Background information

The most widely cited definition of sustainable development is by the World Commission on Environment and Development: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission, 1987). Many have argued for the sustainable development of tourism and, in particular, ecotourism, meaning that the principles of sustainability should be applied to the manner in which ecotourism operates and is governed.

Ecotourism is defined as “environmentally responsible travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature, that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations” (Ceballos-Lascurain 1996). Ecotourism has several key components including: (1) an emphasis on promoting an appreciation of nature and/or culture through education and interpretation, (2) promoting small, locally owned tour operator businesses, (3) minimizing negative impacts of visitor travel on the natural and social-cultural environment, and (4) generating economic benefits associated with the conservation of nature by generating employment opportunities for local communities. While ecotourism has the potential to make a positive contribution to socio-economic development and environmental protection, uncontrolled and unmanaged ecotourism can also damage fragile ecosystems and contribute to cultural conflict.

The purpose of Module I is to critically evaluate the positive and negative impacts of Antarctic ecotourism and determine if Antarctic ecotourism is sustainable based on the above definitions. When evaluating the impacts of your Antarctic expedition, you must consider the full “life cycle” of the experience, including (but not limited to): (a) carbon emissions generated from your flight to/from Ushuaia and the expedition vessel (and resulting predicted impacts on Antarctic Peninsula climate), (b) infrastructure and development in Ushuaia necessary to support increasing tourism, (c) wildlife disruption by tourists, (d) introductions of invasive species and transfer of pathogens, (e) educational benefits that tourists may gain from the expedition, and (f) the possibility that the expedition experience will encourage tourists to support future Antarctic conservation (i.e. the “Antarctic Ambassador” effect).

The number of Antarctic tourists increased dramatically between 1995-96 (9,367) and 2007-08 (46,069). Since that peak, the faltering world economy and other factors has resulted in a decrease in tourists. Last summer (2012-13), 34,354 visited Antarctica (www.iaato.org). Many Antarctic tourists arrive by ship from the gateway port of Ushuaia, Argentina and, as Antarctic tourism has grown, ecotourism has become an important source of income and employment for Ushuaia. However, this gateway community also faces several problems associated with ecotourism development, notably conflict among local peoples and organizations stemming from economic development, cultural changes stemming from the influx of foreign visitors, and environmental impacts associated with increasing infrastructure demands (e.g., waste and water), vandalism, traffic and noise pollution.

Given the formerly rapid increase in Antarctic tourism, there are also concerns over potential environmental impacts within the Antarctic region. Of particular concern is the potential for wildlife disturbance from tourist site visits (which may lead to increased wildlife stress and reductions in breeding productivity), and the unintended introduction of invasive species to Antarctica, or the transfer of pathogens between sites within Antarctica. According to the Convention on Biological Diversity (http://www.cbd.int/), invasive species are: “alien species whose introduction and spread threaten ecosystems, habitats, or species with socio-cultural, economic and/or environmental harm and/or harm to human health”. Throughout the world, invasive species are one of the leading causes of natural biodiversity loss. The Antarctic Peninsula, with its relatively mild climate and heavy human presence (including ship-born tourism), is likely to be the first area of continental Antarctica to be invaded by alien species. Antarctic cruise tourism provides vectors for invasive species transported in ballast water or on the hulls of cruise ships, and the unintentional transfer of organisms/seeds which arrive in peoples’ clothing. With increasing ship-based tourism to Antarctica and the likely effects of climate change (i.e. warming temperatures making environmental conditions more tolerable for the establishment of invasive species), the risk of introducing invasive species to Antarctica is greater than ever.
Like all human activities in Antarctica, tourism is regulated by the Environmental Protocol to the Antarctic Treaty. Tour operators need a permit to conduct trips there and the conditions of the permits spell out specific limitations and requirements on how the company operates while in Antarctica. These include restrictions on the number of people that can be ashore simultaneously, minimum staff-to-passenger ratios, controls on which sites may be visited, and the requirement that all passengers, crew and staff must attend an environmental and safety briefing. Non-compliance is punishable by defined penalties, backed by law. These regulations are almost identical to a set of voluntary guidelines used by tour operators who are members the International Association of Antarctica Tour Operators (IAATO) (www.iaato.org). IAATO was formed in 1991 to represent the interests of the tourism industry in the face of increasing regulations from the Antarctic Treaty. In an effort to self-regulate, IAATO developed extensive procedures and guidelines for its members to ensure environmentally sound private-sector travel to Antarctica. IAATO has over 100 members from 19 countries, and, although membership is voluntary, all commercial tour companies currently operating in Antarctica are members. During your Antarctic voyage you will directly experience IAATO’s guidelines and procedures.

To assess and monitor potential tourist impacts on the Antarctic Peninsula, a US-based non-profit science and education foundation called Oceanites (www.oceanites.org) was founded in 1987. Oceanites’ primary research effort, the Antarctic Site Inventory, was initiated in 1994 in response to the signing of the 1991 Antarctic Environmental Protocol, which requires environmental impact assessments of human activities. During its initial years of research, the Antarctic Site Inventory established baseline information necessary to detect possible future changes in a number of physical and biological variables on the Antarctic Peninsula. Since then, through annual monitoring of frequently visited tourist sites in the Antarctic Peninsula, Oceanites has aimed to identify changes to the baseline reference state, determine whether any detected changes are naturally occurring or are caused by human activities, and determine how to minimize or avoid possible environmental impacts of tourism in the Antarctic Peninsula (http://www.oceanites.org/science/). An overview of the Antarctic Site Inventory research protocol and a recent publication of their findings on population trends of penguin populations along the Antarctic Peninsula (Lynch et al. 2012) are provided in this course book.

References cited:

Module I Readings:

Overview Readings: Perspective Piece on Antarctic Tourism

Managing impacts: IAATO
   b. Guidelines for visitors to the Antarctic.
   c. Marine wildlife watching guidelines for vessel and zodiac operations.
   d. Don’t pack a pest: Non-native species informational brochure.
   e. Boot, clothing and equipment decontamination guidelines for small boat operators.

Monitoring impacts: the Antarctic Site Inventory

Assessing other Antarctic tourism impacts (education and awareness, carbon emissions):

Review of potential invasive species impacts:

Note: Please also refer to the following fall semester course readings, which are highly relevant to this Module and should be used to provide support in your research paper.


Research Paper Assignment

This project consists of the following 3 data-gathering activities, which will provide supporting evidence for your research paper:

1) Interviews: informally interviewing Ushuaia residents and Antarctic expedition passengers (instructions below).
2) Field observations: documenting (a) if your expedition crew informs passengers of the IAATO guidelines, (b) the extent to which passengers abide by these guidelines, and (c) the extent to which crew members and passengers enforce the guidelines by correcting violations. You should assess these three variables for the following IAATO guidelines: (i) onboard education programs, (ii) bag cleaning/vacuuming (and awareness), (iii) boot washing (and awareness), (iv) landing crew to passenger ratios, and (v) minimizing wildlife disturbance by maintaining an appropriate distance.
3) Attending Oceanites onboard lectures and discussing research findings with Oceanites scientists collecting data for the Antarctic Site Inventory.
Protocol for Informal Interviews

The purpose of these interviews is to provide you with a fun and informal way to learn about (a) Ushuaia resident perceptions of the costs and benefits of Antarctic tourism in their hometown, (b) the international diversity of passengers aboard the Antarctic expedition vessel, (c) passenger motivations for traveling to Antarctica and (d) passenger awareness of Antarctic environmental issues and management guidelines. The following are some suggested interview questions. Note that because the following questions are open-ended, doing a quantitative summary of the results may not be possible. If this were a formal ethnographic study, a scale-based questionnaire that enabled quantifiable results would be preferable. The primary purpose of this assignment, however, is simply to encourage you to interact with Ushuaia residents and other expedition passengers and reflect on their perspectives on Antarctic tourism.

The interview data obtained from this exercise should be used to provide supporting evidence for both Module I (Antarctic Tourism) and the Reflective Learning Module.

Note!! Before you interview someone, be sure to explain to them what you are doing and why, then ask their permission for the informal interview.

1) Questions for Ushuaia residents
   a) Background info: gender, age, occupation.
   b) What are some of the direct benefits provided by Antarctic tourism to Ushuaia residents? Can you provide specific examples?
   c) What are some of the problems or challenges that Antarctic tourism poses to Ushuaia residents? Can you provide specific examples?

2) Questions for Antarctic Tourists:
   a) Background info: home country, gender, age, education level. (Purpose: tourist demographics).
   b) What inspired you to travel to Antarctica?
   c) How important do you think the following four IAATO Tourist guidelines are? (i) onboard education programs, (ii) bag cleaning/vacuuming, (iii) boot washing, (iv) minimizing wildlife disturbance by maintaining an appropriate distance. ** If you’d like to use a scale of (not important, moderately important, very important), you are welcome to do so. You might also note whether or not the passenger is aware of the reasons for these guidelines.

Research Paper Write-up

Research Question: Critically evaluate the impacts of Antarctic tourism using the course readings, lectures, interviews and field observations as supporting evidence. Identify one aspect of Antarctic tourism that you think has the biggest potential environmental impact and provide suggestions for mitigating these impacts. Conclude with a clear statement on whether or not you think that Antarctic tourism is “sustainable” (based on the definition provided above) and explain why.

Your research paper should be ~1500 words (or ~3-4 single-spaced pages). You must appropriately cite all of your sources using the standard name-year format (refer to format used in this module overview and readings list). Your paper should explicitly address the following:
   a) Antarctic conservation legal and organizational framework (e.g., Protocol on Environmental Protection to Antarctic Treaty, Committee for Environmental Protection, IAATO).
   b) Antarctic tourism impacts from travel
   c) Tourism impacts in Ushuaia
   d) Expedition crew implementation and enforcement of IAATO tourist guidelines
   e) Tourism impacts on the Antarctic Peninsula (e.g., negative impacts on flora and fauna, positive impacts on tourists as ‘Antarctic Ambassadors’)
   f) As an appendix to your research paper, please provide a brief summary of (a) who you interviewed from Ushuaia and the expedition vessel (names excluded) and (b) general findings from each group of people (Ushuaia and expedition passengers).