

Chapter

From Eco to Sustainable Tourism, the Contradictions and Challenges of Nature-Based Tourism: The Case of Polar Cruises

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Abstract

Polar tourism includes all leisure travel products set in the Antarctic and Arctic regions. As such, it is conditioned by an interest for nature in extreme settings (polar desert, cold climate, harsh travel conditions – when by sea. The Arctic adds an additional interest for indigenous cultures. Trying to meet those tourism interests, a specialized cruise tourism branch developed in the late 1980s (though sporadic cruises were held back from the XIXth century onward) providing exclusive access to the most difficult and far distant latitudes of the High Arctic and opposite Antarctic coastline. In any form of tourism, operators must protect the resources their economic activities rest upon as any deterioration they suffer will sooner or later impact the experience and its viability. Hence a paradox: how to protect the ecological (and cultural) integrity of these features for sustained competitiveness? Since its emergence, as an industry some 40 years ago, the polar cruising has followed trends in environmental and social management, referring in their marketing and travel policies to both eco- and sustainable tourism. Serving the wealthy customers, initially the well-traveled elderly, the ship-based polar industry kept a simple programme of lecture and soft-oriented activities, namely inflatable cruising in icy bays and close-to-shore trekking. Yet, with an increasing clientele of younger middle-age tourists, operators have also diversified their excursion products to offer more sportive-oriented activities off-ship. As long as these activities were non-fuel based, the operators enforced their ecological management claims. But with more fuel-based activities (helicopter, Zodiac sightseeing), and therefore a more invasive approach to the sensitive ecosystems visited, can this industry continue to claim to be sustainable? Based on the sustainable claims made by two important polar cruise operators, this study underlines that while the polar cruise industry, as a whole, might seek to improve its ecological footprint, there remains many contradictions between their will to be environmental and the desire to conquer the environment.

Keywords: Sustainability, nature, tourism, Arctic/Antarctic, cruise (ship-based tourism)

1. Introduction

“Image is everything”, informed us in 1989 then rising sport personality Andre Agassi, during a sun-glasses commercial. The motto, created by the marketing industry to increase consumption through the valorisation of the self-image, applies to much more than clothes and accessories. Beyond the general arguments for rest and escape, tourism, a luxurious form of leisure, involves the consumption experiences in the form of activities in selected environments, atmospheres, and cultures (see [1]). It allows the travelers to acquire social and cultural capital, so important for identity building and assertiveness. As such, tourism leads to recognition by the peers and distinction, through the display of that newly acquire capital, otherwise referred to as “distinction” [2]. Referring to Bourdieu’s analysis of the concept, Boyer [3] has argued that tourism was built – and is still rests – on the concept of distinction. Hence, when tourism becomes the target of vast criticism, following the emergence of its negative impacts on environment and host communities, [some] operators and tourists are quick to adjust. So would the visibility of sustainable claims in tourism promotion would lead to believe. But are they?

The many failures of the tourism industry to manage its negative impacts are well documented. The complexity of the management issues has surfaced with the advent of mass tourism in the mid-1970s. Beginning with the 1980s, this criticism toward mass tourism was met with the development of so-called alternative forms of travel: “ecotourism”, “community-based”, “ethical”, “fair” and, more recently “slow” tourism, to name but only a few, all aimed at reducing their negative impacts on the environments, host communities and cultures visited. Pushed by the disenchantment for mass tourism and its negative image, the much-valorised alternative tourisms have diverted the attention of the visitors away from locations capable to host large numbers of visitors, to bring them to often much more sensitive areas, especially in nature-dominated environments. With the number of visitors seeking nature-based tourism increasing constantly, alternative tourisms – with few exceptions if any – often repeat similar mistakes mass tourism does but on a much more subtle scale.

The juxtaposition of the concepts of ecotourism and sustainable tourism, two of the perspectives that have been referred to since the 1990s, only adds to the confusion of genres. Used both as a product of merchandising and management mode, both have become the perfect tools for greenwashing: I ecotourism or I speak sustainability, therefore I am! Yet, the problem lies not only in the choice of one’s consumption activities at the destination, but also in how to access them. “The underlying reason for the ecological unsustainability of mainstream tourism lies in the intensive impacts generated by transport, i.e. the transfer of tourists from their homes to their destination and back”, underlines Carić [4]. The continuing debate over the sustainability of the flying industry (see [5]) for summary) can very well be extended to cruising.

Thus, in the name of his love for an endangered nature, the tourist is still able to travel to the smallest corners of his planet without remorse, as long as he can qualify his experiences with fashionable labels. Fletcher [6] refers to this as “Anthropocene tourism” – “capitalism’s astonishing capacity for self-renewal through creative destruction, sustaining itself in a “post-nature” world by continuing to market social and environmental awareness and action even while shifting from pursuit of nonhuman “nature” previously grounding these aims”. And so, the Arctic and Antarctic ecosystems see thousands of wealthy tourists traveling each summer by planes, ships and inflatables, using fossil fuel, in order to admire the polar environment threatened by climate change caused by human activities and... fossil fuel (**Figure 1**).

The years 2000 saw the rise of yet another approach, sustainable tourism, aimed this time at a challenging quest for balance between economic development



Figure 1. So-called sustainable tourism bring thousands of visitors to the Arctic and Antarctic by cruiseships and inflatables using fossil fuel to admire the polar environments threatened by climate change, ironically caused by human activities and carbon emissions from fossil fuel vehicles. Source: Alain A. Grenier.

and environmental and cultural conservation. Yet, facing an unstoppable thirst for [cash] income, communities have been overflowing with visitors, leading to overtourism – the saturation of the sites where tourists visit and reside when their number exceeds the natural or human ecosystem’s capacity of charge, leading to deteriorations or even depletion of the resources, and the quality of the experience for both visitors and residents. That was before the 2020 COVID-19 pandemic interfered with the tourism flow and growth, leading to the industry’s first collapse since the disturbance that followed the terrorists’ attack of 9/11 in the US. Yet, with the medical response to the pandemic, tourism will eventually resume. And while social distancing may infringe of mass tourism, nature-based tourism will continue to offer ideal opportunities for travelers seeking wide-open landscapes to venture in (with the challenges associated with indoor infrastructures and services, namely ticket offices, accommodation, restoration, and hygiene rooms⁰). Hence, in the light of the post-COVID-19 recovery, the sustainability challenges facing tourism are more topical than ever.

More than addressing the sole ecological issues – as is the case in ecological or “ecotourism”, sustainable tourism involves equity and ethics consideration toward the labour providing the required services in the travel experience, as well as the social, cultural and economic well-being of the host communities. This implies a fair contribution to local economies – all aims easier stated than done. The challenges of sustainable tourism are even more difficult to apply in natural environment – remote and/or wilderness, due to the challenges of fair-distant transportation, but also the cultural differences between local residents, traditional indigenous populations, and more westernized visitors in regard with food consumption – the killing of local wildlife to sustain life, while being attraction at the same time. Yet, with the constant need for cultural capital and distinction, tourists driven by a variety of agendas, are not solely interested in sustainability. Hence, to please a growing demand from nature and pro-environment goers, operators who are trying to response to criticism by implementing sustainable policies. Yet because demand also comes from from *ego*-tourists looking for another line to add to their travel résumé, the same operators may tend at the same time to offer news products

that are in contradiction with the principles of sustainability, leading to a potential risk of green washing, where image is everything. Such is the case of polar tourism.

Polar tourism includes all leisure travel products set in the Arctic and Antarctic regions, which include both land and air travel in Europe, North America and northern Russia, with a specific cruise branch dominating the most extreme and far difficult to reach latitudes. Since its emergence, as an industry some 40 years ago, the polar cruise industry has followed trends in environmental and social management, referring in their marketing and travel policies to both eco (1990s) and sustainable tourism (years 2000s+). As long as their customers were the elderly (often over their 70s and 80s), the activities offered were limited to inflatable tours in bays to observe scenery and icebergs, and the occasional walk ashore, close to the landing point or bird rookeries. But with younger (mid-40s and higher) passengers, more active and demanding, operators have begun to enlarge the spectrum of activities offered, including more fuel-based activities (helicopter, Zodiac sightseeing, deeper into the landscape), and therefore a more invasive approach to the geographical exploration of the polar spaces. In addition, the aging of the current fleet of polar vessels requires new one to be build. The industry, at the cross roads between the former non-ecological vessels and those they can design for the near future, are facing the challenges of applying to their activities the principles of sustainable tourism, while yet facing a demand for more aggressive ways to interact with the pristine ecosystems that brings them visitors in the first place. In this context, can this ship-based polar industry really claim to be sustainable?

Based on the travel policy set by some of the leading operators, and travel organizations representing them at both ends of the world, and on the empirical travel experience of the researcher onboard polar cruises, this article aims at underlining the orientation the ship-based industry has taken over the last 40 years, from eco- to sustainable tourism, confronting their sustainable policies to actions to discuss how much the willingness to adapt to current management trends may or may not equate with green washing.

2. Nature tourism as a response to mass tourism and the environmental crisis

Tourism, as leisure, involves the consumption experiences in the form of activities in selected environments, atmospheres, and cultures (see [1]). Visiting natural environments is one of the primary motivations for out-of-town excursions in the context of leisure and tourism.

If goes back to the Industrial Revolution when the restorative qualities of nature for the urbanized soul, tormented by the side effects of time and labour, led to a demand for nature-based travel, pushed forward by the Romantic Movement. It remains the case today. Nature occupies an important place at the heart of recreational tourism experiences. But for those who spent their year living and working in congested cities, the wide-open natural spaces can become salutary. “In a world where standardized spaces are multiplying, wild spaces constitute a singular potential for experiences despite, and because of, their marginal character in the face of a daily life where artifice and machines play the beautiful role”¹, observes Christin [7].

¹ “Dans un monde où les espaces standardisés se multiplient, les espaces sauvages constituent un singulier potentiel d’expériences malgré, et à cause de, leur caractère marginal face à une vie quotidienne où artifices et machines tiennent le beau rôle” ([7]: 93).

Recreational activities – of which tourism is one of the luxury components – also help define social classes. Tourism is “an important component of the process of identity-building”, stresses Light [8]. It allows the travelers to acquire social and cultural capital, so important for identity building and assertiveness. As such, tourism leads to recognition by the peers and distinction, through the display of that newly acquired capital, otherwise referred to as “distinction” [2]. Referring to Bourdieu’s analysis of the concept, Boyer [3] has argued that tourism builds itself on distinction, through the valorisation of the self-image, stressed nowadays by the selfie culture, which brings tourists to engage with attractions for the need to collect and broadcast (through social medias) their facial or bodily incrustation over the sleeked attraction – see [9–11]. Through their sacralisation as tourism resources (see [12]), geographical locations referred to as destinations have made themselves available for a distinctive form of consumption – one that stresses the distinctiveness of the consumer, as a sophisticated traveler, being there, where things happen.

Pushed forward by the environmental crisis in the 1970s, then up-dated into the climate change crisis and the consequent loss of biodiversity, tourists developed a thirst for destinations in crisis and opportunity to see them while they last, a tourism drive also referred to as “last-chance tourism” (see [13]) – namely the self-determined need to visit and experience destinations before their most important characteristic vanish. Nature-based tourism has been especially aggressive toward the “opening” of new destinations for grazing. Key words such as “unspoiled”, “pristine”, “unique” or “majestic” (used by John Muir†, 1838–1914, an influential outdoor man, co-founder of the Sierra Club and advocate for the protection of nature in the form of park) have been used all over the travel literature to sell the qualities of these natural sites. Since the beginning of the environmental crisis in the 1970s, far-distant and sparsely populated natural areas have been presented in the travel literature as the antithesis of mass tourism – although not in written word, nothing less than paradises due in large part to their remoteness from human beings and their infrastructures, hence part of the secret of their “unspoiled” features.

Ecotourism was so successful – and distinctive – in emerging economies such as Costa Rica, Equator and Kenya, that it led operators to seek even more remote nature locations to bring visitors to, including both polar regions: the Antarctic and soon after, the High Arctic. At an average of around 10 000 \$US a cruise, accessing and experiencing those “last wildernesses” of the planet qualifies as rather exclusive. It has not prevented cruise-based tourism at both end of the planet to flourish (**Figure 2**).

The prestige of wildlife, promoted indirectly through television documentaries (documentation), stimulates the tourism demand which in return makes wildlife sanctuaries economic magnets both for operators and countries. Because many species are more easily observable during the breeding and feeding seasons, they become more easily accessible for tourists, who increase their vulnerability.

Tourism – and more particularly when in natural environments – represents a risk for ecosystems, which are sensitive to the importation of external organisms via the visitors themselves (**Figure 3**), their equipment or their pets.

“Concerns over the environmental impact of cruise tourism are based on indications that some companies and host destinations are failing to adequately protect the environment”, underlines Carić [4]. Critics are often more concerned with cruiseship than other forms of tourism since “[...] the hosting destination environment, landscape, and social fabric, when degraded, do not affect the cruise business as they simply transfer their activities elsewhere” ([4]: 497). All operators, however, do claim to care for the ecosystems they bring visitors to. Throughout the 1990s and two first decades of the 2020s, different paradigms – namely ecotourism and sustainable tourism – have been brought forward to help managers and tourists alike take account of their impacts.



Figure 2. About 100 cruise tourists transferred by inflatable from their ship to an uninhabited location in northern Greenland for a few-hour-excursion. Source: Alain A. Grenier.



Figure 3. The constant importation of non-native living organisms by tourists, including seeds and mud from boots and other equipment, food, viruses, etc., may present a risk for indigenous species. Source: Alain A. Grenier.

3. From eco- to sustainable tourism

Marketing plays a major role in the promotion of consumption, including tourism. Using a concept to sell is however no guarantee that the label use is appropriate for the product. In the case of the environment, ecological pretention often leads to green washing – the pretention that a product or service has ecological virtues that are not there. Hence, nature-based became known as ecotourism before eventually being equated with sustainable tourism, all wrongfully.

Ecotourism was initially defined as:

“Environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy, study and appreciate nature (and any accompanying cultural features – both past and present), that promotes conservation, has low negative visitor impact, and provides for beneficially active socio-economic involvement of local populations” ([14, 15], r. 1996).

When Mexican researcher Hector Ceballos-Lascuráin [14, 15] formulated his concept of ecotourism, natural ecosystems were still mysterious to the general public. For the majority, the exploration of nature was taking place in nearby green spaces – municipal parks, mountain resorts or national parks. Little had changed since the Romantic Movement: apart from a few adventure-seekers who got on expeditions to unfamiliar terrain, the majority of citizens were content to approach nature on the surface, without really penetrating into it. Through television reports and magazines, the environmental crisis of the 1970s brought these ecosystems, often as remote as the Amazon rainforest, to the forefront of discussions. *Docutainment* was entertaining while raising awareness to something out of the viewers' world. And soon, they were ready to see all of it from their own eyes. Deploying nature tourism had the advantage of requiring little infrastructures – apart from trail development. Accommodation did not have to be on site, as long as transportation could be organized. Because reaching these out-of-this-world-nature spots was difficult and expensive, tours required proper interpretation and guiding – hence the visitor awareness programs that ecotourism became associated with – to bring out the value of the privilege these fortunate tourists were paying for. This led to the birth of the concept of ecotourism, so named by Ceballos-Lascuráin – and soon to become a travel product.

The higher prices for these trips, so exclusive – so distinctive, did not hinder the growth of the ecotourism as a product. On the contrary, it spread all over the planet, from the Galapagos Islands to the polar regions – no ecosystem was immune to it. Ecotourism became one of the most important tourism development sectors of the 1990s. The flaws of ecotourism then gradually appeared.

Ecological tourism was supposed above all the reduction of one's ecological footprint on fauna and flora. This implied a capacity for awareness of one's impacts, not only as an individual visitor but in terms of cumulative impacts of all thousand of visitors that proceeded and those who would follow. In addition, ecotourism promoted royalties to host or neighboring communities. This is where the concept flew off the handle. The creation of economic benefits encouraged any operator and beneficiary to want to derive more benefits.

Ecology and economic benefits do not always go hand in hand when it comes to employment, growth and development in an economic system based on enrichment. “One of the main processes through which nature can be reconfigured through tourism is via commodification”, underlines Duffy [16]. “This involves the creation of economic value from landscapes, animals and experiences. One of the core justifications for nature-based tourism is that nature can be conserved or saved because of its ‘market value’” ([16]: 533). As pointed out by Fletcher and Nevers ([17], in [16]: 534), nature-based tourism – an even more when labeled as “good” or “ecotourism”, “has the capacity to transform bodies into sites of virtually limitless capital accumulation by promoting a satisfying experience yet usually delivering instead a mere ‘pseudocatharsis’ that paradoxically stimulates a desire for further experience in pursuit of the fulfilment continually deferred”. Hence, while claiming to protect nature, ecotourism produced nature lovers who become conquerors [18, 19]. They no longer see nature as a place of exploration and discovery, but rather as a theater where they can practice activities of domination of nature – activities where humans can tame and overcome nature and its obstacles (mountaineering and other climbing sports, use of motorized vehicles, speed activities, etc.).

This has led several destination managers and tour operators to increase the number of visitors allowed, to the detriment of conservation. Product renewal dictated by markets led to the inclusion of fossil-fueled vehicles (snowmobiles, inflatables, helicopters, small planes, etc.) to get deeper into wilderness for closer access to wildlife, often at the cost of harassment, trampling on flora and defiling of natural spaces, etc. New activities were added, diverting the attention of the tourists from nature and refocusing the visit on performances, often taking the appearance of a conquest of nature during which the visitor can test his or her skills and celebrate his or her accomplishments: ecotourism then mutated into adventure tourism.

In short, while it claimed to promote the study of nature by visitors, ecotourism was more of a way to access spectacular ecosystems because they are still relatively undisturbed, to admire species that are otherwise very difficult to access. By highlighting ecosystems that were previously spared from visitors, ecotourism gradually led to the over-visitation of natural sites that were prized because of their rarity, sensitive fauna and esthetic characteristics.

At the end of the 1990s, the over-visitation of certain sites led observers to question the true nature of the motivations of “eco” or “ego” tourists, as they were then nicknamed. To meet the management challenges, the concept was gradually reworked a full decade. The concept, pursuing too many avenues away from its central ecology-centric core – ecological protection – led to its dismissal. It would soon be replaced by yet another concept that would blossom with the turn of the century: sustainable development.

3.1 Sustainable tourism

In 1987, the World Commission on Environment and Development (WCED) led by former Norwegian Prime Minister Gro Harlem Brundtland promoted a new approach to development – one “that meets the needs of the present without compromising the ability of future generations to meet their own needs” [20]. The paradigm focused on raising public awareness about the limits of resources promoting recognition of the value of intangible resources as its humanism (ethics) and empathy (equity). Although the validity of the concept is still debated, it has the merit of taking the discourse on development out of the economic sphere alone to include the people’s social and cultural well-being, as well as that of the ecosystems. Brundtland’s report failed, however, to transfer those principles into a more specific approach of actions to be implemented. Hence the confusion that often misguides the use of the term “sustainability” directed only toward the conservation of the environment.

Building on the popularity of the concept of sustainable development, the World Tourism Organization [21] transposed it to its field, to make it “sustainable tourism”, that is “tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” [22]. The definition is accompanied by principles, defined in 1995 and updated in 2004 [22].

While the principles are appropriate, the definition presents a major contradiction: how can the tourism take into account its negative impacts (and therefore respond to the principles of sustainability) if operators are simultaneously expected to respond to the needs of the beneficiaries of tourism, whose desires, without limit, have caused the damage leading to the need to rethink tourism? The issue led several observers to propose their definition of the concept, in order to “shift the focus from a group of actors (tourists, entrepreneurs or guests) to the relationships between these groups in the context of respect for a given ecosystem” [23]. In a previous publication, I have proposed to define sustainable tourism as:

A management approach for tourism projects and services that promotes and achieves a balanced stewardship between the development objectives of the destination and its stakeholders and the benefits (social, cultural and economic) for the local community without compromising the integrity of natural ecosystems and the communities that live in or depend on them.” ([23]²).

The discussion around the concepts of eco- and sustainable tourism points out to the fact that they are meant to be used as management approach, not consumption products. A sustainable approach allows compromise on nature defense and protection, to find a balance with humans’ needs in the area of economic development on three fronts: society, environment and economy. Compromise, however, should not be understood as an invitation to contradictory actions. Indeed, the implementation of sustainable development/tourism principles is usually cut short by the fact that “economic growth stimulates environmental degradation” ([24]: 1).

3.2 Transportation and the fossil-fuel issue

CO₂ emissions – the main cause of global warming – result in large part from human activity, including tourism [25]. Of its components (accommodation, restoration, entertainment, etc.), transport is the most polluting. It includes both that of supplies as well as the mobility of staff and customers. Yet, the fuel spent to reach the destination cancels by far any effort made at the destination and for that matter at home for months or years ahead, unless other actions are taken. When transport becomes the mode of travel itself, as in cruising, the 24/h/day emissions of fossil-fuel pollution to maintain the craft in operation is enough to raise a red flag. It is even more questionable when this “mobile tourism” in the form of cruises takes sensitive environments for a target.

Between 2009 and 2013, the tourism sector contributed to 8% of the CO₂ emissions produced by human activity, which is four times more than estimated at the time with transport, shopping and the food sector being the main contributors ([26]: 522). For tourism to contribute to the reduction of its footprint, it must adopt different strategies, including the reduction of distance traveled [27] as well as the design and development of low carbon tourism products ([25]:8). This is possible through technological and behavior changes. Technological changes include everything from developing more efficient engines and the use of alternative energies – efforts to develop alternative energies for transport that would be low or even “zero-emission are showing that changes may be near by [28] – to the reduction of packaging – demonstrated as beneficial for cruise tourism [29]. Behavioral changes involve choices made by consumers in their daily activities, and lifestyles.

Achieving a truly “sustainable tourism necessitates a clear-eyed engagement with notions of limits that the current culture of consumerism and pro-growth ideology precludes” ([30]: 125). This requires operators to set limit on consumption of spaces but also in the tools to achieve the visits – especially those that are fossil-fuel dependent. While one would expect nature-based tourism to take the lead, especially in over-sensitive environment (such as the polar ecosystems), what we see suggests the opposite.

² Le tourisme durable est. un mode de gestion des projets et des services touristiques qui favorise et obtient une intendance équilibrée entre les objectifs de développement de la destination et de ses acteurs et les retombées (sociales, culturelles et économiques) pour la communauté locale sans pour autant compromettre l’intégrité des écosystèmes naturels et des communautés qui y vivent ou en dépendent ” [23].

4. Case study: sustainability and ship-based polar tourism

4.1 The polar cruise industry: then and now

Although traces of early entertainment travel (tourism) by ship to Nordic region dates back to 1933 (Norway) and 1941 (Canada's Hudson Bay) [31], polar cruises to the High Arctic and Antarctic is a much recent phenomenon. As a novelty – and highly expensive – travel product, ship-based polar travel attracts wealthy and well-traveled tourists: elderly (over 70 years old) western travelers, mostly. Due to the age of the passengers, and the lack of knowledge of the visited areas by operators and their crews, activities, once at the destination, were long limited to interpretation lectures on board, and a few off ship excursions by inflatable crafts, cruising among small bergs in the hope for wildlife sightings. The inflatables also made possible shore excursion for travelers to set foot on these rarely if ever explored surroundings through light hiking, under guided supervision. That was then.

With more ships available today, the industry quickly grew from the original seven operators to over 50, with more locations for shore excursions to avoid overcrowding (**Figure 4**). Long-time described by operators as non-invasive because “soft”, both ship-based and land-based tourism did impact on both polar regions (see for summary [32]).

In the absence of legislation regarding tourism, seven operators involved in Antarctica created in 1991 the International Association of Antarctica Tour Operators (IAATO), “a global, non-profit industry alliance dedicated to safe and responsible private-sector travel to the White Continent” [33]. A similar organization – the Association of Arctic Expedition Cruise operators (AAECO) supervises cruise operators in the Arctic. In parallel, researchers in tourism develop an interest for this specific industry in the early 1990s and help create the first Code of visit



Figure 4. Two vessels – The Russian Akaemik Ioffe, and the Estonian Lovonia, cross path for a common landing in Antarctica (austral summer 1993–1994). Source: Alain A. Grenier.

conduct, largely used by IAATO. The code addresses distances to keep between tourists and wildlife as well as behavioral approach to historical huts and other artifacts. The operators make it clear that the protection of the resources upon which they graze, must be protected for tourism to continue, without depleting the visited areas from the characteristics that make them attractive for visitors. Considering the financial costs and the discomfort of very long journeys to reach the polar regions, the love of nature is a *sine qua non* to the choice of polar tourism for one's vacations. However, the tourists' love of nature does not automatically translate into a demand for ecological activities from their operators. On the contrary, passive activities requiring gas-powered transport vehicles (Zodiacs, submarines and helicopters – see **Figure 1**) are the favorites of a majority of polar cruises customers who never raise the issue of the ecological footprint during exchanges, except to justify it. This is where polar tourism faces its main contradiction: being dedicated to a commercial activity – tourism – while at the same time promoting the protection of highly sensitive environment, symbols of the climate change crisis, by using fossil-fuel 24/day, including for off-ships excursions by inflatable (**Figures 5 and 6**).

Juvan and Dolnicar [34, 35] have documented the contradictions in behavior from those who self declare to be advocate of environmental conservation, at home, and engage in harmful activities for nature, while on holidays. The explanation brings us back to Jafari's [36] concept of "tourist culture" to the effect that during the vacation period, tourists, in a state of intellectual weightlessness, abandon almost all the rules of common sense, or even ethics, in the name of the right to pleasures so boldly deserved and paid for – the holidaymakers believe. Consequently, any misconduct is self-justified in the name of the exception. "Participants [do] not report changing their behaviour", state Juvan and Dolnicar ([34]: 76) about the environmental activists studied during a tourism holiday. "[I]nstead, they offered a wide range of explanations justifying their tourist activities"



Figure 5. The operations of refueling inflatable boats with oil are done away from the gaze of tourists, on the stern lower deck. Nature lovers, despite their ecological values, close their eyes once they reach their destination. Source: Alain A. Grenier.



Figure 6. *Nature-based tourists using fossil-fuel watercrafts to explore fast-melting Arctic glaciers, due to climate change fossil-fuel emissions. Source: Alain A. Grenier.*

starting with “It’s not that bad”, “It could be worse”, “Not my responsibility”, “Vacations are an exception”, “I am doing more good than bad” (Juvan and Dolnicar ([34]: 86). “I’ve been a good citizen, now I deserve some pleasure”, would justify in their subconscious, the superegos of the tourists. The fact is that behavioral intentions (see the theory of planned behavior – [37]) do not automatically translate into behavior ([34]: 77). The problem is far from getting better.

A growing demand and limited amount of places and vessels means prices constantly going up, cabins getting smaller and more crowded, making polar travel even more exclusive and therefore customers more eager to obtain what they believed they have paid for. Competitions between operators lead to the search for the most outstanding locations for visits – well over 200 in Antarctica. With younger and more active customers, product renewal requires in addition to conventional soft impact activities such as walk ashore and nature photography opportunities for deeper exploration into the sites through trekking, kayaking snorkeling, kayaking, paddleboarding, scuba diving, cross-country skiing, mountain biking and mountaineering including ice-wall climbing.

4.2 The test of sustainability

Operators address the issue of conservation in their WebPages, for their customer to see. Yet, their actions remain limited, dictated by the limitations imposed by the vessels built at a time when environmental concerns were not on the agenda of the day. While in the age of ecotourism in the 1990s, the operators’ actions were solely oriented toward minimizing disturbance of wildlife through their Code of Conduct, concerns have been up-dated to include among other the ecological footprint according to the principles of sustainable tourism development.

For the purpose of this qualitative study, the author chose to analyze the webpage content associated with “sustainability” of two operators active in both polar regions (Arctic/Antarctic) to see how they address the management of their vessels and tours, on the basis of the main elements. From their main objectives, actions that arise from their sustainable policy (summarized in **Table 1**). It should

	Operator A	Operator B
Environment	<ul style="list-style-type: none"> • Environmental policy • regarding travel equipment and passengers' behaviors on board the vessels 	<ul style="list-style-type: none"> • Environmental policy • regarding travel equipment and passengers' behaviors on board the vessels • regarding supplies and partners' actions (policies)
	Fuel	Fuel
	<ul style="list-style-type: none"> • More efficient use of charter planes and vessels to provide occasional transport for cargo to villages (when possible) 	<ul style="list-style-type: none"> • Investment in technology to use of low sulfur fuel
	Waste and pollution	Waste and pollution
	<ul style="list-style-type: none"> • Waste collection and triage for recycling 	<ul style="list-style-type: none"> • Initiatives to reduce waste ahead of consumption (by reducing material and selecting multiple-use objects) • Waste collection and triage for recycling • Investment in technology to help vessel(s): • reduce their carbon emissions • noise pollution
	(Financial) Support	(Financial) Support
	<ul style="list-style-type: none"> • for environmental research/conservation initiatives 	<ul style="list-style-type: none"> • for environmental research/conservation initiatives
Society		Employment
		<ul style="list-style-type: none"> • Promoting inclusivity and equity with labour (training, working conditions)
	Equity and ethics	Equity and ethics
	<ul style="list-style-type: none"> • Promotes local (indigenous) cultures • Hires local people (artists –storytellers, musicians, elders) for talks and cultural performances • Advocates equity and ethics with partners (stresses promoting changes with partners and suppliers' policies and operations) 	<ul style="list-style-type: none"> • Promotes local (indigenous) cultures • Hires local people (artists –storytellers, musicians, elders) for talks and cultural performances • Invests in training local staff • Advocates equity and ethics with partners (stresses promoting changes with partners and suppliers' policies and operations)
	Support to communities	Support to communities
	<ul style="list-style-type: none"> • Provides occasional transportation for locals between villages (when possible) • Financial support to communities and youth initiatives 	<ul style="list-style-type: none"> • Financial support to communities initiatives
	Customer care:	
	<ul style="list-style-type: none"> • Stresses diversity in customers (no age discrimination) • Health: • operates in compliance with governmental special hygiene measures (COVID-19) (both on the ship and for community visits) • air regeneration onboard 	

	Operator A	Operator B
Economy	Chain of supplies <ul style="list-style-type: none"> • Favors sustainable growth while advocating equity and ethics with partners • Provides occasional transport for cargo to villages (when possible) 	
	(Financial) Support	(Financial) Support
	<ul style="list-style-type: none"> • To science: offers logistics to researchers to collect data 	<ul style="list-style-type: none"> • To science: offers logistics to researchers to collect data
	Advocacy	Advocacy
	<ul style="list-style-type: none"> • Partnership with a variety of organizations 	<ul style="list-style-type: none"> • Partnership with a variety of organizations

Source: Author's compilation from 2 operator's websites.

Table 1.
Actions undertaken by 2 polar-cruise operators toward sustainability.

be stressed that this list is neither exhaustive nor exclusive. It is only intended to provide an overview of the implications of adopting a sustainable business model for any company.

What the table reveals is that these two operators, well aware of the three dimensions of sustainable development/tourism, put forward the importance of the responsibility they feel toward the protection and conservation of the environment (the words “conservation” and “preservation” are usually used as synonyms in the industry’s literature, although they meanings imply different management philosophies and practices). The means put forward to meet the sustainability include, as seen earlier, behavioral and technological solutions.

4.2.1 Technological solutions

Technological solutions are brought in by engineering innovations. They offer quantitative data to measure at the source of the reduction of resource consumption (fuel, for instance) or waste discarded. Technological solutions require major investments in the infrastructures and equipment used in tourism, starting with the ships themselves – hence, the reduction of fossil fuel, which is addressed by only one polar cruise operators.

Operators claim to work toward offsetting the negative impacts from flying passengers across the world to reach the polar destinations through the ecological management on location. They also stress adopting sustainable practices toward the wellbeing of the communities they visit. But beyond those principles, actions are limited. For instance, the means deployed to reduce air pollution are limited to “low sulfur fuel” – without mention of reducing fossil-fuel consumption through activities such as inflatable (Zodiac) cruises and helicopter sightseeing or transport for heli-skiing. A conventional cruiseship’s daily emission of air pollutant was already that of 12 000 automobiles, two decades ago ([38]: 1, quoted in [39]) (Figure 7).

One polar cruise operators produced an environmental report in 2019, available to the public on from its webpage. It states that “an analysis of our historical fuel consumption data shows that we’ve decreased emissions from our vessels by 28 % per guest per day from 2010 values ([41]: 27). The emissions “include ship, zodiac



Figure 7. *Conventional cruiseship's daily emissions of air pollutant compare to that of tens of thousand of cars. Although 80% of polar vessels use lighter fuels ([40]: 341), their ecological impact is arguably even worst, considering the sensitivity of polar ecosystems in the climate change crises. Source: Alain A. Grenier.*

and flight fuel consumption” ([41]: 27). The operator does recognize that their calculation of fuel-related carbon emissions for their activities do not include “guest transportation to embarkation/debarkation points” and “emissions generated from fly cruises, Zodiac operations, staff transportation, and office-related emissions, which we recognize are not insignificant” ([41]: 27).

Those results were obtain through actions such as removing wrapping from equipment sold to customers (such as parkas), the elimination of individually wrapped food (such as yogurt containers) and the elimination of single-use bottles ([41]: 38). The operator puts much hope (and emphasis) on a new vessel equipped with lower fuel-consumption engines coming into service. “We expect the average daily fuel consumption to be approximately half the consumption of our older chartered vessels of similar size”, stated the operator ([41]: 36). The new vessel is able to collect “energy from the exhaust air to reduce energy demand for maintaining a comfortable environment” onboard ([41]: 36).

Other operators do not provide more detailed indicators than the adjective “low” to show the actions they take. Yet, if nature-tourists are not inclined to ask – based on Juvan and Dolnicar’s ([34]: 86) findings –, how can operators work toward effective solutions? Wu and Geng ([42]: 6–7) underline in their study that the negative effects of air pollution “adds an even heavier environmental burden [on the nature tourists] (by decreasing tourists’ pro-environmental behavior), which in turn, harms the sustainable development of tourism”.

4.2.2 Behavioral solutions

Behavioral solution focuses on actions that can be taken by staff and customers to minimize their footprint on the environment, and increase awareness and empathy toward the members of the communities they visit. This includes all initiatives taken by the operator and their staff to help their customers reduce and avoid the production of unnecessary waste. Disposable water bottles are increasingly being replaced by reusable ones with refilling stations (a challenge since tap water on these vessels is usually not suited for human consumption). Daily distribution of

soap is also being replaced by soap dispensers in bathrooms, refueled on need by the staff – eliminating again plastic bottles. One operator requires suppliers to stop wrapping individually material aimed at the passenger. A similar approach is used to eliminate individual packaging for food items mainly used for breakfast (jams, honey, etc.) and seasonings.

In regards to the economy, the transformation of a conventional profit-seeking activity into a sustainable one requires among other things, a fair financial return from the entrepreneur to the community upon which it grazes resources from. Here, little if anything is said on the operators' webpages about their contribution to the host communities. One operator refers in its sustainability report to charity auctions held during the cruises and different non-profit community-based project where the money obtained from their passengers might be directed. Operators will not release financial data as to contributions coming either from them or their customers to this effect. One must therefore rely on other sources. In 2015, for instance, cruise passengers accounted for 16% of the total number of visitors to Nunavut, in Arctic Canada, an increase of 46% since 2011 ([43]: 10). Yet cruise tourists left only 5% of the \$38 million (CAD) in tourism revenues ([43]: 10). Arctic cruise ship passengers have a reputation for leaving less in communities than other types of tourists ([44]: 18). Nunavut Tourism ([44]: 18) stressed that the average tourist pays \$17,000 (CAD) for a cruise. Yet, cruise tickets do not earn a return to the territory visited, unlike airline tickets, since Inuit are the main shareholders of the two major airlines serving their territory. Considering that cruise passengers travel with their own hotels and restaurants (their ship) and their own guides, the souvenirs visitors may purchase are all that is left in terms of economical input to the communities, during the excursions. In the absence of paying activities during village visits, tourists leave little behind to help the local economy.

Of the ship, in addition to the interest toward local cultures, showing empathy by refraining abusing the communities' hospitality (imposing oneself in homes or community buildings, in peoples' yard, visiting cemeteries and other sacred sites). In wild-life tours, it also means accepting not to get close to wildlife, and not pressuring guides and inflatable drivers to do so, not to trample all over the location simply because it is temporarily made available– all actions that are easier said than done (**Figure 8**).



Figure 8.
Polar tourists stepping unsupervised on artefacts. Source: Alain A. Grenier.

The sustainability approaches brought forward by the operators, do not directly refer to tourism management on site during the excursions. Ship-based polar operators are all members of the International Association of Antarctic Tour Operators (IAATO) and its Arctic equivalent, the Association of Arctic Expedition Cruise Operators (AECO). Both organizations have adopted a code of conduct for their members, inspired by those developed in the early 1990s for Antarctic cruises [45]. They address actions to take to minimize negative tourism impacts such as disturbance to flora and wildlife, and sites of historical values. The Arctic code also promotes respect of indigenous people and their cultures.

Already, in spite of the code of conduct, we know that tourists have negative impacts on the fauna and flora of the sites visited and that indigenous communities have reported cultural conflicts with their guests. Yet, those disturbances are often impossible for tourists to recognize and acknowledge, since they have no way to compare with the situation that prevailed on a site prior to their arrival, a situation this author observed many times at both ends. Considering that the most lasting impacts are the result of their addition, the numbers of visits conducted per site (see IAATO's online pages) are sticking. In Antarctica, for instance, the Chinstrap penguin colony located on the beach and lower cliff of Half Moon Island can receive over 20 000 visitors during the short 3-months tourism season – equivalent to 222 people/day [46], with an average of 2 hours/visit. Hence, while the efforts of the operators to implement codes of conduct must be recognized, the density of the visiting rate casts a shadow on their efforts.

4.2.3 The promises of new up-dated vessels coming in

The end of the polar cruise operators' dependence on (mostly) Russian vessels, aging, is in sight. At least two operators opted to build their own ice-rated vessels – the USD 85 million *m/v Hondius* (2019) and the 106 million Euros *Ultramarine* [47] – the way Linblad had done it in the late 1960s, with new amenities and up-to-date technological innovations.

Having been made specifically for polar tourism purpose, both vessels' new designs address not only the scope of safety issues, new facilities, atmosphere, and comfort they offer their passengers, including up-dated facilities for tourism which the previous Russian research vessels did not have. But equally – if not even more – important, the technological features of these two new vessels will allow reducing their foot print on the environment [48, 49].

While the *Hondius* “uses LED lighting, flexible power management systems, and steam heat in order to reduce fuel consumption and minimise CO₂ emissions” [48], the *Ultramarine* features “a micro auto gasification system (MAGS) which is capable of converting onboard waste into energy, eliminating the need for transportation of waste” [49]. In addition for the *Ultramarine*, “environmentally-friendly innovations such as dynamic positioning, [...] will eliminate the need to drop anchor in sensitive seabed areas” which will enable to “minimize the ship's environmental footprint to an extent previously unseen for a vessel of this size”, states its operator [50, 51].

Improvements on these vessels are not only technological. Emphasis has also been placed on the comfort of the passengers and the efficiency of the operations, both onboard and off the vessels, such as when conducting excursions. Some of the ships' decks have been redesigned specifically for off-ship-excursion, offering proper “sheltered zodiac boarding zone, where passengers can board boats to take them to the shore” [48]. Such launching decks do not exist on any other vessels used for polar tourism. These updated decks allow passengers getting off the ship “in less than 20 minutes – which is half the industry average”, states one operator [50].

But the update covers as well other amenities starting with the inclusion of 2 twin-engine helicopters, designed for sightseeing which “will allow passengers to experience epic aerial perspectives of the Polar Regions and landings only accessible by air” which will render possible new activities never offered before, including heli-hiking and heli-skiing”, continues the operator [50].

The arrival of these new amenities is not without impact on the type of experience offered to passengers. The fact that the exits for the excursions are located on a lower deck of the ship, closer to its waterline with openings on both sides of the deck, not only saves time but also extends the excursion time [52, 53]. Operators also increasingly offer kayak excursions, on demand, a fuel-free activity that helps generate ecological experience and good marketing image, but that over all cannot compensate for the footprint of the tours. One operator also adds helicopters sightseeing and transportation for inland excursions, contradicting its own effort to reduce its environmental footprint.

Far from being a miscalculation, the design of the new *Ultramarine* vessel, “[e]quipped with two twin-engine helicopters”, “operated from two helidecks allow more passengers to simultaneously experience news destinations accessible only by air, and to enjoy more unique aerial perspectives of the polar regions than on any other trip”, invites potential clients to the “most robust portfolio of adventure activities in the industry” [52].

While it from an ecological point of view, engineering calculations of the ecological footprint could demonstrate that the ship’s technological upgrades more than compensate for the pollutants emitted by the watercrafts fleet and the two helicopters to its environmental balance sheet, the use of helicopters to satisfy entertainment needs contradicts on all level the sustainable efforts put forward by the operator –all of this, at the very heart of polar ecosystems, which embody more than any other, the negative impacts of human activity on the climate.

Many operators stress advocating environmental, human and cultural issues in partnerships with other organizations. Some of these initiatives take the form of “ambassadorship” programmes where former passengers committed to the conservation of the polar environment to take actions in their communities by promoting the cause, in the name of the operator. To which extend the activities of the “ambassadors” work for the environment versus promoting the destinations and the operators remains unclear. But those labels become more and more criticized, as emerges the paradoxes of those claiming to want to save the planet contributing to major greenhouse gas emissions through their last chance tourism (see [40]).

5. Discussion and conclusion

The public’s enthusiasm for nature, since the Romantic Movement and in response to industrialization, continues to grow. The advances brought by technology, especially on the modes of transportation, have pushed back nearly every obstacle to the human quest of its planet. No region on Earth, except the deepest seas, is nowadays void of tourists, venturing as far as the polar regions to satisfy their curiosity and need to reconnect with nature, or simply “because it’s there” (paraphrasing Hillary’s answer about his motivation to climb the Everest in 1953). Pushed forward into the public’s attention with the environmental crisis, ecosystems – especially those of the polar regions, are now promoted as consumption products through nature-based tourism, including the fast-growing polar cruise sector. Criticized for their negative impacts on the destinations, operators adopted in the early 1990s a common Code of conducts, which was the only management tool at the beginning on the 1990s. Understanding that promoting their products

with the controversial concept of ecotourism was not serving their interest, so long as their operations are so deeply dependent on fossil fuel, they opted in the years 2000s for the new fashionable concept of sustainability.

At first a word without roots, operators eventually translated the concept into actions applied both through behavioral and technological changes. The concept of sustainability was therefore a blessing allowing them to redirect their customers' attention to initiatives that were less spectacular than saving the ecosystems, like with so-called "ecotourism", yet, that are equally important and more accessible like reducing water consumption and that of other resources – electricity, food, plastics, paper, etc.

In this respect, a major part of the actions required to "save the environment" shifted from the tourists' responsibilities to that of the operators since apart from supplies, the most important efforts to reduce greenhouse gases produced by the cruises are almost exclusively linked to the performance of the ships and the transport back and forth of crew and passengers from home to the vessel and destination. The arrival of new vessels, up-dated to nowadays environmental norms in terms of energy efficiency, is therefore welcomed. The major investments made by at least two operators in this direction are commendable. They bear witness to the genuine ambitions of these companies to reduce their ecological footprints. It is therefore surprising to see them enlarging the range of activities offered during the cruise to include helicopter transfer and sightseeing between the ship and the locations visited, allowing tourists to penetrate even deeper into the pristine environment they claim to want to protect.

Prior to mobility technology, the experience of nature required "psycho-corporal engagement, based on the combined movement of body and mind"³, recalls Christin [7], closer to the original pursue of ecological tourism. However, this engagement is dissipating as tour operators interpose technological gadgets between nature and the tourists – encouraging the conquest of nature rather than a harmonious experience with it, in contradiction with sustainability.

Yet the discourse in favor of concern for the environment and fragile human populations still clashes with the actions of consumers who claim the right to travel, to discovery - perhaps - but above all to self-affirmation. "Conventional wisdom of current societies sees consumption as an expression of individuality and freedom", stresses Higgins-Desbiolles [30]. As Klein [39] points out, "it is easy to think about sustainability in terms of shipboard operations, but, when considering the interaction of cruise tourism with local communities [and the ecosystems] the concept of responsible tourism may be more useful". On this level, "progress in transitioning from concepts and principles to pan-industry practice is limited" ([54]: 402).

On this level, the commissioning of new and more environmental friendly vessels, to reduce the industry's footprint and other negative impacts on the environment, is commendable. On the other hand, the promotion of activities that are not always putting nature in the foreground but rather in the background raises a red flag. I share Williams and Ponsford's ([54]: 403) pessimistic view that "current business and destination level environmental initiatives generally fail to address tourism-induced contributions to broader global climatic and environmental changes. This is ironic and shortsighted given that the threat of global climate change is considerable for all of tourism's stakeholders". Nature-tourism can be an indispensable tool to provide people with an opportunity for rejuvenation through a contact with the living environment – the biophilia theory. Yet, when the activities offered to polar tourists include opportunities to challenge nature by encouraging performances of conquest of nature, one cannot help but wonder if all the efforts

³ "[un] engagement psychocorporel, fondé sur le mouvement associé du corps et de l'esprit" ([7]: 94).

put into making the logistics of getting people to the far end of the world to place them on a more ecological boat yet again to use more fossil-fuel dependent vehicles to cruise and fly around, for the fun of it, will have been in vain.

Because in the end, having the most sustainable entrepreneurship, and the most environmental-friendly vessels, will mean nothing if the reduction of the footprint of the technology is only used to compensate an increase in nature-consuming and other abusive tourism practices. As the principles of ecotourism were repeatedly abused 3 decades ago until the concept became a caricature of itself, sustainable tourism now faces the same threat. A glance at the direction some tour operators are taking with highly technology-dependent and motor vehicle-dependent call products bears witness to this.

Two schools of thoughts continue to challenge the future of nature-based tourism: nature as a foreground for boosting one's egocentricity for distinction and self esteem, versus a more care-taking approach where nature is preserved for the rejuvenation of the soul.

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