

SUSTAINABLE TOURISM DEVELOPMENT IN THE NORDIC ARCTIC: PROCEEDINGS AND ANALYSIS

WORKSHOP IN NORTHERN ICELAND, 18–22 MARCH 2019



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Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

Sustainable Tourism Development in the Nordic Arctic is a research network funded by Nordregio, UArctic and the International Network Programme of the Danish Agency for Science and Higher Education. The network's aim is to investigate how to utilize existing human capital, natural resources (especially marine living resources) and infrastructure capacity to develop innovative sustainable tourism that can diversify and make Arctic economic development more resilient. This is to be achieved through three interrelated workshops in the Arctic regions of the Nordic countries. The first workshop was hosted in Northern Norway in April 2018. The report below details the aims, objectives and programme of the second workshop in Northern Iceland, 18-22 March 2019.

Overall objective of the second workshop

- Understand the challenges facing nature-based tourism in peripheral regions of Iceland.

Workshop aims

- Meet with key industry stakeholders in marine and nature-based tourism in Northern Iceland
- Gain an understanding of the aims and ambitions of industry operators in the field
- Link projects with similar intentions and on-going research efforts to expand both the group's and individual networks
- Explore tentative "limits of acceptable change" for a range of scenarios
- Identify possible carrying capacity tipping points (socio-cultural, economic and environmental)
- Identify potential applicability of Icelandic marine resource management to tourism resource management
- Identify how current and potential Icelandic marine resource management (or lack thereof) impacts, and could impact, Icelandic tourism, with particular attention to the conservation of marine mammals.

Workshop site selection

Iceland, and especially Northern Iceland, was selected as a workshop location for studying sustainable Arctic tourism and its challenges and solutions because it features a unique case of rapid tourism growth strongly supported by government initiatives, yet challenges for regulations and investments to follow the speed of tourism development as well as uneven distribution of resource flows.

Workshop activities and tentative findings

March 18, 2019

Participants made their own way to Akureyri, convening in the evening for a welcome reception and then a "Dining with the Icelanders" dinner. "Dining with the Icelanders" and other similar programs offer visitors a chance to reach outside the norm of tourist experiences and engage more fully with the destination as a community. It takes open, flexible, and entrepreneurial spirits to welcome strangers to their home for dinner frequently. It is also a mechanism for more sustainably distributing tourists across the landscape of dining opportunities when infrastructure is limited, particularly in smaller towns and communities. Similar programs are also popular in the Faroe Islands, rural Norway, and other locations that are distant from large

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

population centers with multiple dining options. We had cod as the main course; cod and/or lamb are frequently on the menus as Icelandic staples and serve as a connection between the Icelandic resource base and the co-participant (visitor and provider) tourism experience.

March 19, 2019

On the first full day of the workshop, the Icelandic Tourism Research Centre at the University of Akureyri hosted a morning meeting. The theme was to understand the applicability (and limitations) of fisheries/marine resource management approaches, in particular as they have developed in Iceland, to tourism management in Iceland. After lunch, the group met with the Marketing Association of the North of Iceland, then drove via bus to Húsavík, first visiting Hjalteyri and its dive centre, to learn of the actual uses of the marine resources for tourism purposes.

Icelandic fisheries have been a staple of Icelandic economic activity. Figure 1 illustrates this evolution since the beginning of the 20th century. In the figure, fish landings in Iceland are charted with reference lines showing shifts in regulatory frameworks governing access to the fisheries. The shifts over the 20th century moved toward more defined property rights for access to the fisheries through increasing exclusive economic zones (EEZs) and then to a system of Individually Transferable Quotas (ITQs). This has increased the value of the fisheries to Iceland by first reducing foreign take of fish in Icelandic waters and then by placing limits on catch by Icelanders within Icelandic waters. As Iceland was at the forefront of EEZ development as the country aimed to stem significant fishing pressure from outside nations, these declarations were not without controversy until the UN Convention on the Law of the Sea in 1982 generally established 200 NM EEZs for nations.

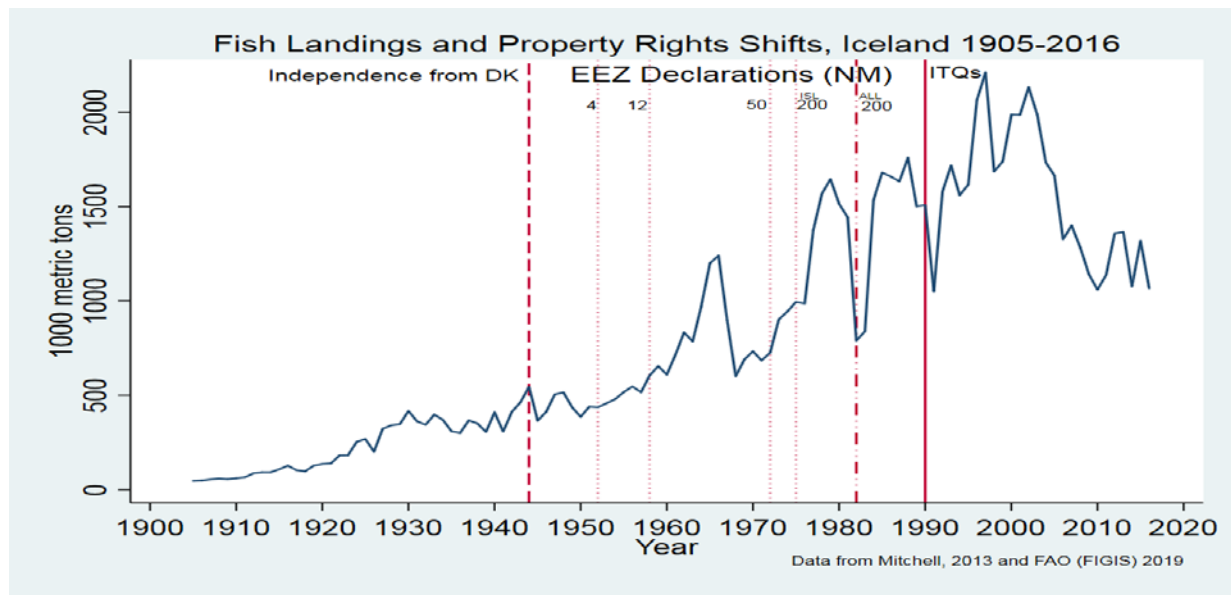


Figure 1: Fish Landings in Iceland, 1905-2016.

The latter move to ITQs has also caused internal debate as it has impacted the distribution of fishing capital and returns considerably, with consolidation in the industry and reductions in smaller vessels that have translated to outmigration and loss of well-being for many small fishing communities, in exchange for greater productive efficiency and lower operating costs (Chambers, Helgadóttir, & Carothers, 2017). A pertinent question is the applicability of this system of resource management to nature-based tourism in Iceland.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Tourism in Iceland has been increasing at a very high average rate of almost 25% per annum since 2010, as illustrated in Figure 2 (Icelandic Tourism Board, 2018). Events that increased global awareness of Iceland (e.g. the banking crisis, volcanic eruptions and footballing achievements), decreasing access costs with aviation growth, increasing global incomes, and highly successful marketing campaigns all have contributed to this boom in tourists coming to benefit in large part from Iceland's many and diverse natural resources, including fisheries. While inland (salmonid) fisheries are currently essentially privatized through riparian rights systems and strongly controlled through licenses and other costly barriers to access and use (<http://gofishing.is/fishing-rules-regulations/>), recreational sea fisheries and marine mammal interactions remain relatively open for economic development under the scope of tourism. Recreational sea fisheries and marine mammal-based tourism may benefit from increased integration into fisheries resource management that helps conserve and increase resource populations, and/or fisheries management may benefit from increased tourism management by reducing human pressures on resource populations.

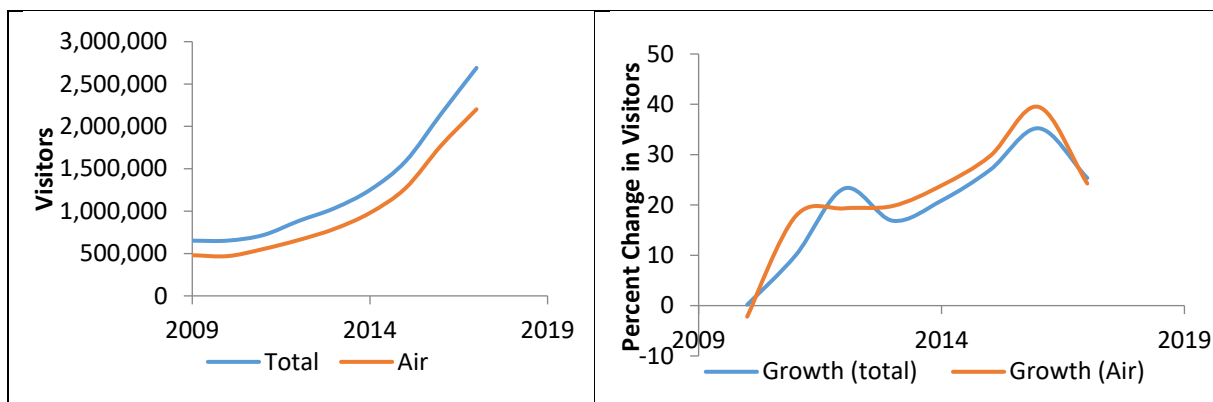


Figure 2: Tourist arrivals, total and by air, 2009-2017. Source: Statistics Iceland.

Thus, the connections of fisheries management to Icelandic tourism are multifaceted. They include key questions that revolve around carrying capacity, rationing, and questions of allocation as applied to tourism impacts on the environment in analogous ways to fishing impacts on the environment, from which tourism may potentially learn from fisheries management. They also extend, however, to intersecting questions regarding how the tourism and fisheries intersect, and how regulations or the lack thereof in the two sectors affect one another. Scholars from the Department of Business and the Marine Research Institute at the University of Iceland met with the members of the network and discussed this topic until lunch time.

The conversation is summarised as a set of comparisons and contrasts in Table 1.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Table 1: Comparisons and contrasts of fisheries management and tourism management in Iceland: needs, intersections, questions and consequences

Fisheries in Iceland under the ITQ system	Comparison and contrast to tourism management needs
Open access → Limited Access: What (sustainable?) value can be created from resource base?	
<p>Regulation is generally backward-looking (based on previous catches, experiences) which leaves gaps for e.g. newly valuable species (sea cucumbers?) and/or new species in Icelandic waters (e.g. N. Atlantic mackerel/herring distribution shifts)</p>	<p>Tourism Research needed on</p> <ul style="list-style-type: none"> - community will and ambitions (what ppl want), - user experiences (both guests and locals), <p>Gauging of what makes a site unique (heritage value and/or ecosystem service value) to select among multiple limits and guide management action.</p>
<p>Multiple systems on multiple levels to address constituent demands and resource pressures, from:</p> <ul style="list-style-type: none"> - individual non-commercial uses, - small boats quota exempt, - small boat quota, and - the main ITQ system on larger ships. <p>Though there are rules to avoid industrial concentration, there are still imperfect distributional issues regarding quota allocation.</p>	<p>Multiple systems on multiple levels evolving?</p> <ul style="list-style-type: none"> - non-commercial use: Everyman (open access) access – can this be sustained, if tourism IS commercial use? Differentiation of local/external? - Commercial use rights: - stratified by multiple criteria: <ul style="list-style-type: none"> - private vs. public land; - local vs. outside, - small vs. large. <p>Places should be closed even to everyman's right when necessary. This is analogous to species that are threatened/endangered. Closures when threat is present, reopen when threat is not present.</p> <p>An Order of access rights when limited needs establishing – whose priorities matter should be determined with greater scope than marketization.</p>
Distributional issues: Who benefits from institutional governance structures?	
<p>Quota initially allocated to those with 3 year fishing experience and amount based on their catch</p> <p>Tradeoffs: disadvantageous to new entrants; potential windfalls to those exiting industry; potential delays in economically rational exit.</p>	<p>Distributional issues: Gatekeeping to sites</p> <ul style="list-style-type: none"> - Through established expertise in preserving the sites' established uniqueness. - Through ownership - Through capital demands (e.g. access vehicles) - Through direct regulation <p>Potential mechanisms for initial allocations:</p> <ul style="list-style-type: none"> - Financial markets for capital (laissez-faire choice) - Distribution of permits from historical rights, auctions, or queuing? <p>Different mechanisms will have strong differences in welfare outcomes for individuals, communities, state</p>

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Transferable quotas to highest bidder, within restrictions.	The need to dis-incentivize turning public good into private wealth.
The transferability of quota within restrictions to create more value through localised expertise – rules different depending on size of operation, supporting viability of the smaller players.	Make sure that access is available to all, not just those who can afford it.
Research, monitoring and enforcement issues: Governing sustainable use?	
Research by the Marine Research Institute on stock size and other fishery characteristics advises quota (what people want) based on calculations of maximum sustained yield and maximum economic yield – different yield levels / carrying capacities may be interpreted differently by political and economic interests Results are ultimately habitat-quality dependent; climate changes mean more forward thinking increasingly beneficial; greater habitat protections (e.g. gear regulations) may be advantageous, esp in maintaining “sustainability” claims	Tourism Research needed on - biophysical tolerances (carrying capacities) and - administrative tolerances (feasible governance/ monitoring/ enforcement). Results are infrastructure dependent; private vs public infrastructure investment decisions may not be in sync, greater forethought and coordination in permitting, zoning, and public infrastructure decisions can improve local, regional, national outcomes
Heavy centralised monitoring by the Fisheries directorate.	More complex ownership structures complicate monitoring and enforcement: Local landowners vs state land; environmental agencies with various overlapping mandates (and gaps) that partially monitor site conditions and could close sites threatened by damage should increase cooperation and holistic approaches.
Limitations and opportunities	
The limitation of quota incentivising new product development in new areas without quota and creating the most value from that within quota.	Limiting access to some areas creates incentives for new areas/uses to be opened up, but maybe these are unequipped to handle crowds
Vertical integration in fisheries creating scope for value creation and the importance of maintaining internal competition within the industry. Relationships to consolidation.	Vertical vs. horizontal integration: Icelandair decoupling, tour operators aggregating like-operations.

Some considerations for tourism management that emerged from the construction of table 1 during the morning workshop at the University of Akureyri were:

- Defining methods of scaling up sustainable practices
- The need to invest in public infrastructure, and infrastructure developed for tourists benefitting locals
- Concentration of use vs. distribution of use (exclusivity / access)
- Community pride as an often unrecognised component of brand value
- The need for regulatory teeth to accompany voluntary certification schemes
- Elasticity in the demand for “pure” and “sustainable”
- Monopoly rents derived from particular ecosystem services
- Access to tourism capital formation for local entrepreneurs
- Emergent keywords: authenticity, rustic, plain, simple, pure

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

- Packaging of products as a vehicle for horizontal integration in times of industry consolidation and also creating a window of opportunity for small entrepreneurs using bigger vertically integrated service providers as a platform for their products

The afternoon meeting with the Marketing Association of the North of Iceland took place at their offices in Akureyri. The presentation and discussion centered on the soon-to-be-opened Arctic Coast Way (<https://www.arcticcoastway.is/>), discussed further below.

The afternoon's trip to Hjalteyri emphasized some of Northern Iceland's unique biogeophysical characteristics and the complex net benefits of increased tourism under such conditions. It also fostered our exploration of the important role of the entrepreneur in both sustainable tourism and the natural resource conservation needs that often accompany sustainable tourism.



Figure 3: Erlendur Bogason of the Strýtan Dive Center explains the geothermal chimney vent, divable at 15-65 m (shown in poster on wall). (c) Brooks A. Kaiser

The community of Hjalteyri developed around herring processing and one factory that was built in a few winter months in the early 1930s. As the herring stocks collapsed in the 1960s, the community went into decline. Recently, and with the national growth of tourism, the remaining population has turned to a variety of marine resource-dependent tourist activities that range from artistic uses of animal parts housed in the old herring factory through the Verksmiðjan á Hjalteyri center (<http://www.arnaromarsson.com/Verksmidjan-a-Hjalteyri>) to SCUBA diving adventures. The Strýtan Dive Center (see Figure 3) highlights SCUBA trips to the world's only known divable geothermal chimney vent, which is surrounded by unusual marine life. The development of the location as a dive site has been closely overseen by the team at the dive center, led by Erlendur Bogason. Bogason successfully arranged for the vents to be Iceland's first underwater protected area, and currently controls access to the site. The importance of the combination of technical, scientific, and/or management expertise with long-term vision for

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

sustainability within a small group, or even single person, required to develop and maintain such endeavours became a recurring realization of the workshop.

It is worth noting that the workshop series project has purposefully engaged with entrepreneurship in its funding and planning stages directly through the inclusion of entrepreneurs focused on the tourism experience. During the Icelandic workshop, this took on a multidimensional reality as one of our participants' entrepreneurial endeavour is to assist tourists in Iceland to find authentic experiences "off the beaten path." This served to open doors and to generate insights that academic research alone cannot.

March 20, 2019

On the second full day of the workshop, the Húsavík Academic Centre hosted a morning meeting, building on the discussion on fisheries resource management, but this time focusing on the long standing tradition of "everyman's right" and its interaction with 21st century Arctic tourism. The tension in Arctic regions between rights of access and conservation of the Arctic experience for others can be expressed as a traditional problem of congestion of the commons. Until recently, congestion has been limited by high access costs in reaching isolated Arctic and near-Arctic locations. The price of access has been decreasing and the incomes of tourists have been increasing, so that, in cases where infrastructure improvements can only ease congestions at unique spots or for vulnerable marine species populations so far, new allocation methods are necessary if growing congestion problems are to be resolved. Prices can be, and sometimes are being, increased through any number of mechanisms, including tourist per-head (hotel room) taxes, access fees to popular locations, assessed fees for non-consumptive resource use such as whale watching, and so on; each mechanism has different implications for community prosperity as well as distributional impacts on stakeholders in the communities.

Infrastructure (or its absence) and ownership rights can and have played significant roles in both access and distribution of benefits from natural capital and its resource flows in Iceland and elsewhere. In Iceland, a prime example is that of Gullfoss waterfalls on the Golden Circle route, which was already a tourist destination in the 19th Century (Sæþórsdóttir et al, 2011) and is currently one of the top tourist destinations in the country (Jóhannesson, et al, 2010). Privately owned by a local farming family until the middle of the 20th century, a foreign investor leased the area in the first decades of the century intending to turn the falls into a hydroelectric facility. These plans were thwarted both by economic realities and local resistance. The story is presented on-site as local legend of the first 'environmentalism' in Iceland and as success of 'everyman's right' to nature.

Pictures taken the day before the workshop (see Figure 4) show both the wilderness ideal (on right) and the reality (on left) of the falls today. Even in mid-March, hardly high season, hundreds of tourists are visiting the easily accessible falls. A slight shift in perspective (here, moving the camera to the right and zooming in) can still provide the image of wilderness ideal, but one is certainly not alone in the landscape. A further zooming in, such as in Figure 5 taken at Goðafoss falls during the workshop, shifts to the tourists' efforts to capture the falls with cameras. Tourism research must do more to understand the differences in values from tourist experiences and the ways in which memories of these experiences are created and maintained (e.g. photographic access and perspective) so that regulatory interventions aimed at managing crowds match the needs and desires of locations. This is also important for managing tourist, and local, expectations of the use and sustainability of popular sights.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

The role of photography in tourism – sustainable or otherwise – should not be underestimated. Thus, the morning's meeting started with a presentation by Susan Seubert, National Geographic Expeditions and Independent Photography Expert, that addressed, among other things, scale and scope of international corporate involvement in Icelandic Tourism. As a frequent participant on National Geographic's ship-based expeditions in polar and sub-Arctic locations, including Svalbard, Iceland, Antarctica, and Alaska, Susan provided an overview of common challenges and responses to sustainable tourism concerns across locations.

She identified wildlife interactions and 'last chance to see' tourism as key motivators of those interacting with photography experts in Arctic destinations. These drivers mean that the maintenance and well-being of iconic marine species, including (where appropriate) polar bears and other marine mammals, and migratory and local bird species, are important regulatory considerations.



Figure 4: Gullfoss falls in March 2019. Left, zoomed out to capture tourists at top of upper falls. Right, zoomed in to capture wilderness feel of undisturbed nature. (C) Brooks A. Kaiser



Figure 5: Close-up on tourists focused on capturing the landscape. Godafoss Falls, Northern Iceland. (c) Jonathan Turner.

The presentation and follow-up presentations from the Academic Centre evoked issues of community empowerment in a tourism context, as well as the use and value of measuring the integrated impacts of tourism on energy, community wellbeing and economic development for decision-making. A variety of accounting efforts funded and operated by different stakeholders are underway in Northern Iceland. Gaumur (www.gaumur.is), the Northeast Sustainability Project, is energy industry funded and tracks a variety of tourism and community development

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

variables. The Icelandic Tourism Research Center has also been working to create a base for the regional applicability of the existing Icelandic Tourism Satellite Accounts (Statistics Iceland, 2019), starting with a 2016 published report of statistics and impacts from tourism at the sub-national level (Rögnvaldsdóttir, 2016). While the importance of measuring what we wish to value should not be understated, our discussions revealed that there appears to be some lack of clarity and vision about the way in which the data collected can and should be used. Research and application of research findings will benefit from taking a more long-term planning approach, which has been challenging particularly in light of the significant growth rates in tourism which have created an ever-shifting landscape.

As the sub-national efforts recognize, this long-term planning must stem from the communities if it is to generate sustainable growth and development. Much of the discussion revolved around what could be considered good tourism? Community empowerment includes:

- Scaling of enterprise to suit community capabilities and needs, including:
 - localized gastro experiences like Red King Crab or Sea Urchin dining experiences in Norway
 - Community best practices policies and actions
 - Increased transparency in the supply chain for tourism needs

Agglomeration vs. diversification. 70-80% of Húsavík visitors identify whales as a primary purpose of the visit; how should this be incorporated into planning?

- Relations and opportunities for ship crews and/or seasonal workers that integrate and acknowledge the resource pressures on local resident populations
- Leadership development and diversification of knowledge through e.g. educational tourism
 - Clear mandates for regional associations that:
 - Move beyond branding
 - Create and support investments that match the infrastructure and human capital available
 - Capitalize on cooperation rather than beggar-thy-neighbor campaigns and policies, across sectors and locations
 - Properly account for difficult-to-measure tourism benefits and costs to communities, including marketization of resources for local residents as well as tourists (e.g. increased expenditures at dining establishments and entertainment activities by residents as well as tourists)
- Co-creation in communities through projects funded by external actors (e.g. cruise lines, tourism operators), where the initiative comes first from the communities

Threats and concerns to the success of community empowerment may include:

- Pseudo-investments for branding purposes that have no local impacts
- Stranded investments, including investments made on predictions of future tourist behaviour that do not come to fruition due to poor management of the local experience, including resource management ranging from waste management to sufficient wildlife protection to provide for expected human-wildlife interactions, and/or underestimation of the draw of substitutes.

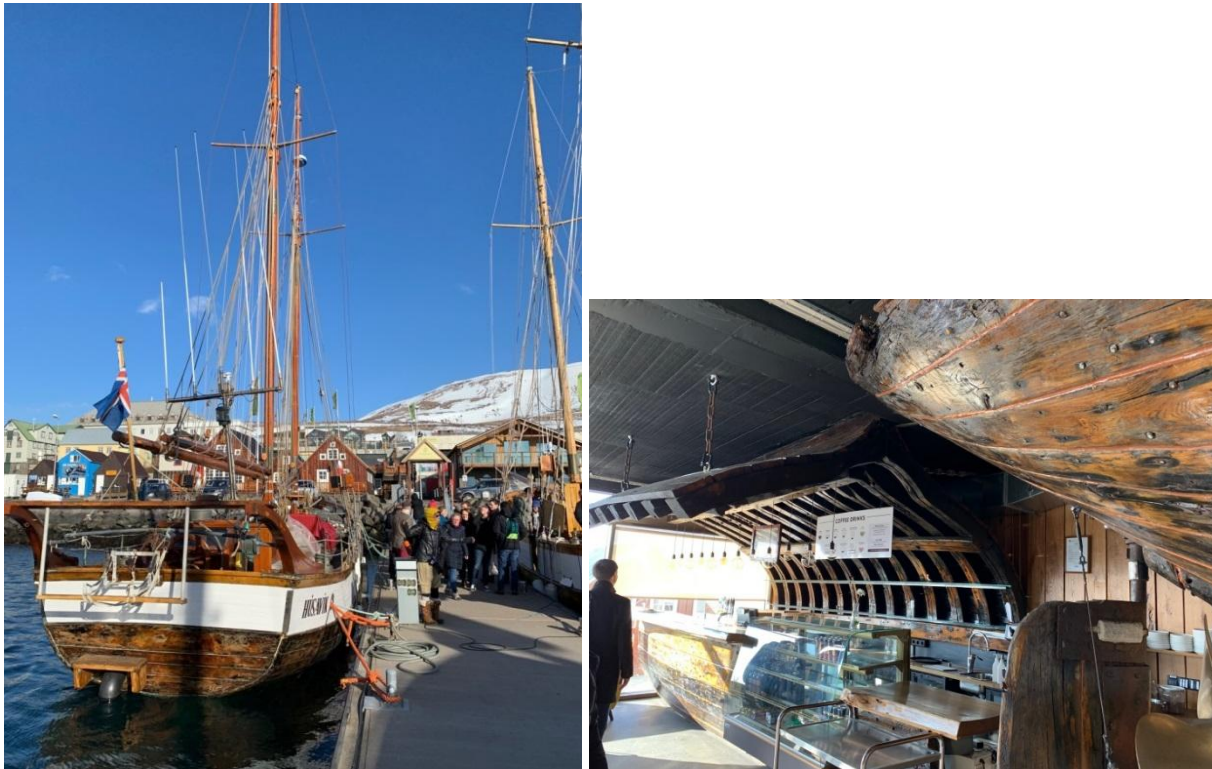


Figure 6: One of North Sailing's "silent whale watching" ships – also offering a unique sailing experience in Húsavík (left) and North Sailing's onshore 'upcycled' ship-coffee bar. (c) Brooks A. Kaiser



Figure 7: The busy, photogenic multi-use port of Húsavík (c) Jonathan Turner.

After lunch, the group visited North Sailing to hear about innovations in marine mammal tourism that include "silent whale watching" in which an electric vessel is used. Whaling tours in Húsavík also can use oak sailing vessels for a slightly different approach on sustainable tourism (see Figure 6, left, for photo of one of the still-sailing oak vessels, while Figure 6, right,

illustrates ‘up-cycling’ of a vessel that was no longer seaworthy). Meeting with one of the owners of North Sailing again promoted discussion of the importance of entrepreneurial action that not only moves forward with sustainable tourism ideas and actions when they are more costly, such as whale watching from slower wooden vessels requiring crew and upkeep, but also invests in the conservation of the marine resource. The visit provoked questions of how to designate the bay as a Marine Protected Area (MPA), a goal for which North Sailing has been pushing, but meeting some opposition from the community, fearing impacts on other more traditional means of marine resource harvesting in the bay (See Figure 7 for photo of diverse harbour vessels).

Iceland does not currently have marine mammal protections such as those afforded by the US Marine Mammal Act (16 U.S.C. §§ 1361 et seq) due to historical whaling practices. Minke whale hunting and consumption continues to this day (see Figure 8); harvests are managed conservatively, and the consumption of whale products is also a part of Icelandic tourism.

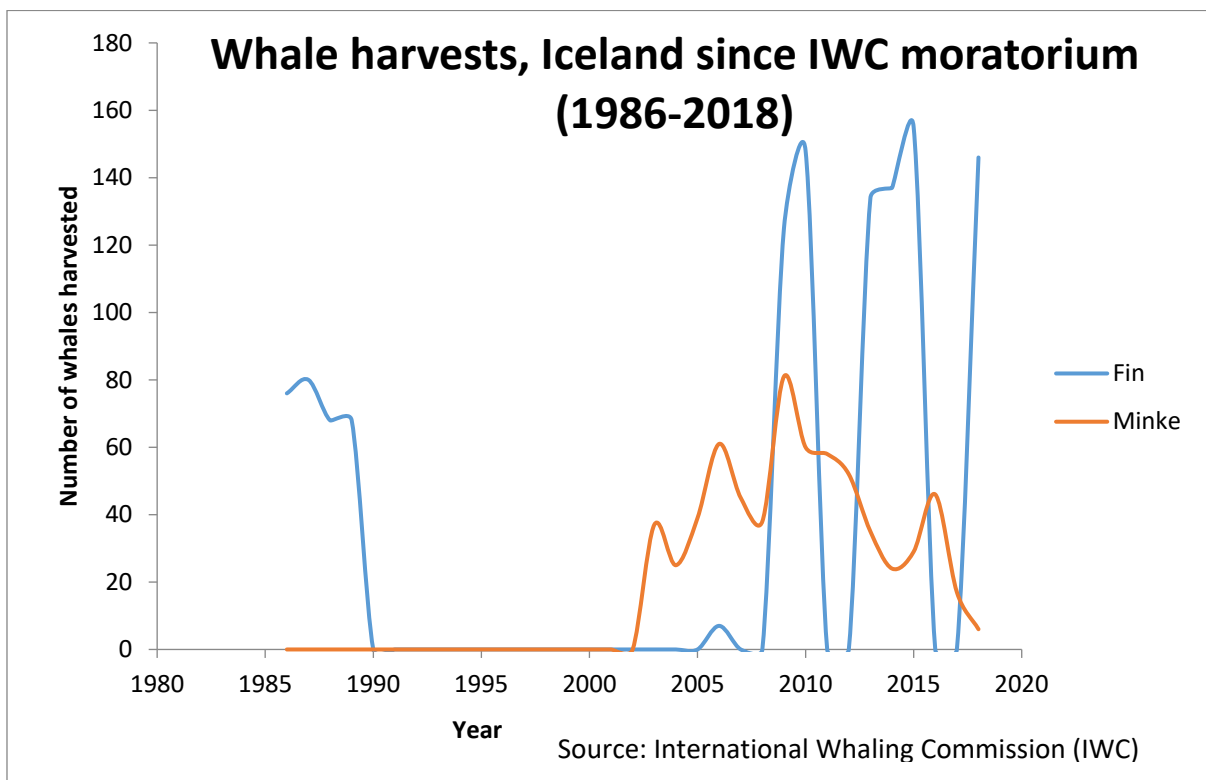


Figure 8: Whale harvests in Iceland, 1986-2018. Data from International Whaling Commission.

Meanwhile, whale watching is growing significantly in the country, particularly in the north. IceWhale, the Icelandic Whale Watching Association, says that the first whale watching tour occurred in 1991, and now 20% of all Icelandic visitors take a whale watching cruise. There are at least ten companies around the country providing whale watching while adhering to the IceWhale code of conduct for responsible whale watching (<http://icewhale.is/code-of-conduct/>). See Figure 9.

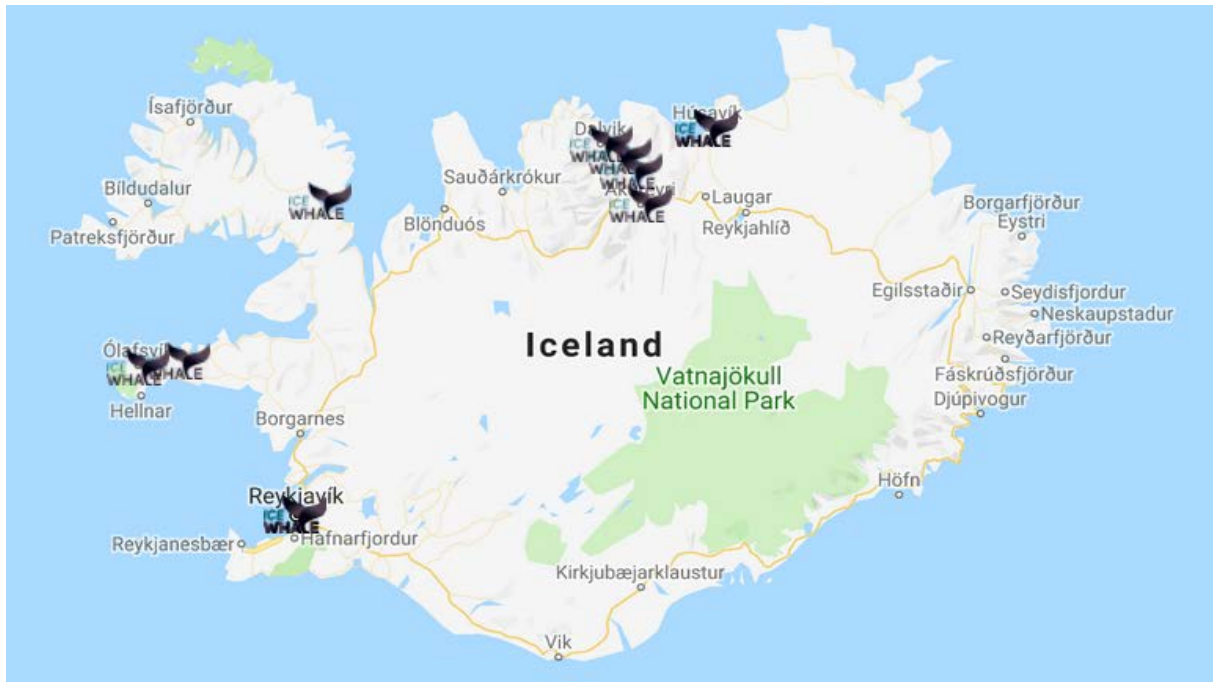


Figure 9: Icelandic whale tour operators that have agreed to the IceWhale code of conduct (source: www.icewhale.is)

This juxtaposition of consumptive and non-consumptive uses of the whale stocks is explored in the academic literature for Iceland in Einarsson (2009), who, through this paper, shared his research in absentia with the group on the first day, as well as in subsequent literature including Oslund (2011), Cunningham et al. (2012), and Burns et al. (2018). The evolution in value derived from marine mammals as consumptive commodities to marine mammals as non-consumptive tourism experiences is an ongoing process that not only highlights how stakeholder entrenchment may deter and/or delay transitions in resource use but also how different historical and biological considerations matter in the timing of transitions; seals, for example, face more of a challenge in moving from commodity to non-consumptive uses due to higher perceived populations, greater external costs (through ecological factors such as salmon predation), and broader use for historical subsistence (Burns et al, 2018).

Ongoing research at the Icelandic Seal Center in Hvammstangi (to be discussed further below), aims at understanding the two seal species that breed in Iceland—the harbour seal (*Phoca vitulina*) and the grey seal (*Halichoerus grypus*)—which the current conservation status considers to be at critically endangered and vulnerable respectively in Iceland, though not globally (see <https://bit.ly/2OrRwz5>). The demand for wildlife seal watching tourism has increased in Iceland more generally, and in particular, visitor interest in seal watching tourism has recently grown, further emphasizing this complexity.

Some key emerging questions centered on the range of stakeholders and interests that need to be aligned. There need to be ways to communicate the benefits of a potential MPA to disparate groups with vested interests in a range of marine resource harvesting; win-win situations can be created, such as has been happening within marine-based non-consumptive tourism including local investments and cooperative agreements on the installation and use of moorings at popular dive sites in e.g. Hawaii and Australia to minimize damages from repeated anchoring, or dolphin watching aboard, or in cooperation with, fishing vessels in the Mediterranean where dolphins are becoming a nuisance species for fishing nets and lines (CIESM 2018).



Figure 10: Introduction to the Húsavík Whale Museum by museum director Eva Björk Káradóttir © Brooks A. Kaiser

Win-win solutions are more likely to occur with community input and action from the ground up. The group also visited the Húsavík Whale Museum, an example of such activity and the benefits of agglomeration around a specialty or community focus (see Figure 10). The small but well-appointed museum houses a large collection of marine mammal skeletons, including a blue whale skeleton that the community worked together to render and prepare for display. There is also a great deal of whale and whaling-related art and history on display. Funding for the museum has been supplemented by external grants from cruise tourism operators, based on proposals from the museum rather than the other way around. This sort of partnership promotes win-win opportunities for the community and the operators, who not only have facilitated unique and authentic experiences for their guests but also have created ways for guests to see how the company responds to the needs of communities visited and provides investments in acknowledgment of the resource impacts that tourism can have.

The group also stopped at The Exploration Museum (www.explorationmuseum.com) which houses many unique artifacts from voyages of exploration, as well as from the training of astronauts in Iceland due to its geological properties.

*Interdisciplinary/ Inter-industry Views:
Sustainable Tourism*

- Sustainable tourism in the Arctic is to leave the sites in the same state as before
- Generate good income while conserving local culture and environment. Combine local and small business with large scale operations to serve different needs.
- Sensitive to environmental impacts, expectations meet reality
- Tourism according to an established will of the community and ensuring there is equity
- Nature/activity based tourist with limited access
- Tourism that accomplishes the goal of a community and does not damage the environment and allows the maximum number of people to connect with each other and their minds blown
- High yield (liveable wage, affordable prices) – low impacts (on environment, community, culture)
- Personal approach, connecting people
- Bottom up and capacity building
- Tourism must enhance the living quality of the residents
- Open space, clean air, plenty of wildlife, humans who respect all of these things
- Supply and management of experience that co-creates value for tourists and provides alike without reducing ability of natural capital to produce resource flows of inclusivities that rely on them
- Offer tourists authentic insights into and experiences of the places that they visit and the communities that inhabit them while building on community input, supporting and not undermining community infrastructure, and resulting in short, medium and long term community benefits
- Providing authentic experiences to tourists while insuring financial, cultural, social and environmental sustainability of communities
- Contribute to sustaining natural and cultural resources while sustaining local communities- the ethereal balance
- That people in the Arctic are proud and happy when tourists visit
- An industry that respects and maintains the pristine wilderness, wildlife and local culture, while adding economic, social and knowledge value
- Makes sustainable use of natural resources for the local communities ensuring the long-time economic, social and ecological use
- Tourism that is both financially and culturally beneficial to communities, supporting a variety of businesses, non-profits and community traditions/groups. Tourism needs to be responsible in numbers and environmental impact, while enabling 'the maintenance or improvements to' existing human, cultural and natural capital and/or heritage assets.

Before heading to the new GeoSea baths at the end of the day, all network delegates were asked to provide a sentence describing what they perceived as “the good” when it came to Sustainable Arctic Tourism. Participants offered the descriptions inset in the inset box.

The group’s thoughts convey a range of sentiments that vary across two key potentially conflicting dimensions. These dimensions are physical impacts to the environment and societal impacts to the culture and people of the place. Tourism acts to change both; sustainable tourism adds consciousness to the forms of this change rather than letting it occur as a piecemeal outcome of marketization and globalization. As tourism transforms both the available resource base and the goals and opportunities of the communities, a significant factor for success in sustainable tourism is co-creation of that engages both tourists and communities.

The group’s last stop of the day was the recently opened GeoSea geothermal hot spring horizon pools at the edge of Húsavík overlooking the Skjálfandaflói Bay (Figure 11, left). The pools provide an example of this co-creation and its evolution over the past decades in Iceland. The global popularity of the Blue Lagoon near Keflavik has shown that a focus on the tourism experience can generate considerable revenue and the concept is spreading throughout the country. Geothermal waters have long been used for community pools (Jackson, 1927).

A similar example from Northern Iceland, and part of the group’s itinerary, is the recently built (2010) pool at Hofós. Combining tourism and community interests, the pool is built on a cliff side with extraordinary sea views (Figure 11, right). It was privately

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

donated to the town of fewer than 200 people – with space and facilities for almost as many - again emphasizing the combined importance of entrepreneurship, vision, and community engagement.

The photographs of the two pools illustrate how design has evolved from a focus on community utility to tourist experience combined with community luxury - not shown in the GeoSea pool is the window-pool bar serving beer and wine directly into a hot tub. These pools exemplify how a long-standing tradition of public swimming pools in Iceland, using readily accessible geothermal water, has transformed to incorporate the experiential component making for a tourist attraction (Jonsson, 2009).



Figure 11: Geothermal pools with sea views, at Hofsós (opened 2010, upper and lower left) and Húsavík (opened 2019, upper and lower right). (c) Chris Horbel, Brooks A. Kaiser, Jonathan Turner.

March 21, 2019

The third full workshop day consisted in large part of a bus ride from Húsavík to Reykjavík, via Siglufjörður and Laugarbakki. On the bus the workshop continued, and the network participants divided into four groups. These groups were tasked with developing the following topics in summary of the workshop and the previous workshop in northern Norway:

A. Collaborations and competitions; pressure points, peripheries and perspective (sacrifices and synergies toward sustainability).

B. Recreational fishing: including international dimensions of trade and competition (transport of fish, etc).

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

C. Scale and scope: focus on cruise / wildlife base / community impacts and their intersections.

D. Natural resource use, public infrastructure, and technological advances in tourism: what are the casual complementarities and what are the sustainable substitutes?

The groups addressed each of these concerns separately, tracking thoughts on post-it notes. At the end of the day each of the group presented their conclusions as the bus neared Reykjavík city.

The findings from the group activity on the bus emphasized the need for forward thinking, innovative ways to gather and use data, and sufficient investment in resource conservation, infrastructure, and community to support both sustainable tourism and local economic development.

Under (A), the new Arctic Coast Way touring route introduced to the group on the first day provided a coalescent case for the points to be made. Following on the success of projects like Norway's Atlantic Ocean Road, Scotland's North Coast 500, and Ireland's Wild Atlantic Way, Iceland has branded almost 900 km of the northern coast as a touring route. Branding and hype have been so successful that Lonely Planet named the route as a top-10 Best in Europe tourism experience in May 2019, despite the official opening not happening until June 2019. The group, however, agreed that there was more optimism than detailed planning involved in the preparation of the route to date.

Figure 12 highlights some of the challenges. The route can be perilous, particularly in bad weather. Individuals will need to exercise more caution than they might expect from an 'officially sanctioned' travelling route. There may also be stretches of the route with insufficient infrastructure – including one lane stone tunnels and long stretches between rest facilities. Safety / search and rescue resources may need to be expanded and/or expenses may rise for communities in response.

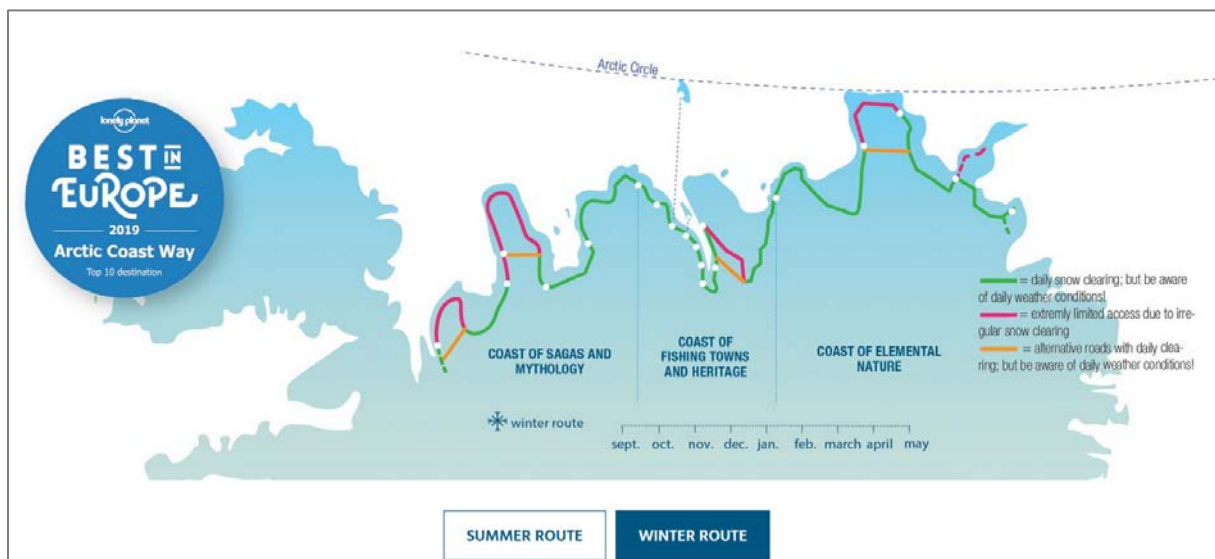


Figure 12: Arctic Coast Way. Map from <https://www.arcticcoastway.is/>.

On the other hand, in expanding the northern Diamond Route (Húsavík, Dettifoss falls, Goðafoss falls, Lake Mývatn, and Ásbyrgi canyon), the route has the potential to generate new regional synergies and spread out tourist impacts (positive and negative) from the capital region and Golden Circle route. Even further afield, the route may be both a complement and a

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

substitute to the aforementioned routes in Norway, the UK and Ireland, among others. These sorts of branding exercises, including cross-national collaboration, clearly hold power to change the dynamics of tourism and should be carefully integrated into local and regional planning for the best chances of co-created success.

The group, furthermore, generally discussed the need to develop a risk management framework that comprehensively addresses the economic, natural and human capital inputs to sustainable communities and diversification into tourism. Various dimensions on which such a framework should be based were identified, including a definition of how a balanced growth path in tourism is envisioned, preferences for types of tourism to be developed and types of visitors to be attracted, a stakeholder mapping of industry, associations, public administration and communities, risk assessment, and data necessities. Based on these, sustainable strategies for tourism can be developed including year-round strategies (e.g. photo tourism, film location tourism, MICE tourism), strategies for cross-sectoral collaboration, risk diversification strategies, product diversification strategies and strategies to facilitate collaboration among competitors. These should be complemented by corresponding legislation as well as monitoring and control mechanisms.

Under (B), discussion centered on how different Nordic locations could benefit from improved tracking and monitoring of recreational fishing. This began as a carry-over discussion from the Norwegian workshop in 2018. The question has arisen because the quantities and values of fish that are being caught by recreational fishers in Nordic waters are substantial. A location like Iceland, where most people come by air on flights that are a couple hours long or longer, do not face quite the same concerns of, say, Norway where van-loads of fish can be moved from Norwegian catch sites to a number of other European countries. Still, unmonitored and un- or less-regulated recreational fishing can have consequences for assessment and use of commercial stocks. In cases like Norway where the recreational fishing is ‘serious business,’ additional concerns from waste as the fishers gut and fillet their catches on site have been noted. This has increased the concerns about the inefficient use of the fish resource. Norway, which introduced greater registration requirements for recreational fishing catches at the beginning of 2018, caught over 6.5 tons of illegal fish, mainly in the form of cod fillets, from only 68 border interceptions in 2018 (Martinussen, 2019). Since spring 2019, the country has doubled its fines for fish smuggling (Martinussen, 2019).

Working to reduce uncertainty about the impacts of recreational fishing and to raise the consequences of violating the rules in order to incentivize compliance will benefit commercial fisheries and possibly fisheries-dependent communities in the long run. In the short run, however, it may carry consequences for fishing tourism and related operators, particularly in smaller locations with few other opportunities and with (accurate or inaccurate) sensibilities that suggest plenty of fish available. Securing community buy-in to such regulations will be an important additional step in maintaining the sustainability of such enterprise.

Under (C), the task was to focus on how questions of scale and scope might be addressed in ways that made tourism simultaneously economically viable and sustainably beneficial to local communities. The expertise in the group leaned toward cruise ship experiences in multiple dimensions and scales – academic research, skilled crew work, and directed philanthropy in concert with cruise operations, as well as with tourism logistics and sustainable goals more generally. Cruise ships in the Arctic and Nordic regions are well studied as a growing industry with mixed blessings (Ivolga et al, 2019; Veijola and Strauss-Mazzullo, 2019; Luck et al, 2010). The high mobility – and therefore uncertainty - of the floating capital, usually from outside the

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

local or regional system, the seasonality, the volumes of waste and air and water pollutants, the challenges of ‘pulse tourism’ timed to ship arrivals and catering to cruise-focused tourists make for difficult navigation of complex waters.

Community investment questions can be serious and costly (Kaiser et al, 2018): Are new port facilities worth it? Can we maintain both quality visitor experiences with local community empowerment and meet volume needs? How should seasonal/ transient labor be included in the fabric of the community? What safety and security concerns must be addressed? What options to regulating ‘scale’ in terms of the physical size and/or passenger counts of ships are available? How should marine resources be protected and conserved in the interests of cruise tourists’ visceral experiences when these may not match the ecological needs for conservation?

While more questions than solutions may remain, key commonalities with other locales and industry debates about economic development and investments in marine infrastructure and productivity – ranging widely from e.g. whether to widen the Panama Canal for larger ships or how to cooperate internationally on safety and security to how tourist visas are allocated and processed and how local transport – e.g. ferry services – can and should be used, funded, and regulated, broaden the scope for insights and opportunities. These include: diversification of economic activity diversifies risks and builds resilience; regional cooperation and planning can become more win-win, attracting cruises to multiple locations in the same region (an example of which might be the Crystal Serenity cruises of 2016 and 2017, which involved multiple years of planning and community engagement to facilitate community acceptance while providing attractive guest experiences); and community engagement is a two-way effort, where success depends on aligned incentives and focused vision.

Finally, under (D) the group undertook discussion on how changes in technology and public infrastructure could assist or detract from sustainable Nordic marine tourism. Expertise in the group included a wide variety of skills and experience including but not limited to film and related media, architecture, tourism research, Arctic social sciences, marine economy, and remote sensing.

Some discussion in the group focused on how to use technology to turn data into information, particularly in the service of investment and infrastructure that can increase the carrying capacity of a locale. A recurring suggestion in the workshop was that of transforming spatial data from e.g. rental car GPS into a better understanding of key planning issues like where tourists are going, and how long they spend there at various times of day/night. If guests aren’t staying, ‘why not?’ What role does lack of facilities or infrastructure play? If guests are staying a long time, is there a good level of amenities to cater for their needs? Understanding the locations that tourists travel between, their distances, and volumes, highlights transport infrastructure considerations. Here, efforts of mobile heat mapping in Iceland can be built and expanded upon.

While there are obvious commercial benefits of collecting this information, there are also potential sustainability and conservation benefits. For example, the viewing of northern lights is better in darker areas. With many individual drivers and bus services seeking out darker spaces, congestion can reduce the experience for all, and roadside safety issues can be an expected corollary. Spatially accurate information about e.g. how far drivers are going from towns can help plan “dark parking lots” and other infrastructure that combine safety with enhanced experiences.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Additionally, such data could also directly benefit tourists and enhancing their experience. The increased use of, for example, a tourist app providing real time location data (similar to e.g. google analytics) could serve to self-level attendance at various tourist locations by allowing visitors to gauge crowds and plan trips accordingly. Another area of app functionality that may offer value is for repeat visitors. If people come back, the app would know (assuming same IP address on device) and could support visitors' decision-making through individualized travel suggestions that enhance and broaden their experience. In locations where infrastructure is limited and two can be a crowd, this is very important to reduce ecological impacts and enhance quality of visitor experience.

Similar benefits may come from becoming better informed about the locations of marine tourist vessels in both the identification and preservation of ecological 'hotspots' for species variety and densities. Knowledge of vessel movements, volumes and voyage durations through e.g. analysis of Automatic Identification System (AIS) data can support marine spatial planning considerations. The sea is an area for ecological preservation and wider industry uses in addition to tourism. As Iceland considers establishing more Marine Protected Areas (MPA), the need to monitor human activity and to identify and preserve ecological 'hotspots' for species variety and densities in those spaces will become greater. Priorities for conflicting activities need to be negotiated, governed and managed. For example, fishing, and particularly whaling, could be disrupted by higher volumes of whale-watching related tourism. In this context, the IMO ship tracking is key and its implementation in the N. Atlantic and Arctic. There will be need for greater satellite coverage in the High North and also developing monitoring techniques for small and individual recreational vehicle, e.g. small yachts. The Icelandic Coast Guard reporting scheme on small vessels could be expanded to cover recreational activities as well.

The group further discussed the impact of various stakeholders' access to the data collected. It seems likely that entrepreneurs would benefit of tourism data. However, can and should tourism data also be used to attract larger investment from government(s) and macro level entrepreneurs? The data should be helpful in highlighting large transport infrastructure needs as well as other community needs across industrial sectors. Potentially, hubs such as airports, ports, or roads could be funded by local or foreign corporations or local, regional and national governments as long-term investment.

The group considered that film and social media are powerful technological and innovative tools in both promoting tourism and sustainable development, but also that the unintended consequences remain hard to predict and control. For example, significant research is underway on a variety of ways in which film, media and other visual experiences like virtual reality are developing as complements and substitutes for tourism experiences and sustainable action. Table 2 shows a simple tabulation of google scholar results for combinations of search terms relating to these issues.

As is clear from the data in the table, there has been considerable academic research on the general topic, but little on more specific applications to marine and/or Arctic tourism, particularly with respect to Virtual Reality. Additional research could help particularly in determining whether these experiences are complements to sustainability by either reducing the demand to actually visit fragile polar environments (see, e.g. the Antarctica Experience (<https://www.nma.gov.au/whats-on/antarctica-vr>) or the Antarctica Series (<https://www.nytimes.com/interactive/2017/climate/antarctica-virtual-reality.html>)) or by increasing awareness of sustainability concerns in such locations and thus changing behavior. As a realistic alternative hypothesis is that such exposure increases the demand for the 'real

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

experience’, it is important to gain more insights into how media experiences outside of tourist areas impact tourism choices sooner rather than later, so that destinations can better plan and prepare.

Table 2: Scholarship volume on film and social media technologies in tourism (excluding citations)

Search terms	Counts
“film” and “tourism”	~258,000
“social media” and “tourism”	~140,000
“VR” and “Virtual Reality” and “tourism”	~11,300
“media” and “tourism impacts”	~7,890
“film” and “tourism impacts”	~1,810
“social media” and “tourism impacts”	~1,410
“film” and “marine tourism”	~617
“film” and “Arctic tourism”	~165
“social media” and “Arctic tourism”	~153
“VR” and “Virtual Reality” and “marine tourism”	6
“VR” and “Virtual Reality” and “Arctic tourism”	0
<i>All terms googled in Google Scholar June 9, 2019</i>	

These points were reinforced during our visit with Promote Iceland on the last morning of the workshop, during which the organization told about a number of cases where Icelandic sights have been overwhelmed by tourists inspired by social media or film. For example, the group has had long discussions and planning with the Disney Corporation to manage increased (potentially reckless) tourist activity at one of Iceland’s most dangerous beaches (Reynisfjara) upon the upcoming release of Frozen II, which features the beach (or its near-identical copy). The online “Guide to Iceland” already has a feature trying to dampen the enthusiasm for reckless beach behavior¹ despite the fact the movie will not be released until late-November 2019.

While film-inspired tourism (and related merchandizing) is certainly growing and increasing pressure on nature-based tourism sites (e.g. Game of Thrones tourism in Iceland, Ireland and elsewhere; Outlander tourism in Scotland), the filming itself in such locations is also bringing guests, if not traditional tourists, to remote locations and creating economic opportunities. The storefront in Figure 13 advertises “Expeditions, Film Logistics, Production Service” available in this town of approximately 1,200 inhabitants.

¹ <https://now.guidetoiceland.is/2019/02/20/news/was-frozen-2-inspired-by-reynisfjara-black-sand-beach/>



Figure 13: Film Production and Logistics Storefront, Siglufjörður © Brooks A. Kaiser

The population is down from its heyday as a herring fishery center, but now remains stable and somewhat growing with a new tunnel opened to the community and large-scale tourism investment. Stops on the workshop's itinerary included lunch in Siglufjörður at Siglunes, the only Moroccan restaurant in Iceland – anyone who has spent time in Scandinavia must know that this is only possible through considerable ingenuity in finding both chef and a steady supply of needed ingredients.

The entrepreneurial figure in charge is again one of those with vision, human capital and access to community support as well as physical and financial capital that have allowed her to carve out not only the unique restaurant, but also a small hotel catering to complete experiences. These experiences range from cross-country ski weekends that include globally renowned experts as guides/ trainers to 'meet the author' writing retreats, as inspired and requested. Her brand of experiential tourism extends outside of Iceland as well, as she uses her global experiences to take others on unique trips outside of the country to e.g. the Camino de Santiago (Spain).

The energy and enthusiasm in listening to the way plans became action was palpable, and the questions soon turned to focus on knowledge transferability and longevity of tourism operations in the Arctic. Of particular importance is to understand how small peripheral communities, regional authorities and the government can support fiery individual entrepreneurs that bring innovation to the community so as they do not burn up in the first few years, and leave, leaving nothing behind but possibly resentment.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

Dinner was hosted at Laugarbakki. Staff from the neighbouring Icelandic Seal Centre (ISC) in Hvammstangi attended and explained their work in helping entrepreneurs establish sustainable wildlife tourism in Húnaþing vestra. The ISC was established in 2005 as a community-owned non-profit created to develop sustainable tourism in a small rural community in Iceland. It began as a community initiative with a single 1 part-time position and has recently grown to 6 full-time positions. The ISC is a research center with two research departments (Tourism Research and Seal Research). The main building serves as both a seal museum and tourism information center. The center has also recently established Seal Travel — owned and operated by the ISC — a non-profit tourism agency working with the local, and regional tourism entrepreneurs with a focus on sustainable wildlife tourism.

The ISC, as a community initiative, has a primary aim to strengthen local identity, to have a positive impact on establishing a sense of place, and to enhance community pride. The ISC aims at empowering the local community by involving a variety of local stakeholders through partnerships and cooperation. It underlines the importance of interdisciplinary and inter-sectoral cooperation between many stakeholders, including natural and social scientists, local and regional tourism operators, tourism alliances and networks, visitors, policymakers, local residents, and wildlife. Community-based cooperations such as the ISC help facilitate better communication of research findings and knowledge transfer from academia, industry, and community (Aquino, Burns, & Granquist, 2018). Some points emerging from this meeting are:

- The importance of working with multiple stakeholder groups in building a network to ensure sharing of knowledge, transferability of skills and capacity building, best practice benchmark and guidelines.
 - Engaging with municipal leaders, local entrepreneurs, and landowners for the development of authentic tourism products; and working together for the development of management policies and practices at the local level.
- Developing community-based research methods in order to continue the co-creation of tourism policy and local product development.
- The continuation of working at the local and regional level to help develop trust and transparency. The ability to mobilise a community will become important in the future as rural communities continue to be affected by climate change, shifting economies, and outmigration. Community participation is seen as critical towards both a sense of community, community empowerment, and sustainability. As individuals of a community become more actively engaged this leads to building community capacity which leads to sustainable development.
- Strengthening the cooperation between interdisciplinary and intersectoral stakeholders for the further development of an ethical wildlife tourism management framework.
- Continue the work with the central government on wildlife management and seal research. The current conservation status of the harbour seal (*Phoca vitulin*) is critically endangered and the grey seal population (*Halichoerus grypus*) is considered vulnerable in Iceland, though now globally, while Icelandic visitor interest in seal watching tourism has recently grown. This underlines the importance of interdisciplinary and inter-sectoral approaches for management actions as well as the importance of spatial distributions of marine mammal populations in relation to tourist densities and accessibility to viewing opportunities.

Additional insights from the day as a whole reflected on both challenges and opportunities that arise with tourism development in smaller communities. These include:

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

- There should be mechanisms for transparent giving back to communities by tour companies. One aspect is the purchase of goods and services, but moreover facilitating philanthropic gift giving, e.g. Abercrombie & Kent funding projects for the Whale Museum at Húsavík. The flip side is the story to be delivered in return to the guests and thus becoming part of the product.
- There are pros and cons to consolidation in the industry; the ability to maintain local/regional autonomy in the presence of larger scale outside corporations may depend on creating sufficient cooperation through e.g. concerted efforts of product packaging to create a diversification of supporting opportunities for the small on the backs of bigger enterprises.
- Devolutionary industrial pressures and too-small communities can fragment negotiating power and put the negotiating power in the hands of (often, vertically integrated) tour operators, with communities not able to clarify requirements and lay down rules. Creating associations can balance this negotiating power and also reduce being underbid by neighbouring enterprises.

March 22, 2019

On the final day of the workshop, the morning was spent with representatives from Promote Iceland and then a representative from Icelandic Mountain Guides. There the network participants learned of the official promotion strategy of the Icelandic authorities and from the mountain guides about their operations and in particular issues of resource allocation within the Vatnajökull National Park. Salient points for discussion included the aforementioned concerns with marketing and exploitation of natural resources as well as:

- The potential benefits from – and hindrances to - better linkages between regional and national marketing organizations and efforts
- The need for more integrated connections between actionable policies and investments and the marketing campaigns; in particular wildlife concerns are left to local and regional management
- Distributional concerns about the implementation of new access rules to public lands

And

- The costs and benefits of being frontrunners and first-movers in sustainable tourism.

Icelandic Mountain Guides made this final point clearly by explaining how their far-reaching commitment to sustainable tourism experiences brought financial difficulties that have now led to a merger with another tourism provider whose sustainability goals are admirable but slightly different than their own. The move to consolidation is, like other industrial concentration, about profitability, but becomes even more complicated when the objective functions for sustainability are important to firms' identities but are not fully aligned. In this case, for example, the questions were over the use and function of motorized vehicles in tourism experiences while achieving carbon neutrality. Again, tools for combatting such challenges can range from private solutions like associations that raise the bar for all participants to public solutions including regulations and prohibitions.

Iceland has taken a middle-ground approach on this front, by developing and marketing the voluntary Icelandic Pledge, as shown in Figure 14. This may be a particularly good strategy. Recent research in economics, psychology and related fields has investigated the role of oath-taking in honesty, preference elicitation, and coordination and communication (Jacquemet,

Joule et al, 2013; Jacquemet, Luchini, Rosaz et al, 2018; Jacquemet, Luchini, Shogren et al, 2018).



Figure 14: Inspired by Iceland's "Icelandic Pledge"

After lunch, a high-level dialogue was hosted by Polar Research and Policy Initiative in the Parliament of Iceland. The participants in the dialogue included the workshop delegates, a number of Icelandic Parliamentarians, as well as Ministers, Ambassadors/Consuls or other government officials from Canada, Denmark, Greenland, India and France. See Annex II for the full list of participants. The host MP, Ari Trausti Guðmundsson, Member of the Foreign Affairs Committee and Chair of the Icelandic delegation to the Conference of Parliamentarians of the Arctic Region, produced the following summary points from that meeting to ponder.

1. All the states have a limited carrying tourism capacity in their Arctic regions. These have to be defined.
2. We need a coherent, general code of conduct for tourists in the Arctic
3. We need to materialize the Arctic Council agreement on search and rescue; we need the equipment in place where it is close to frequented areas. We need good satellite navigation systems for air and sea traffic and improved sea charts; navigation maps.
4. Special, international rules/recommendations for environmental protection in the Arctic should be set for air and sea traffic; especially regarding types of fuel used in transport.
5. We need larger and more numerous protected areas at sea, nature reserves, as well as on land and furthermore, there should be designated visitor landing sites for tourists aboard cruise and expedition ships.
6. We need national plans or guidelines for management of natural resources; finding the balance between the utilization of resources and environmental protection. Such plans could be linked to some extent, across borders.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

7. We should implement cooperation between the eight Arctic countries, the 4-million strong population, and especially with the indigenous people, when building and strengthening the infrastructure.
8. We should discuss how to further strengthen the scientific research cooperation, especially how to disseminate data, translate research papers as well as to enhance multi-disciplinary and international research in the Arctic.

The high-level dialogue was followed by a reception hosted by the Ambassador of Canada to Iceland, Dr Anne-Tamara Lorre, at her residence in Reykjavik. The dialogue was also attended by members of the diplomatic corps representing the US and various senior government officials from Iceland. See Annex III for delegate list. Canada and the US, like the Nordic region, take an interest in sustainable tourism development in the Arctic, especially as their respective Arctic territories are also witnessing an increase in tourism, particularly in the form of cruise tourism. The reception provided a good opportunity for tourism stakeholders – policymakers, investors, tour operators and entrepreneurs, and researchers – to interact, make new connections and exchange ideas.

Concluding points

Lessons to learn

- There are both technical and policy challenges to sustainable management of tourism in the Arctic.
- Technical challenges revolve around the real issues of infrastructure-dependent capacity and the relationships among numbers of tourists; their characteristics, behaviours, and distribution in time and space; and the balance of positive and negative impacts of tourism for local and extra-local environments, societies, and economies.
- Marine tourism that is dependent on the carrying capacities of marine ecosystems will benefit from increased information of ecosystem characteristics and limits as well as oversight of use by both local and national entities.
- Solutions to conflicting resource uses benefit from stakeholder agreements that generate buy-in from all affected policies and changes in resource use.
- The multidimensional role of the entrepreneur and/or community leader in brokering such agreements, and ensuring that community engagement renders them sustainable, should not be overlooked.
- Policy challenges revolve around the divergence of desired futures and goals for tourism among and within communities at a range of scales; the capacities of administrative, financial, knowledge, and infrastructure systems to inform, guide, and accommodate sustainable tourism; and reconciliation of the elements of tourism systems that are within control of tourism managers with externally controlled elements.
- Management systems with varying degrees of potential for sustainability are present in other sectors of Arctic environment/society/economy (e.g., fisheries management systems). Lessons can be learned from these that could be applied to development of systems for sustainable tourism management.
 - Critically, when these systems are successful, they are based on science-informed decision-making, which itself is made possible by strong commitment to systematic, integrated, and applied knowledge gathering.
- Collaboration and coordination are vital and achievable for sustainable Arctic tourism management. Arctic environments, societies, and economies are inextricably linked. Likewise, Arctic tourism flows, benefits, and negative consequences transcend regional and

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis

Workshop in Northern Iceland, 18-22 March 2019

national boundaries. The relative similarities and differences among Arctic nations provide a powerful platform for evolving a diversity of approaches and the sharing best practices to establish broad-scale resilience in a dynamic and unprecedented environmental, social, and economic system that is Arctic tourism.

Ways forward:

The workshop highlighted several potential data gathering exercises that could increase the ability to make long run and sustainable plans, including:

- Spatial data from passive monitoring rather than surveying
- Increased entrance and exit surveying at airports (e.g. Hawaii's tourism survey extended to every passenger)
- Marine resource accounting that integrates recreational impacts, including recreational fishing and marine mammal populations

Efforts to increase the intentionality and sustainability of tourist decision-making can capitalize on the limited points of entry to the country and

- Increase awareness of the Icelandic Pledge and of sustainable tourism outside of the capital region by circulating the information ahead of time through e.g. airline ticket reservation confirmations
- Integrate regional and national efforts in both marketing and operations
- Use new data and information for forward-looking rather than backward-looking assessments and scenario planning.

Government and private interests should continue to invest, and expand investment, in increased communication and cooperation amongst stakeholders through:

- Direct community engagement,
- The creation and fostering of associations aimed at upholding commitments to sustainable behavior,
- Dialogue with external actors engaging in tourism activities, particularly that fosters co-creation of experiences and community values

Next steps:

A third workshop is scheduled to be held in the Faroe Islands in the late spring, 2020. As innovators in tourism that is slower-paced, sustainable, and focused on co-creation of experiences, the participants look forward to seeing how this balanced approach to tourism as an industry is affecting economic development in the Islands.

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Annex I – Workshop Participants:

Name	Institution
Jessica Aquino	Holar University College and the Icelandic Seal Center, IS; local host
Thomas Bishop	WilkinsonEyre Architects, UK and Polar Research and Policy Initiative, Fellow, UK
Hans Ellefsen	Faroe Islands, Ministry of Fisheries, FO
Helga Kristin Fridjonsdottir	Iceland Unwrapped by Helgastina, IS and NL; co-organizer
Chris Horbel	SEBE, University of Southern Denmark, DK; co-organizer
Edward Huijbens	Wageningen University, NL & Icelandic Tourism Research Centre, IS; local host
Tom Huntingford	Superfolk Films, UK
Hallvard Jensen	NIBIO – the Norwegian Institute of Bioeconomy, NO
Brooks Kaiser	SEBE, University of Southern Denmark, DK and Polar Research and Policy Initiative, UK; co-organizer
Annleyg Lamhauge	Visit Faroe Islands, FO
Yajie Liu	University of Tromsø, NO
Pat Maher	Cape Breton University, CA and Polar Research and Policy Initiative, UK
Dwayne Ryan Menezes	Polar Research and Policy Initiative, Managing Director, UK
Iain Morrison	Tourism and Business Management, The Scottish Government, UK
Nathan Reigner	Recreation and Tourism Science, LLC, USA and Fulbright Program, IS; local host
Susan Seubert	Susan Seubert Photography, USA
Keith Sproule	Abercrombie & Kent Philanthropy, USA
Jonathan Turner	NLA International, UK
Alex Wright	UK Department of International Trade, Deputy Head for Cross-Whitehall Strategy

Annex II – Participants in the High-Level Dialogue in the Parliament of Iceland:

Name	Institution
Dwayne Ryan Menezes (chair)	Polar Research and Policy Initiative, Managing Director, UK
Ari Trausti Guðmundsson (chair)	Member of Althingi – Suðurkjördæmi (South Constituency); Chair - Icelandic Delegation to the Conference of Arctic Parliamentarians
Sara Elísa Þórðardóttir	Member of Althingi – Suðvesturkjördæmis (Southwest Constituency)
Hanna Kristín Friðriksdóttir	Member of Althingi – Reykjavíkurborg (Reykjavik South Constituency)

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Vilhjálmur Árnason	Member of Althingi – Suðurkjördæmi (South Constituency)
Líneik Anna Sævarsdóttir	Member of Althingi – Norðausturkjördæmi (Northeast Constituency)
Björn Leví Gunnarsson	Member of Althingi – Reykjavíkurborgkjördæmi suður (Reykjavik South Constituency)
Njáll Trausti Friðbertsson	Member of Althingi – Norðausturkjördæmi (Northeast Constituency)
Kolbeinn Óttarsson Proppé	Member of Althingi – Reykjavíkurborgkjördæmi suður (Reykjavik South Constituency)
Ásmundur Friðriksson	Member of Althingi – Suðurkjördæmi (South Constituency)
Bryndís Haraldsdóttir	Member of Althingi – Suðvesturkjördæmi (Southwest Constituency)
Brooks Kaiser	SEBE, University of Southern Denmark, DK and Polar Research and Policy Initiative, UK; co-organizer
Chris Horbel	SEBE, University of Southern Denmark, DK; co-organizer
Nathan Reigner	Recreation and Tourism Science, LLC, USA; Fulbright Program, IS
Susan Seubert	Susan Seubert Photography, USA
Pat Maher	Cape Breton University, CA; Polar Research and Policy Initiative, UK
Jessica Aquino	Holar University College and the Icelandic Seal Center, IS; local host
Thomas Bishop	WilkinsonEyre Architects, UK and Polar Research and Policy Initiative, Fellow, UK
Jonathan Turner	NLA International, UK
Yajie Liu	University of Tromsø, NO
Anne-Tamara Lorre	Ambassador of Canada to Iceland
Eva Egesborg Hansen	Ambassador of Denmark to Iceland
Kenneth Hoegh	Deputy Foreign Minister, Greenland
Jacob Isboethsen	Consul-General of Greenland in Iceland
T. Armstrong Changsen	Ambassador of India to Iceland
Philippe O’Quin	Ambassador of France to Iceland
Alex Wright	UK Department of International Trade, Deputy Head for Cross-Whitehall Strategy
Iain Morrison	Tourism and Business Management, The Scottish Government, UK
Edward Huijbens	Wageningen University, NL & Icelandic Tourism Research Centre, IS
Susan Seubert	Susan Seubert Photography, USA
Helga Kristin Fridjonsdóttir	Iceland Unwrapped by Helgastina, IS and NL; co-organizer
Tom Huntingford	SuperFolk Films, UK (Video)

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Annex III – Participants at Reception hosted by the Ambassador of Canada to Iceland:

Name	Institution
Anne-Tamara Lorre (host)	Ambassador of Canada to Iceland
Dwayne Ryan Menezes (host)	Polar Research and Policy Initiative, Managing Director, UK
Ari Trausti Guðmundsson (chair)	Member of Althingi – Suðurkjördæmi (South Constituency); Chair - Icelandic Delegation to the Conference of Arctic Parliamentarians
Sara Elísa Þórðardóttir	Member of Althingi – Suðvesturkjördæmis (Southwest Constituency)
Hanna Kristín Friðriksdóttir	Member of Althingi – Reykjavíkurborgkjördæmi suður (Reykjavik South Constituency)
Vilhjálmur Árnason	Member of Althingi – Suðurkjördæmi (South Constituency)
Líneik Anna Sævarsdóttir	Member of Althingi – Norðausturkjördæmi (Northeast Constituency)
Björn Leví Gunnarsson	Member of Althingi – Reykjavíkurborgkjördæmi suður (Reykjavik South Constituency)
Njáll Trausti Friðbertsson	Member of Althingi – Norðausturkjördæmi (Northeast Constituency)
Kolbeinn Óttarsson Proppé	Member of Althingi – Reykjavíkurborgkjördæmi suður (Reykjavik South Constituency)
Ásmundur Friðriksson	Member of Althingi – Suðurkjördæmi (South Constituency)
Bryndís Haraldsdóttir	Member of Althingi – Suðvesturkjördæmis (Southwest Constituency)
Brooks Kaiser	SEBE, University of Southern Denmark, DK and Polar Research and Policy Initiative, UK; co-organizer
Chris Horbel	SEBE, University of Southern Denmark, DK; co-organizer
Nathan Reigner	Recreation and Tourism Science, LLC, USA; Fulbright Program, IS
Susan Seubert	Susan Seubert Photography, USA
Pat Maher	Cape Breton University, CA; Polar Research and Policy Initiative, UK
Jessica Aquino	Holar University College and the Icelandic Seal Center, IS; local host
Thomas Bishop	WilkinsonEyre Architects, UK and Polar Research and Policy Initiative, Fellow, UK
Jonathan Turner	NLA International, UK
Yajie Liu	University of Tromsø, NO
Jill Esposito	Chargé d'Affaires, US Embassy Reykjavik
John P Kill	Economic, Environment and Trade Section Chief, US Embassy Reykjavik
Eva Egesborg Hansen	Ambassador of Denmark to Iceland
Kenneth Hoegh	Deputy Foreign Minister, Greenland

Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

Jacob Isbosethsen	Consul-General of Greenland in Iceland
T. Armstrong Changsen	Ambassador of India to Iceland
Philippe O'Quin	Ambassador of France to Iceland
Alex Wright	UK Department of International Trade, Deputy Head for Cross-Whitehall Strategy
Iain Morrison	Tourism and Business Management, The Scottish Government, UK
Edward Huijbens	Wageningen University, NL & Icelandic Tourism Research Centre, IS
Susan Seubert	Susan Seubert Photography, USA
Sigrún Brynja	Director General, Department of Tourism and Innovation, Ministry of Industries and Innovation
Dr Jón Geir Pétursson	Director General, Department of Land and Natural Heritage, Ministry for the Environment and Natural Resources
Ásta Kristín Sigurjónsdóttir	Director of the Icelandic Tourism Cluster
Arni Freyr Magnusson	Project Manager, Iceland Tourism Cluster
Brynja Laxdal	Director of Marketing, Meet in Reykjavik, Ministry of Industries and Innovation
Fanney Ásgeirsdóttir	Park Manager, Vatnajökull National Park
Magnus Orri Schramm	Managing Director, Raudukambar
Hronn Greipisdóttir	Managing Director, Íslandssjódir
Brynjólfur Stefánsson	Íslandssjódir
Olafur Arnason	Director of Environmental Planning, EFLA
Eva Dís Portdardóttir	Environmental Planner, EFLA
Takeshi Kaji	Director, The Arctic Circle
Dr Taatsiannguaq Inuuteq Olsen	Associate Researcher, Centre for Arctic Health, Aarhus University
Lella Erludóttir	Marketing Manager, Hey Iceland
Vilborg Einarsdóttir	Editor and Producer, JONAA
Lynn Bromley	North Atlantic Data Challenge
Laird Scott Menzies	Coach, Oslo's Division One Hockey Team
Helga Kristin Fridjónsdóttir	Iceland Unwrapped by Helgastina, IS and NL; co-organizer
Tom Huntingford	SuperFolk Films, UK (Video)

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Sustainable Tourism Development in the Nordic Arctic – Proceedings and Analysis
Workshop in Northern Iceland, 18-22 March 2019

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