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Expedition cruise visits to protected areas in the Canadian Arctic: Issues of sustainability and change for an emerging market

Abstract

Many academics claim that expedition cruises to the Polar Regions are an emerging market. However, such cruises have frequently visited the Antarctic since the early 1990's and even earlier in the Arctic, such as the first expedition in 1984 to the territory of Nunavut in the Canadian Arctic. This paper will examine some of the issues and implications that cruise tourism has for protected areas (particularly national parks) that are accessible to expedition cruises throughout the Canadian Arctic. Protected areas contribute to creating a sustainable industry through both their conservation of the landscape, but also in acting as a key attraction and thus economic driver for nearby communities. However, protected areas also rely on a sustainable tourism industry.

This paper will utilize empirical data from two studies (2007 and 2009) that examined cruise visitors to Auyuittuq, Sirmilik and Quttinirpaaq National Parks in Nunavut and Torngat Mountains National Park in Nunatsiavut (Northern Labrador), and visitor management of such. In addition, first hand personal experience and knowledge from professional colleagues will be used to underpin survey results. Socio-economic changes, such as the downturn in the global economy effecting demand, occurring in line with environmental changes, such as climate change have significant effects on the Arctic landscape and wildlife. Thus, many levels of government management for these protected areas need to make changes in order to adapt. Cruise tourism in this region is globally connected to other regions and examination of this will also occur.

Key words: expedition cruise ships; protected areas; Canadian Arctic; sustainability; change

Polar tourism

Tourism in the Polar Regions is a rapidly growing industry in terms of visitor, research, and political interest (Maher, 2010a). Visitor interest was likely brought about by growing media coverage of the Polar Regions due to recent events; both positive (the International Polar Year) and negative (recent cruise ship groundings and sinkings, as well as hysteria around the plight of polar bears and other iconic polar wildlife). Research interest in the Polar Regions has grown generally with the International Polar Year and for tourism with the establishment of networks such as the International Polar Tourism

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Research Network (see Maher & Gelter, 2010). Political interest in polar tourism, particularly in Canada, is also increasing due to the relationship between sovereignty and the 'opening' of ice free passages such as the Northwest Passage.

Expedition cruise tourism is a sector of the polar tourism industry that is experiencing considerable growth. Vessels ply the waters from Svalbard, Iceland and Greenland to the Eastern Canadian Arctic, but also focus specifically on the NW Passage, Baffin Island, Nunatsiavut and the High Arctic islands. While its volume does not yet compare to cruise activities elsewhere in the Arctic (Alaska) or globally (Caribbean and Mediterranean), Dawson, Stewart, Maher and Slocombe (2009) predict the rate of growth will rapidly accelerate in the near future. For years polar cruise tourism has been showcased as a very concerning activity for researchers (see Maher, 2007a; Stewart, Draper & Johnston, 2005) and for policy-makers/management (see Marquez & Eagles 2007; Stewart & Draper, 2006).

Expedition cruises

Walker and Moscardo (2006) and Ellis and Kriwoken (2006) give excellent overviews of the expedition cruise ship market. Expedition vessels visit many of the remote regions of the world. These smaller expedition cruise ships carry up to 120 passengers and offer an educational experience with onboard teams of environmental and cultural guides on board (Walker & Moscardo, 2006). Ellis and Kriwoken (2006) argue that expedition cruises may be 100-150 passenger tours, but do not include all 'small' or 'adventure' ships. Expedition cruises are interested in "finding new unspoiled, previously unvisited locations with a strong natural or cultural appeal" (Ellis & Kriwoken, 2006, p. 251). This potentially increases their impacts and makes planning of expedition cruises difficult to control. However, expedition cruises do focus on education and do not require the infrastructure of traditional cruising. On-board guides provide lectures, guide short walks onshore and allow for access to sites using inflatable rubber boats (Zodiacs). This type of experience has been labeled the 'Lindblad pattern' after the pioneering work of Lars-Eric Lindblad, which began in the 1960s. According to Crosbie and Spletstoesser (2011, p. 106), "the Lindblad pattern of cruising emphasizes exploration and education. Experiences take three forms: using the ship as an observation platform (e.g., for whale watching), small boat cruising (e.g., along scenic coastlines, to view icebergs) and landings ashore. Throughout the cruises, both afloat and ashore, passengers are guided by experienced staff and naturalists, with lectures given en route between destinations. The guides also ensure visitors behave in a way that causes minimal or no disturbance to the natural environment". Within the Canadian Arctic, expedition cruise ships regularly visit communities and sites of natural appeal in this fashion. As expedition guides Thomson and Sproull Thomson (2006) discuss these visits from a very personal level, but also outline the manner in which the 'Lindblad pattern' plays out for them. Figure 1 shows an expedition cruise ship visiting one of the cruise accessible protected areas in the Canadian Arctic – Torngat Mountains National Park.

Within the territories of Nunavut and Nunasiavut the cruise product available is expedition cruising. Cruises take place aboard smaller vessels and combine brief shore visits (including community visits) with extensive education components (Dawson et al., 2009). The first expedition cruise in Nunavut took place in 1984 by the *M/S Lindblad Explorer* (Jones, 1999).

Figure 1

The Prince Albert II expedition cruise ship on a 2008 voyage

(from Iceland, to Greenland, to Baffin Island and heading south towards disembarkation in St. John's, Newfoundland, Canada. Pictured here just south of Torngat Mountains National Park, Nunatsiavut)



Photo: P. Maher.

At present, the Baffin Bay region of Nunavut receives the most cruises (Joint Task Force North, 2007) with occasional voyages heading north to Ellesmere Island and south to Hudson Bay and the Torngat Mountains. This is likely due to its quintessential 'Arctic' scenery in the Baffin Bay region, and its good wildlife viewing opportunities (Dawson et al., 2009). The region also has close proximity to Greenland, which has a well established cruise industry (see Kaae & Råhede, 2011). As a result, Baffin Island has been circumnavigated multiple times by expedition cruise vessels and many communities on Baffin Island regularly host cruise passengers.

Cruise visitors to Nunavut are thought to have similar demographic characteristics as most Arctic cruise tourists: generally well educated, well travelled, in their more advanced years and having high levels of disposable income (see Jones, 1999; Grenier, 2004). For 2008, cruise sailings in Nunavut were down from 2006 numbers (20 vs. 22 sailings), but total cruise tourists were up 830 passengers to a total of 2,926 (Nunavut Department of Economic Development and Transportation, 2008). While numbers are small, it is the variability year to year that is detrimental for planning. The cruise itinerary generated by the Government of Nunavut in 2007 listed 23 separate cruises run by six different companies (Nunavut Department of Economic Development and Transportation, 2007). Based on maximum occupancies, an estimate would be 2,113 cruise visitors that season (Dawson et al., 2009). So, while the number of passengers is growing they are arriving on less vessels, making for larger group sizes.

Many communities across Nunavut and Nunatsiavut are visited by cruise ships, and providing information about cruise tourism to these communities could have direct impact for the nearby protected area. Thus, Pond Inlet, linking with Sirmilik National Park, received ten cruise visits between July 29th and September 8th, 2007. All of those cruise ships had between 110-150 passenger berths (Parks Canada, 2007). Pond Inlet also receives at least one unplanned cruise ship visit every year, adding to the overall number of passengers (Maher, 2010a).

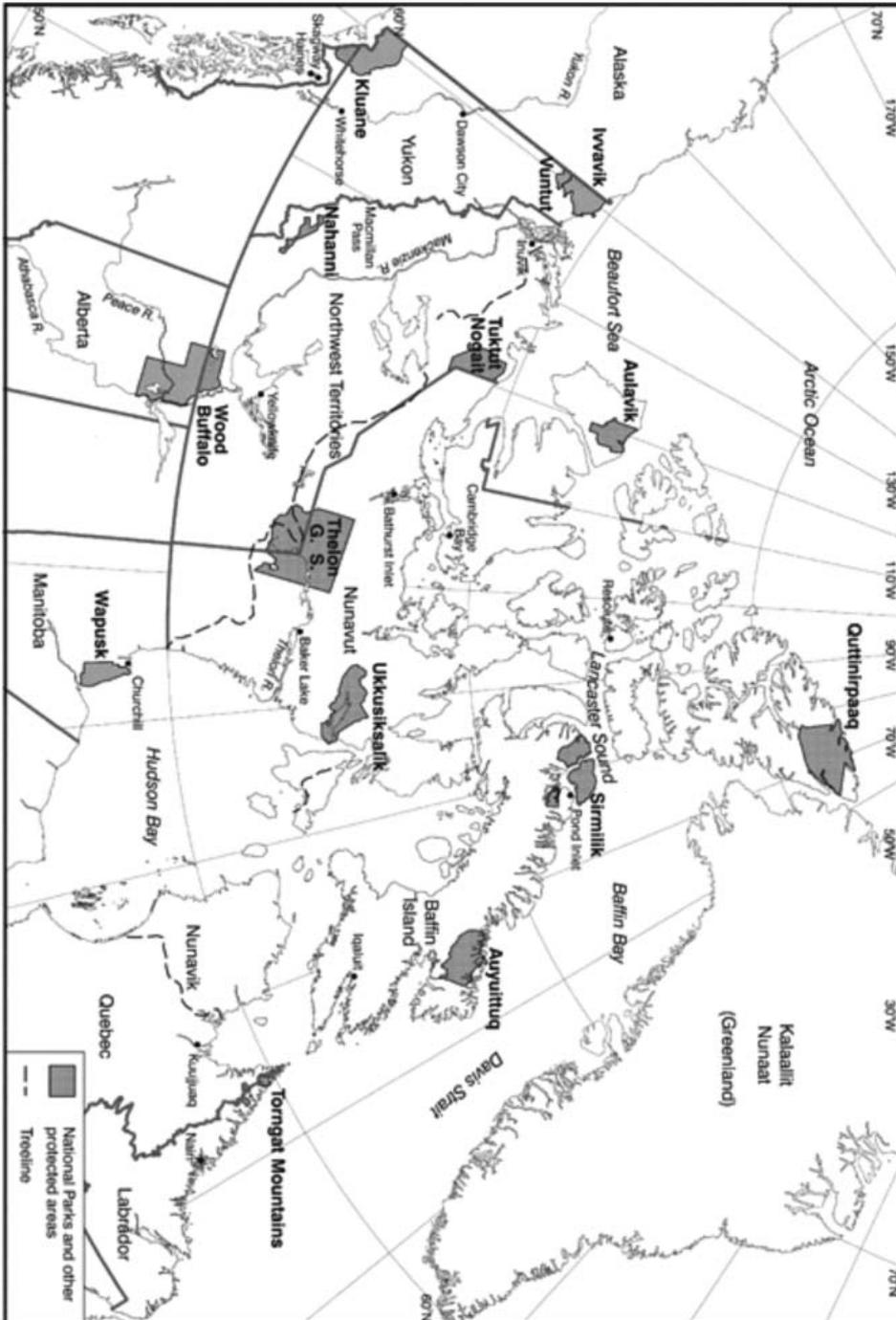
According to data from the Joint Task Force North (2007), the busiest three weeks of cruising in 2007 were July 26th - August 22nd when five separate vessels navigated the waters off Baffin, Devon and Ellesmere Islands. August was also the leading month for cruise travel to Nunavut in 2006 (Datapath, 2006), but in 2008 that moved to September (Nunavut Department of Economic Development and Transportation, 2008). The Nunavut Department of Economic Development and Transportation 2008 visitor exit survey shows that cruise passengers travel primarily for leisure and educational purposes. Datapath's (2006) exit survey reveals that cruise passengers participate in a wide variety of activities (more so than other types of tourists) including shopping, hiking, visits to cultural centres, wildlife viewing, visits to territorial and/or national parks, special events and kayaking.

Protected area attractions

Lemelin and Johnston (2008) contend that Arctic tourism is mostly based on wildlife (e.g. polar bears, whales) and landscape (e.g., fiords, glaciers, icebergs) as attractions. Consequently, it is only natural that protected areas are main tourist attractions because they almost exclusively protect these particular features. In Canada's Arctic, Wapusk National Park is world famous for its polar bears, Auyuittuq and Sirmilik National Parks for their fiords and glaciers, Torngat Mountains National Park for its combination of landscape and wildlife and Quttinirpaaq National Park for its location (the most northern park in the country and the world – Quttinirpaaq was previously called Top of the World National Park). However, national parks are not the only protected areas in Canada's Arctic, but simply the best known and most widely publicized. Territorial parks and wildlife/game sanctuaries tend to have limited media coverage, but also limited ability to capture visitor details of visits. Figure 2 shows the national parks in Canada's North, plus one other protected area (Thelon Game Sanctuary). While this map is not exhaustive of all the levels of provincial or territorial protected areas it does show the location of the premier protected area attractions, particularly four that are visited by expedition cruise vessels

(Auyuittuq, Quttinirpaaq, Sirmilik, Torngat Mountains) and profiled by empirical studies commented on in this article.

Figure 2
National parks in Canada's North



Source: Dawson, Maher & Slocombe (2007, p. 71).

Cruise tourism numbers in the Canadian Arctic

As a comparison, cruise tourism in most other Arctic destinations is at much higher levels than in the Canadian Arctic. Table 1 shows the most recent numbers available.

Table 1
**Estimates of visitor numbers to a variety of cruise accessible regions of the Arctic
 - specifically cruise visitors**

Location	Estimates	Source reference/Notes
Nunavut	2,926	• Nunavut Department of Economic Development and Transportation, 2008; 2008 cruise visitors caught in exit survey
Alaska	878,000	• McDowell Group, 2011; cruise visitors in 2010
Yukon	112,891	• Yukon Department of Tourism and Culture, 2009; 2009 motorcoach visitors making border crossings from cruises docking in Skagway, Alaska offering add-ons
Nunatsiavut (Northern Labrador)	364	• Maher and Lemelin, 2010; 2008 cruise visitors to Torngat Mountains National Park
Greenland	28,891	• Statistics Greenland, 2010; cruise arrivals in 2008
Svalbard (Norway)	8,459	• AECO personal communication, August 2010; 2009 expedition cruise visitors (those touring around Svalbard)
	29,813	• AECO personal communication, August 2010; 2009 cruise visitors arriving from overseas
Iceland	70,000	• Icelandic Tourist Board, 2011; 2010 visitors to Reykjavik aboard 74 vessels

Modified and updated by author from: Maher (2010) and Lück, Maher & Stewart (2010).

Comparing the latest data found in Table 1 with earlier statistics underlines the worldwide growth of cruise activities in the Arctic. In Svalbard, numbers climbed to about 19,000 in 1998 and stayed there until the millennium when they have been stable approximately 10,000 passengers higher in all the years since 2001 (Geitz, 2004). Karlsdóttir (2004) noted that 53 ships made a port call in Akureyri, Iceland on their route between Europe and northern Norway, Svalbard and Greenland. These ships carried a total of 32,500 passengers across the northern Atlantic.

In Haines, Alaska (at the north end of Southeast Alaska's panhandle) there were 50,000 cruise visitors in 1994, and six years later more than 187,000 (Cervený, 2004). Of Southeast Alaska's 800,000 visitors in 2000, it is estimated that upwards of three-quarters (or 600,000) of these visitors arrived aboard large cruise ships (Cervený, 2004), versus on board expedition cruise ships. In Alaska cruise tourism numbers have increased every year for the decade 2000-2010, when the industry experienced a 14.5% decline back to below one million (McDowell Group, 2011). Linked to Alaska's cruise industry is its effect on Canada's Yukon Territory and, due to its proximity, Kluane National Park. Sandiford (2006) reports that from Skagway, Alaska 12,000 cruise visitors disembarked each Wednesday of the 2005 season, and from those a single dog sled operator in the Yukon hosted 10,000 tourists in that cruise season. Kluane National Park reported 200 tourists each Wednesday hiking in the park, and in Parks Canada's eyes they were reaching a new audience to share their ecological messages with (Sandiford, 2006). This suggests that at least a portion of the larger cruise ship market is receiving the education and sustainability messages as given on the expedition vessels.

Sustainability

Sustainability is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development [WCED], 1987, p. 43). Although the WCED definition of sustainability is used throughout the tourism industry, using it is a bit problematic due to the mention of needs when cruising anywhere and in any style is clearly a satisfaction of wants. Additionally, sustainable tourism is a judgment call; often a call made by the industry. Tourism sustainability measured by the hosts is better termed responsible tourism (Klein, 2010b). Using the WCED definition it should be understood that the WCED’s goal would be to have all forms of tourism develop sustainably; from mass tourism at the large scale of the traditional cruise market, to special interest tourism and thus the much smaller scale of expedition cruising.

Sustainability is increasingly recognized across the industry as a more desirable form of operation, because it contributes to the triple bottom line, whereby economic, environmental, and social/cultural benefits are sought and impacts in all three areas are accounted for (Graci & Doods, 2008). The sustainability of the polar cruise market has recently been scrutinized by Lück, Maher and Stewart (2010) and specific to the environmental sustainability of expedition cruising in Canada’s Arctic by Stewart and Draper (2009).

Within this article, sustainability will be examined in the face of market change and environmental change. Empirical data to be discussed in the following section is derived from two studies: a survey undertaken in 2007 of cruise tourists entering Nunavut’s three cruise accessible national parks (Auyuittuq, Sirmilik and Quttinirpaaq) (see Maher & Meade, 2008; Maher, 2010a) and a survey undertaken in 2009 of cruise tourists to Torngat Mountains National Park (TMNP) in Nunatsiavut (see Boudreau, 2009).

Market change implications

At present, the expedition cruise market in the Canadian Arctic is seemingly sustainable. In Nunavut it is estimated that cruise tourists spend on average \$ 134 per person per night, contributing a total of \$ 2,124,000 to the Nunavut economy (Datapath, 2006). An update to this study in 2008 used different measures, but estimated a 44% drop in spending (Nunavut Department of Economic Development and Transportation, 2008). The Canadian expedition cruise market is a far cry from that of another North American Arctic destination, Alaska. Spin-offs from park tours to Kluane National Park were felt in the park’s gateway, Haines Junction, and the entire Alaskan cruise industry generated \$ 175 million and 2000 jobs in the Yukon Territory in 2000 (Sandiford, 2006). In 2010 it is estimated that the roughly one million cruise passengers to Alaska account for Alaskan ports collectively receiving 3.2 million passengers (65% of the all US port of call visits), with direct expenditures of \$ 930 million (BREA, 2011).

For Auyuittuq, Sirmilik and Quttinirpaaq National Parks, of the 192 visitors who mentioned making a landing in a community (see Maher & Meade, 2008), only 130 visitors wrote in a dollar amount for how much they had spent there. The amount spent ranged from \$ 0 to \$ 900 and for the 80 responses that included an amount above \$ 0 (50 responses simply stated \$ 0 versus leaving the question blank)

for a landing, a total of \$ 8,618.00 was spent in communities or \$ 107.74 per response above \$ 0/ landing (Maher, 2010a). While this amount appears low, it is consistent with what is often mentioned as the average per port spending of cruise passengers. The unique situation in the Canadian Arctic is that this amount has no cruise industry payment included – many time the spending from passengers goes mostly into the pocket of the company through pre-sale tours and other deals.

One of the few studies to deduct this commission reports on Croatian destinations. Marušić, Horak and Tomljenović (2009) found that depending on the port of call cruise visitors spent between 34 and 82 Euros. While \$ 100 is the frequently used per passenger per port amount, and was extrapolated from a number of studies in the 1990s (see Klein, 2009, for further details), many newer studies refute this. Price Waterhouse Coopers (2001) reports than in the Carribbean, excluding the two destinations Cozumel and St. Thomas, spending per port ranged from US\$ 53.84 to US\$ 86.81 with an average per port of US\$ 72.81. In Central America the Centre on Ecotourism and Sustainable Development (CESD) has reported on passenger spending in Belize (2006) and Costa Rica (2007). Per passenger spending, minus that spent on tours and adjusted for those passengers who stay onboard, was just under US\$ 45.

There are perhaps two explanations for the discrepancies in Nunavut – the Datapath estimates are perhaps concentrated in larger centres such as Iqaluit, or the estimates account for monies that do not actually make it to the community, but stay with the cruise company (the commissions and pre-sales). Boudreau (2009) did not ask about spending, but consistent with most cruise studies, visitors to TMNP had high income levels, with 56% of respondents earning more than \$ 75,000 annually. The limited amount of money spent in local communities is a very important result, as most of these parks have been ‘sold’ in their development as attractions that will become revenue sources for communities. This is a practical area that needs to be improved if the potential benefit of cruise tourism to the parks (and nearby communities) is to be fully realized. It is interesting to note the lack of negative impacts on communities seen by cruise tourists in Maher and Meade’s (2008) study, which contradicts findings from other community-based studies on tourism in the Arctic (see Stewart & Draper, 2007).

Of concern for the host communities is reliance on only a few vessels. While this allows for less ‘problem’ vessels and helps the sustainability of the supply by having fewer vessels make more tours, there are issues in case of accidents. For example, the *Explorer* once plied the waters of Nunatsiavut and Nunavut, sank in 2007 and now sits on the ocean floor off the Antarctic Peninsula (see Stewart & Draper, 2008). Other, less drastic incidents are also potentially significant, for example if a vessel grounds and is forced to make repairs and cancel future cruises (see Cohen, 2010). For a full rundown of recent incidents across the polar regions see Klein (2010a).

For TMNP there were three vessels that took part in the 2009 study, and in 2007 only three vessels responded during visits to Auyuittuq, Sirmilik and Quttinirpaaq National Parks; two that overlap with TMNP usage. The Joint Task Force North (2007) shows seven vessels active in the Baffin Bay-Arctic Archipelago region that summer, however one of these has since sunk (the *Explorer*) and another (the *Clipper Adventurer*) was recently grounded further west in the NW Passage (Sands, Warnica & Cohen, 2010), although it is now back in service. Besides physical issues that change the market, so too do economic issues. In recent years, Cruise North, a well-respected Inuit-owned operator, was forced to merge with Adventure Canada (see Cruise North, 2011), and Polar Star Expeditions declared bankruptcy (see TICO, 2011).

The market can also be seen as sustainable because of the proximity of the market to the product – versus elsewhere in the Polar Regions. The study by Maher and Meade (2008) showed that the majority of the passengers came from either Canada (34.6%) or Denmark (35%). The remaining visitors came from the United States (10.2%), and other European countries - notably France and Germany. Within the Canadian passengers, the majority hailed from the provinces of Ontario (57%) and Quebec (29%) – again those with close proximity to the tour area, but also large proportions of the overall Canadian population. In Boudreau’s (2009) study 80% of the respondents were from Canada (52% from Ontario and Quebec), with a further 13% from the United States. These visitors almost exclusively (96%) stated that TMNP is now meaningful to them after the cruise and that they would recommend a cruise as the way to experience the park. There is a distinct advantage here for the expedition cruise market in the Canadian Arctic. Many American passengers have already been to other areas of the polar regions (they have always been the primary market for Antarctic and Alaska cruises). These, and the growth in the Danish and other European tourists, may point to the future, with a foot in both the established and close markets.

In neither study did respondents have extensive cruise experience or experience in the Arctic, but they did have clear expectations. In Maher and Meade’ (2008) study, passengers were asked what they had hoped to experience during their trip. Of the 289 respondents who answered the question, there were 2,329 responses (as multiple responses were permitted for this question). Table 2 outlines, both, the total number of responses and relative percentage for each response category. The results show that these cruise tourists’ top expectations are to see and experience wildlife and cultural sites.

Table 2
What visitors hope to experience during the trip

Hope to experience	Total	%
Wildlife	251	10.8
Birds	191	8.2
Whales	245	10.5
Polar Bears	258	11.1
Icebergs	241	10.3
Inuit culture	224	9.6
Archaeological sites	96	4.1
24 hour daylight	67	2.9
Mountains	140	6.0
Evidence of global climate change	87	3.7
Canadian national park	120	5.2
Solitude	75	3.2
Silence	103	4.4
Lack of crowds	90	3.9
Pristine scenic vistas	124	5.3
Other	17	0.8

For the 17 ‘Other’ responses, some of the items that respondents stated that they hoped to experience were plants, Inuit, glaciers, art, friends, spies, and fox. Boudreau’s (2009) respondents for TMNP were asked about what they had seen and experienced, and these responses included polar bears, caribou, whales, birds, lots of scenery and specific places, and cultural presentations/lectures.

As a result of expectations matching exact experiences, all respondents to Boudreau's (2009) survey were satisfied with their visit to TMNP, with 78% very satisfied. Maher (2010a) reported that when asked if their expectations of the experience had been met the majority 197 passengers (61%) felt their expectations were met. When broken down by National Park visited 68% of Sirmilik visitors felt their expectations were met, 60% of Quittinirpaaq visitors felt their expectations were met and visitors to Auyuittuq often gave no response (45%) but of the remaining group of respondents 43% indicated their expectations were met. Of the comments as to why or why not their expectations were met, 25% were disappointed with the amount of wildlife seen (specifically polar bears, whales and narwhales), 14% were disappointed with the amount of ice/icebergs and wildlife, 8% were disappointed with the amount of ice, and 6% were disappointed with the ship. Notably, one person commented about park permits, and another about lack of Inuit participation.

Expectations are one area where market changes and environmental changes are inextricably linked. As an example, in 2008 a German passenger, who was booked on a cruise via the Northwest Passage, successfully sued the tour operator for a shortcoming of his trip: The brochure of the operator promised "meter-thick pack ice". During this particular journey (July 2007), there was no "meter-thick pack ice" to be seen, attributed to the effects of climate change, and the court agreed that this was a shortcoming of the journey. It was a broken promise of the tour operator, despite the tour operator's brochure advising that schedules may have to be changed due to extreme weather (Schwabe, 2008).

Environmental change implications

The expectation of pristine landscapes and lack of crowds are items that directly link to environmental change. As ice regimes change, the landscape is changed; and as the region opens up, more crowds arrive. From crowds (and more ships) come the potential to have more direct impacts (oil spills, etc.). Areas of the Canadian Arctic (specifically the Northwest Passage) are becoming increasingly ice-free in summers and changing ice regimes do not only open up the area to more traffic, but also present navigational problems because of higher levels of multi-year ice (see ACIA, 2004; Stewart, Howell, Draper, Yackel & Tivy, 2007; Howell, Tivy, Yackel, & McCourt, 2008; Stewart, Draper & Dawson, 2010). Ice is the ever-present danger, but there are other problems related to mapping, etc. In 1996 the *Hanseatic* grounded in the Simpson Strait near the community of Gjoa Haven (Transportation Safety Board of Canada, 1996) and east of Kugluktuk in the Coronation Gulf the *Clipper Adventurer* was grounded in 2010 (Stewart & Dawson, 2010). Incidents such as these will potentially increase in regularity as the environment of the Arctic changes and because of the woeful conditions of Canadian monitoring, mapping and the likes. The greatest concern is the unpredictability of the environment in one respect, but also coupled with the unpredictability of any response to incidents. Currently Canada has inadequate monitoring, assessment, regulation and the ability to react to cruise ship (or other marine) problems in their sovereign territory (Klein, 2009; Stewart, Draper & Dawson, 2010), and that does not even account for questions around Canada's sovereignty in the area. In contrast, Norway, with sovereignty over the high Arctic archipelago of Svalbard, has an excellent system of monitoring, assessment, and regulation in place through longstanding cooperation between the government (see Governor of Svalbard, 2012), research agencies (see Norwegian Polar Institute, 2008), and the regional industry association (see AECO, 2011).

Maier & Meade (2008) asked passengers if they noticed any negative impacts associated with cruise ship visits. Most visitors that landed did not notice any negative impacts; however 20 people (6%) did, and when asked to comment about the impacts their main concern was that the tourists overwhelm the communities, i.e. the tourists cause the population to double and there is much disorder. Authors such as Klein (2010a) have labeled this people pollution, which fits with other aspects identified by Maier and Meade's (2008) respondents, including negative cultural impacts, selling of narwhal tusks, garbage around town and the town still appearing poor despite tourism. No impacts mentioned were directly related to the parks, but rather to the nearby communities instead.

At the end of their cruise experience, Maier (2010a) asked passengers if they had heard about or noticed any effects of global climate change. The majority of respondents indicated that they had, in fact, noticed effects of climate change on their trip (52%). When broken down by country the French had the highest 'yes' responses (71%) and zero 'no' responses. Americans and Canadians were also highly likely to indicate that they had noticed effects of climate change. This question also asked those who did notice effects of climate change if experiencing the northern ecosystem (both nature and culture) might inspire them to make changes to their lifestyle when they returned home. Most passengers noted that they were inspired to make changes to their lifestyle (71%). Therefore, there is a good chance that with environmental change comes market change. Tourists returning home and change their behaviour, inspired by their experience. These results underpin studies finding that experiences, supported by well designed interpretation and education, can indeed change the behaviour of tourists after they have returned home (e.g., Orams, 1997; Maier, 2007b; Lück, 2009). This notion of creating ambassadors, with on-tour experiences changing future behaviour, is one that needs much more examination. However, in studies of cruising in other polar destinations, such as Antarctica and Alaska, it has shown to be both problematic to accurately study and prove specific causal effects around behaviour change (Antarctica - see Maier, 2010b and Eijgelaar, Thaper & Peeters, 2010; Alaska – see Sheppard, 2010).

When broken down by age group, the youngest passengers in Maier's (2010a) study all indicated they were inspired to make changes. This inspiration to make changes decreased with age: Age 20-39 (85%), age 40-59 (79%), age 60+ (62%). Although the French had the highest percentage of 'yes' responses for effects of climate change they also had the highest percentage of 'no' responses for lifestyle changes (50%). While Canadians had the highest percentage of respondents indicate a desire to implement a change in lifestyle (84%).

Relevance to other regions

Expedition cruise tourism in the Canadian Arctic is a very small piece of the industry. The numbers that Kester (2002) discusses elsewhere are comparatively huge – millions of passengers and ships with thousands of berths. The Cruise Lines International Association (CLIA), which accounts for 2/3 of the industry worldwide, reports more than 13 million passengers on its member lines in 2008 (CLIA, 2009, as cited in Lück, Maier & Stewart, 2010). However, despite this disparity there are aspects of the Canadian expedition cruise industry, particularly around protected areas, that can inform regions elsewhere. These aspects become even more real as the very recent 2012 *Costa Concordia* incident has the capacity to effect small tourism dependent communities and one of Europe's most critical marine

parks along the Tuscan coast in Italy. Johnson (2002) discusses a 'reality check' for an environmentally sustainable cruise tourism industry and one area from this article that operators in the Canadian Arctic are doing well at is Education. The use of the 'Linblad pattern' on these small vessels may help with creating a behavioural code, even if none exists in regulation. Stewart (2009) talks about a positive community engagement/educational opportunity - for Inuit to dispel myths about living in and Arctic environment, whereby in some communities a regular audience of cruise visitors has revitalized traditional throat singing, Arctic sports and drum dancing.

Johnson (2002) also discusses destination concern over port protocols and impacts and this has also been examined in the area of Nunatsiavut (see Hull & Milne, 2010). There is the danger, even with the 'Lindblad pattern', of globalizing, or McDonaldizing (see Wood, 2000; Weaver, 2005) even the small expedition cruise segment because the ships in the Canadian Arctic also ply the Antarctic, remote destinations in the Atlantic, and even up the Amazon. However, it is the constant connection to the place by using local guides, truly connecting and economically supporting local industry that will assist in offsetting this. There are destinations world-wide that are UNESCO heritage sites, in remote areas and increasingly being sought by expedition cruise visitors. Lessons from the Canadian Arctic can be relevant there too.

Conclusions

The difficulty for cruise tourism and protected areas in regions such as the Canadian Arctic lies in the complexity of the market; what the demand is and how that changes with the market, but also the environment. The demand is effected by overly expensive costs per berth, the environment across the region is a huge draw, but is changing more than other regions in the world, made more difficult in protected areas striving to protect ecological integrity. Maher and Meade (2008) saw respondents state they wanted an 'Arctic Experience' (49% of single respondents, and an additional 27% in multiple responses). But how does an agency manage an 'Arctic Experience', what is it? How does it change as the environment changes? Cruise visitors' commentary on climate change is interesting, but it may be difficult (near impossible) for cruise tourists to truly 'notice' changes given how many have not visited before. Perhaps there is a sense of noticing the changes after having been told about them beforehand by the operator and the media at home that managers need to be wary of?

'Arctic Experience'; however classified by respondents, is of much higher importance to cruise tourists than to the more recreational type of visitors (see Lachapelle, McCool & Watson, 2004, 2005). For Parks Canada, who manages all the protected areas profiled in this paper, figuring out exactly what this entails is a key management strategy, especially given their recently revised mandate that now focuses on creating memorable visitor experiences as well as maintaining ecological integrity. More broadly, how do policies of the Canadian Government shape or interact with it. None of Canada's Arctic territories (or Nunatsiavut) has a comprehensive cruise tourism policy in place. Nunavut has recently completed a community consultation process about tourism policy and strategy more broadly, and that points to the need for this policy/strategy for cruise tourism, but it always seems to be the next step.

Similarly, as Stewart, Draper and Dawson (2010) discuss there is no comprehensive monitoring and surveillance system in place that looks at actual cruise activity through Canada's Arctic waters. The

Canadian Coast Guard has NORDREG, which aims to keep track of all maritime traffic north of 60°, plus Ungava Bay and the southern part of Hudson Bay (Canadian Coast Guard, 2011), but cruise ships do not have to register with this system. Elsewhere in the Arctic there are pan-border agencies such as the AECO (in Europe), and in the Antarctic (IAATO) there are voluntary systems working with the same ships and operators; Canada needs to proactively connect to these sorts of organizations as cruise ships cross boundaries, and without cooperation expedition cruising will not stay sustainable for much longer.

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