Human impacts in the Arctic and Antarctic: Key findings relevant to the ATCM and CEP
Human impacts in the Arctic and Antarctic: Key findings relevant to the ATCM and CEP

Information paper submitted by ASOC

Summary

At the IPY Oslo Science Conference, 2010, two writing projects were launched, involving 50 international experts over a period of 3 years in exploring the subject of human impacts and future scenarios for the Antarctic environment. The vast majority of future scenarios concur that existing environmental management practices and the current system of governance are insufficient to meet the obligations of the Environmental Protocol to protect the Antarctic environment. If we are to satisfactorily address the challenges facing a warmer and busier Antarctic in the 21st century and beyond, significant improvements are required.

A variety of strategic and specific actions are available to the Antarctic Treaty Parties to reduce environmental impacts from activities in Antarctica. These include wider use of existing environmental management tools (e.g., long-term monitoring programmes, protected areas), fuller compliance with the Protocol and its Annexes, proactive engagement on contentious and strategic issues such as a vision for Antarctic tourism, placing shared long-term visions and collective strategies at the heart of decision-making, and enhanced coordination and collaboration. Regulations and governance need to be supported by evidence and knowledge but driven by political will, genuine commitment from all stakeholders and sufficient resources to realize effective protection to the Antarctic wilderness and its biodiversity.

Introduction

A session on “Human impacts in the Arctic and Antarctic: regulatory and management implications” at the International Polar Year (2007-09) Open Science Conference in Oslo, Norway (8 to 12 June 2010) provided the stimulus for two writing projects. These projects aimed to capture some of the state-of-the-art research that was presented and to explore: (i) aspects of strategic planning in the management of human activities in the Antarctic and (ii) the values of Antarctica that merit protection.

The open-access journal Polar Research, published by the Norwegian Polar Institute, dedicated a thematic cluster to the topic “Human impacts in the Arctic and Antarctic” (see Volume 31, 2012). The abstracts of the papers published in this cluster are included as an attachment. Full articles can be downloaded for free from the website of Polar Research (http://www.polarresearch.net/index.php/polar/issue/view/1389).

An edited volume, “Antarctic futures: Human engagement with the Antarctic environment”, published by Springer in April 2013, explores future scenarios for the Antarctic environment, notably the ‘Business-As-Usual’ scenario, where the current trends of increasing human activities continue and no additional conservation action is taken and alternative future scenarios. Similarly, the authors in this book examine strategic planning needs that would ensure continued conservation of the Antarctic environment. The chapter abstracts are included as an attachment.

1 Lead author Dr. Tina Tin. ASOC thanks the co-convenors of the session and co-editors of the thematic cluster and the book Drs. Tina Tin, Daniela Liggett, Machiel Lamers and Patrick Maher for initiating this paper. While the content of this paper is based on the content of the two publications reported, the views expressed do not represent a consensus view agreed upon by all the authors involved. Rather, this paper represents the co-editors’ best effort in synthesizing nearly 500 pages of original intellectual work. The sole responsibility for any errors or misrepresentations rests with the co-editors.
These two publications represent the work of 50 international experts over a period of 3 years. The key findings relevant to the ATCM and CEP are summarized below:

**Key findings relevant to the ATCM and CEP**

**Future scenarios**
- Most experts concur that existing environmental management practices and the current system of governance are insufficient to meet the obligations set out under the Environmental Protocol to protect the Antarctic environment. They will certainly be insufficient to deal with the environmental challenges that arise in a warmer and busier Antarctica in the 21st century and beyond. A minority of scenarios anticipate that, with proactive regulatory actions initiated within the Antarctic governance regime, human activities can take place sustainably without compromising its environment.

- In many cases, a Business-As-Usual future represents a worst-case scenario, as climate change is not adequately addressed globally and other needed conservation measures are not implemented. Synergistic and cumulative impacts are expected to exacerbate existing threats and reduce the resilience of ecosystems to further anthropogenic threats, placing greater stress on ecosystem functions, trophodynamics and ecosystem services than at present.

**Strategic actions**
- Strategic actions that could help to ensure the future of the Antarctic as a “natural reserve” over the long term include:
  - expanding the use of existing environmental management tools (e.g., long-term monitoring programmes, coordination of scientific and logistic activities, information sharing, Environmental Impact Assessments, designation of Antarctic Specially Protected Areas and Antarctic Specially Managed Areas) and fuller compliance with existing regulatory mechanisms, notably the Protocol and its Annexes;
  - preserving the ATS’s key environmental protection provisions, through adoption of a real commitment to preserving the unique nature of the Antarctic and the protection of its environment;
  - strengthening links between ATS environmental protection provisions and relevant global instruments, such as the UN Framework Convention on Climate Change and UN Convention on the Law of the Sea;
  - bringing in instruments and tools from outside the Antarctic (e.g., Strategic Environmental Assessment, Environmental Management Systems, national park concepts), adapting and implementing them in an Antarctic context;
  - supporting global environmental initiatives to mitigate climate change, reduce global consumption and waste production and improve global ocean governance;
  - employing strategic, proactive and holistic planning and implementation, taking into consideration as many dimensions (e.g. time, space, human values, ecosystems) and perspectives (e.g. experience, culture, behaviour, systems) as possible.

- Contentious and strategic issues need to be addressed urgently and proactively. Long-term and large-scale considerations need to permeate planning, decision-making, implementation, enforcement, monitoring and compliance. Decisions should be guided by long-term visions and goals that are supported by political will and genuine commitment from all actors. Commitment can only be obtained when the values and cultural differences of stakeholders are taken into consideration and a vision for the governance of Antarctica is developed and shared by the stakeholders involved.
Regional case studies highlight that sufficient baseline data and an improved understanding of ecological processes are essential to ensure effective management of human activities and their environmental impacts. Consensus and coordination are crucial in implementing management decisions, particularly in regions where multiple National Antarctic Programmes are active or where multiple human activities are undertaken by a mix of governmental and non-governmental parties. Ongoing monitoring is essential to assess the effectiveness of management decisions, to ensure compliance and to develop best-practice guidelines. A monitoring network, adopting clear reproducible protocols and including areas subjected to intense human activity as well as complementary control sites with little human activity can provide information on spatial patterns and temporal trends.

Antarctic tourism should be regulated with a shared vision and a collective strategy. Independent monitoring and observation systems ought to be created to guarantee impartial checks and balances. Precautionary action may be a practical alternative to manage some sites until it is clearer how tourism affects the environment.

The network of Antarctic Specially Managed Areas, Antarctic Specially Protected Areas and Marine Protected Areas should be expanded. A systematic network of protected areas, including marine permanent no-take zones and previously unimpacted areas, can provide enhanced protection to Antarctica’s marine and terrestrial ecosystems from the risks of non-native species and the increase of human activities.

Conclusions

The publications cited in this paper exemplify applied research at its best with rigorous fieldwork and thought to provide knowledge and understanding in support of the management of human activities and the protection of the polar environment. Application of research findings from the natural and social sciences can help in the development of well-rounded and comprehensive policies and in securing the commitment of stakeholders. However, evidence and knowledge alone are insufficient to bring about environmental protection. Political will and genuine commitment from all stakeholders are indispensable driving forces.

In the past, the Antarctic Treaty System has led the way in demonstrating that peace, international collaboration and environmental protection are possible, even in the face of the Cold War and other global crises. At the beginning of the 21st century, the Antarctic Treaty System should take the necessary actions to ensure the continued protection of Antarctica’s wilderness and biodiversity, even in the face of growing pressures and global change.