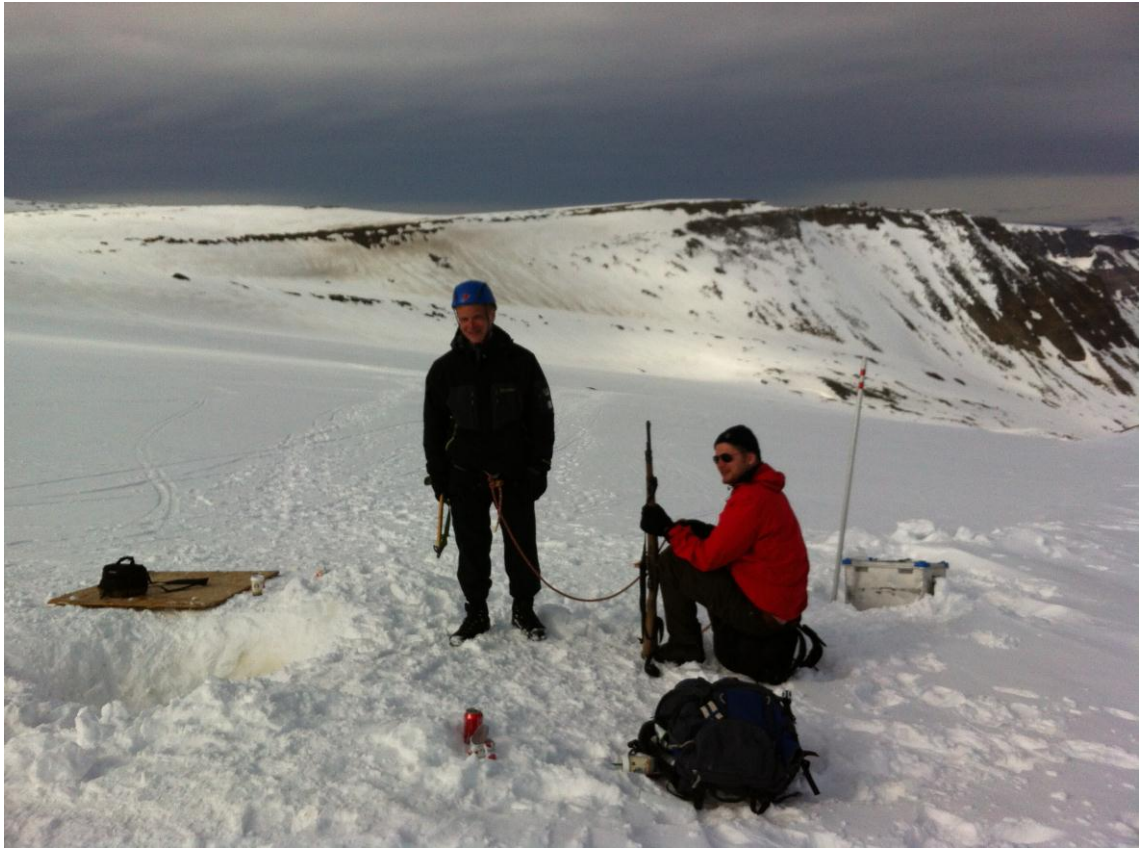


Figure 14. Ice cave entrance (Mikko Siikavesi 2015.)

We got geared up and decided so that only two of us would enter the cave at the same time, leaving the third person on surface in case of an emergency. We used a notification protocol and sent a message to my uncle to report us missing in case we would fail to contact him before midnight. A notification protocol is where you let somebody know where you are going, how long you are planning to be away, and your route alternatives. It is a binding agreement with somebody you trust to report you missing in case you fail to show up within the agreed time limits. (Unis 2015.)



The entrance to the cave was a narrow hole as can be seen in figure 15. The entrance hole was approximately 45 degree descent for few meters and then a straight drop for five to ten meters. There was a rope ladder which could be used for decent. At the bottom of the cave there was another narrow hole which led deeper inside the cave.



Figure 15. Ice cave descent (Mikko Siikavesi 2015.)

Once inside the cave started to open up and as we continued further inside the cave got more spacious. The ceiling of the cave was approximately five meters high so there was no problem of standing up (Figure 16). We continued into the deeper parts of the cave and there were halls and rooms inside the cave. Inside the cave the air felt very cold. We could see that the cave continued further on but we decided to go back since we still had to climb to Trollstein.



Figure 16. Exploring the cave (Mikko Siikavesi 2015.)

We got up back on the surface and the sunny weather had now changed to cloudy. We continued towards the peak of Trollstein. I was a bit worried about the weather changing that rapidly. After a while of trekking the final ascent was ahead. It was a quite steep slope ahead of us and we decided to have a break before the final ascent. Due to the overcast clouds the whiteout was making the climb much harder.

Whiteout is a weather condition where visibility is reduced by snow (Figure 17). The surface and the sky get mixed and you can lose orientation completely. The diffuse of light that is caused by cloudy sky can cause the entire ground definition to vanish. No shadows are cast and it is hard to see how far the snowy surface is. The steepness of the slopes will be hard to evaluate and horizon cannot be identified. Snow covered mountains, sloping ground, overcast clouds, horizon and ground surface can blend into one big mix of whiteness. (Wikipedia 2015; Unis 2015.)



Figure 17. White out (Mikko Siikavesi 2015.)

After a long climb we reached the top of Trollstein (Figure 18). We enjoyed our packed lunch on the top and had a little bit of a rest before heading back down. We could have stayed on top for longer but the weather was still unstable so we decided to start descending before it got any worse. We used the same path that we had created during the ascent. Luckily enough it was still only light snowfall so the tracks were still visible. We got back to the town in the evening. I had to take my rifle to the weapons locker provided by the Spitsbergen hotel since you are not allowed to carry a loaded gun in the settlement.





Figure 18. Top of Trollstein (Mikko Siikavesi 2015.)

#### **5.4 Day 4: Foxfonna (Skiing)**

In the morning we headed to town to rent skiis. It was again nice and sunny morning. We packed our supplies and took a transportation to Gruve 7 which is the active coal mine situated approximately 400 meters above the sea level. From there we continued on skiis. The views were spectacular and only signs of any life were tracks of arctic fox on the snow.



Figure 19. Foxfonna (Mikko Siikavesi 2015.)

We camped for several hours at Foxfonna (Figure 19) surrounded by mountain tops. We had a lunch and enjoyed the stunning views and silence of the outdoor nature. In the evening after a nice day of cross country skiing we were back in the starting point Gruve 7 (Figure 20). We had agreed with the driver to pick us up at that location at certain time.



Figure 20. Gruve 7 (Mikko Siikavesi 2015.)

## 5.5 Day 5: Adventfjorden (Skiing)

We started the day by transporting our group to Camp Barentz. From there we continued on skis. We headed east on the south bank of the Adventfjorden. It was nice and peaceful skiing with Svalbard reindeers along the way. We took breaks as usual and enjoyed iced coffee and other beverages. In the afternoon we made camp in the valley at the end of Skoltbreen (Figure 21) for several hours and enjoyed Svalbard outdoors.



Figure 21. Skoltbreen (Mikko Siikavesi 2015.)

It was already late in the evening when we started making our way back towards Camp Barentz. Since it was late May there was no nightfall and we could continue skiing while the midnight sun was shining in the sky. We were back at camp barentz around midnight and we called for transportation to pick us up. We got back to the accommodation past midnight and the return flight was already 4:40 in the morning. We had couple of hours of sleep and then around 4am we took a taxi to the airport.’

## 6 Post Expedition

Svalbard Expedition was arranged during 21.5.-25.5.2014. The group consisted of three people including myself. The trip started with a flight from Helsinki-Vantaa airport to Longyearbyen via Oslo. In Longyearbyen the group stayed at the Svalbard guesthouse and used it as a basecamp to execute activities during the days. The return flight was routed vice versa also via Oslo. All the arrangements worked as planned, avoiding any major setbacks, hazzles or dangerous situations. The excursions implemented during the days went well and all the members of the group were satisfied with the expedition. The biggest problems were minor blisters during the two days of cross-country skiing.

Some major problems could have been arised since this trip was implemented late spring in between the winter and summer season. Especially if this trip was to be dependent only of the activities provided by the local tour operators. For instance the snowmobile season had just finished as we arrived to Longyearbyen since the snow was melting rapidly. So if this was a snowmobile expedition to Svalbard it would have been too late. Best time for snowmobile expedition is beginnning of March until mid May. Same possible problems comes for the boating season since it was still late spring and the ice had just started to drift. With a little colder average temperatures the boat trip to pyramiden implemented during the day 2 would have been unavailable since the sea would have been covered with ice.

Having spoken with my companion after the trip and hearing their opinion of the journey they were very pleased with the trip. Especially how affordable the trip turned out to be compared of what it could have been. It was necessary to have a licence to carry a rifle because renting a rifle allowed our group to explore Svalbard on our own. It was also one of the things which made the expedition so succesful and affordable since the members of the group were not that keen on going only on an organised tours. Svalbard is definitely more open, less crowded and full of opportunities if you have a licence to hire a rifle and a competence to explore the Arctic region.

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