

# Promoting conservation in Antarctica through collaboration and active citizenship



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# WELCOME!



Antarctica is one of the world's last truly wild places, but its habitat and biodiversity are under increasing pressure from climate change and direct human activity. Research in the region is critical for understanding local and global environmental changes, but funding is often limited.

To fill this gap and to achieve critical conservation objectives, the International Association of Antarctica Tour Operators (IAATO), the Antarctic and Southern Ocean Coalition (ASOC) and WWF (a member of ASOC) are collaborating to create ambassadors and informed, active citizens of Antarctica. These organizations are taking a fresh approach to ecotourism and other public outreach efforts to generate support for Antarctic conservation efforts.

This poster showcases some of these innovative projects and demonstrates how conservation can be achieved through collaboration between industry, environmental groups and the research community.

[VIDEO] <https://www.youtube.com/embed/wQPjXEr7qoE?fs=1&modestbranding=1&rel=0&showinfo=0?fs=1&modestbranding=1&rel=0&showinfo=0>

# COLLABORATION FOR CONSERVATION



Antarctica is managed through the Antarctic Treaty System's extraordinary global partnership of 29 countries. Through the Protocol on Environmental Protection, this year celebrating its 25th Anniversary, the entire continent is formally designated a 'natural reserve, devoted to peace and science'. Science, one of three main types of legitimate human activity in Antarctica along with tourism and fishing, is regarded as the most important activity under the Treaty given Antarctica's influence on environmental processes across the globe. It is largely managed and funded by National Programmes.

Tourism is a notable activity because it accounts for the largest number of people setting foot on the continent every year. It began in the late 1950s with one or two chartered ships carrying a few hundred passengers to coastal regions and now enables around 38,000 people to experience Antarctica, mainly at sites along the Peninsula. Numbers are expected to rise in line with global tourism trends. Although minimal direct impact from tourists on the environment has been detected to date, continued protection of this great wilderness requires sound management in collaboration with the whole Antarctic community.

Virtually all visitors travel currently with IAATO member operators. IAATO, which also celebrates its 25th year in 2016, works within the framework of the Environment Protocol to ensure its activities have no more than a minor or transitory impact on the Antarctic environment. Each year Treaty Parties gather to discuss the future management of Antarctica at the Antarctic Treaty Consultative Meeting (ATCM). Observers, such as the Scientific Committee on Antarctic Research (SCAR), and Invited Experts, such as ASOC and IAATO are invited to attend.

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## Patterns of tourism in the Antarctic Peninsula region: a 20-year analysis

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**Abstract:** We extend a previous analysis of Antarctic tour ship vessel traffic to include 20 years of commercial cruise activity (1993/94–2012/13) using recently digitized historical records and new data on vessel landings since 2008/09. Using tourism statistics from 1989/90–2013/14, we also examine trends in passenger numbers, landings and the nationalities of passengers travelling to the Antarctic Peninsula region. This study represents the most comprehensive long-term perspective on how tour ship activity has changed spatially and temporally over a period in which visitation has grown ten-fold. Passenger landings and marine traffic are highly concentrated at a few specific locations, particularly along the Peninsula's south-western coast. Antarctic tourism activity is closely correlated with measures of economic activity in those countries contributing the largest numbers of visitors to the region. The nationalities of Antarctic tourists have shifted over the years, particularly with respect to an increasing number of visitors from China. Since emerging markets for Antarctic travel are probably far from saturated, interest in travelling to Antarctica will probably continue to grow. Understanding visitation patterns will focus efforts to monitor potential anthropogenic impacts and inform management decisions regarding activities in and around the Antarctic region.

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IAATO has long submitted data to the ATCM on its activities to aid discussions and assist with management decisions. Many of IAATO's established guidelines and procedures have also been incorporated into the ATCM's work, including legally binding measures such as the requirement that tour operators refrain from making landings from vessels carrying over 500 passengers. IAATO also assisted Treaty Parties with developing guidelines for visitor sites in Antarctica ([www.ats.aq](http://www.ats.aq)).

[VIDEO] <https://player.vimeo.com/video/152322185?byline=0>

*Briefing Film - Going Ashore Visitors from IAATO.*

The role of ASOC, a global coalition of environmental organisations that advocates for robust implementation of the Protocol, is to provide policy recommendations to Treaty Parties to obtain the highest possible levels of protection for the continent.

In an era of Antarctic environmental change, ASOC highlights the need for precautionary, science-based measures such as the creation of protected areas and comprehensive planning of human activities to protect the beautiful but fragile Antarctic.

WWF

is one of the world's largest conservation organisations with over 5 million supporters working in over 100 countries. The WWF Antarctic conservation program monitors and reports on the state of species, ecosystems and human impact of this critical place and communicates innovative solutions to achieve conservation impact such as establishing marine protected areas in the Southern Ocean.

ASOC, IAATO and WWF recognise the potential for Antarctic visitors to contribute to Antarctic protection and seek to maximise this. Tourists, now representing more than 100 different nationalities on average each season, and tour operators often develop a strong connection to the region, and are eager to participate in conservation efforts.

Scientific research efforts are one way to achieve this. Increasing numbers of projects use crowdsourced data or other forms of public participation. Antarctic visitors and those who love the continent from afar can therefore engage in cutting-edge science and deepen their commitment to Antarctic conservation. Furthermore, tour operators can provide research platforms and help researchers access sites.

We have recently been scaling up efforts to mobilize active Antarctic citizenship using citizen science, social media, and other tools to communicate Antarctica's importance. This increasingly involves collaboration to help maximize the impacts of these efforts.

## WHAT'S HAPPENING IN ANTARCTICA?

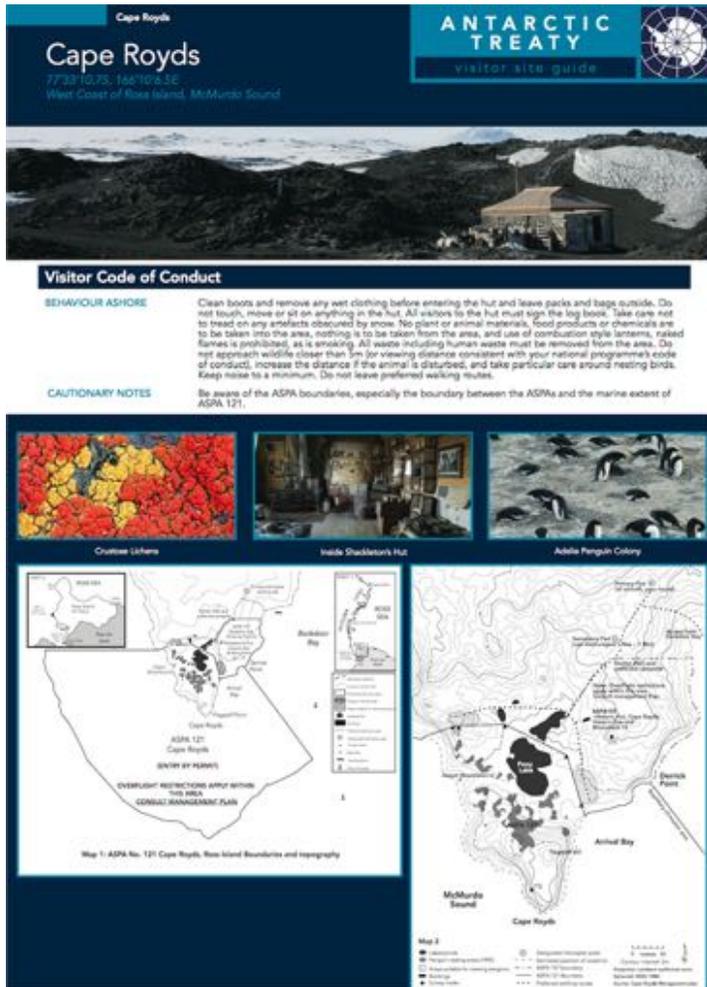


Although Antarctica is a continent dedicated to peace and science, many research questions remain unanswered. For example, how is climate change affecting the Antarctic environment and its wildlife? What impact will environmental changes in Antarctica have on the rest of the world?

The Antarctic Peninsula has been subject to a particularly variable climate in recent times. The rapid warming that took place between the early 1950s and late 1990s has temporarily paused partly due to stabilisation of the ozone hole and changing wind patterns. Glacier retreat is ongoing and it is believed that temperatures in this area will have risen by several degrees centigrade by the end of the century if greenhouse gas concentrations continue to rise.

The Peninsula is also an area of significant human activity with numerous scientific bases, tourist visitation sites and fishing areas. To take appropriate management action, the Antarctic Treaty needs data that can understand both what is changing and why it is changing. ASOC and IAATO share a mutual interest in expanding available scientific knowledge to support Antarctic Treaty decision-making.

These areas, where different types of human activity overlap, are carefully managed through Visitor Site Guidelines and Antarctic Specially Managed Areas (ASMAs). They are reviewed every five years taking current and projected use into consideration. At the moment there is mutual interest in assessing the sensitivity of these sites in order to ensure that the current management techniques are effective.



A proposal to create a Marine Protected Area (MPA) in the Peninsula region will likely be submitted at The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)'s annual meeting in 2017 for consideration. CCAMLR aims to conserve Antarctic marine life by taking an ecosystem based, precautionary approach. Developing an effective but pragmatic MPA in a multi-user area requires consideration of all human activity as well as ecosystem processes. Combining IAATO data on the spatial and temporal movement of tour operators with that from the fishing industry and National Antarctic Programmes is useful in the development of a Peninsula MPA.

Long-term monitoring is particularly valuable for analyzing trends and drawing conclusions for management and has the potential, for example, of untangling whether environmental changes occurring in the Peninsula are caused by direct human activity or other variables such as climate change. Two research projects, the Antarctic Site Inventory (ASI), coordinated by the Oceanites Foundation, and Penguin Lifelines, are examining this by conducting site surveys of penguin colonies and other seabirds. They are supported by IAATO member vessels, which provide transport and platforms for research. Long-term monitoring of the size and health of penguin populations will provide into environmental change and can be used to guide policy and educate the public on the impacts of climate change. The ASI has been building an inventory of baseline biological and topographical data since 1994 with the assistance of tour operators that enables changes to be detected in physical features, flora and fauna at the principal visitor sites on the Antarctic Peninsula.

## CITIZEN SCIENCE



IAATO, ASOC and WWF are harnessing the power of citizen scientists to help Antarctica through innovative research projects.

Citizen science, which refers to research conducted by amateur scientists, is on the increase among tour operators in Antarctica. A challenge in designing a successful project is producing quality science while educating and engaging the travelling public. They are usually done in collaboration with scientific institutions.



Marine mammal research is an ideal citizen science initiative. Information on the distribution and numbers of whales at high latitudes is still surprisingly scarce given the logistical difficulties of reaching these areas. With IAATO vessels making over 250 trips to and from Antarctica each season, they provide an ideal platform for data collection. For example, it is now known that there are three discrete types of killer whales in the Peninsula area alone, all with distinct behaviour patterns and feeding techniques (NOAA Killer Whale Catalogue). A program called Happywhale ([www.happywhale.com](http://www.happywhale.com)), successfully trialled in the 2015/2016 Antarctic season, links contributors and researchers by providing a means of uploading photos for identification of individual animals. To maintain engagement and interest, contributors can keep tabs on where and when 'their' whales or seals have been sighted again. Over the past year over 30,000 images uploaded to Happywhale by citizen scientists were processed, documenting 1912 sightings containing 23 species. Taking humpback whales as an example, 616 individuals were identified of which 126 were matched to other cetaceans in the NE Pacific and Antarctic Peninsula.

HOME MAP SUBMIT IMAGES ABOUT Welcome to iPosterSessions Register / Sign In Search site

[Unnamed]  
ID: AHWC-2004  
SEX: Unknown

Humpback Whale

Sightings	First	Last
2	08/12/2002	02/02/2014

FOLLOW

Seen this individual?  
SHARE YOUR EXPERIENCE

Costa Rica to Antarctica: AHWC-2004 was photographed by Scott Swanson in 2002 off Costa Rica, then again in Antarctica by Christian Engelke in 2014; 8500km (5250 miles) apart, this is one of the longest recorded Humpback Whale migrations.

This match was discovered in the Antarctic Humpback Whale Catalog at Allied Whales, College of the Atlantic. In a fantastic example of global collaboration, the first sighting was collected by Kristin Rasmussen of Parasitica and Cascadia Research Collective for the SPLASH project (splashcatalog.org), and shared with the AHWC.

Show My Encounters Only

#### Other projects engage citizen scientists

outside Antarctica through crowdsourcing. Zooniverse is an innovative website that allows researchers to post opportunities for citizen scientists to participate in their research. Penguin Lifelines, a project led by Tom Hart, a penguin researcher at the University of Oxford, is using Zooniverse to get help counting penguins from people all over the world (penguinwatch.org). Participants label penguins in images taken from webcams placed in key locations on the Antarctic Peninsula. IAATO members assist the project in accessing fieldwork sites.

ASOC is working with researchers to promote a new project called Satellites Over Seals (SOS) that aims to estimate Weddell seal numbers and understand how environmental variables affect them. The public will be able to participate in this project by counting seals in satellite imagery. ASOC will drive participation in the project through its website and social media. The results of the project can be used to inform efforts to conserve Weddell seals, such as marine protected areas (MPAs).

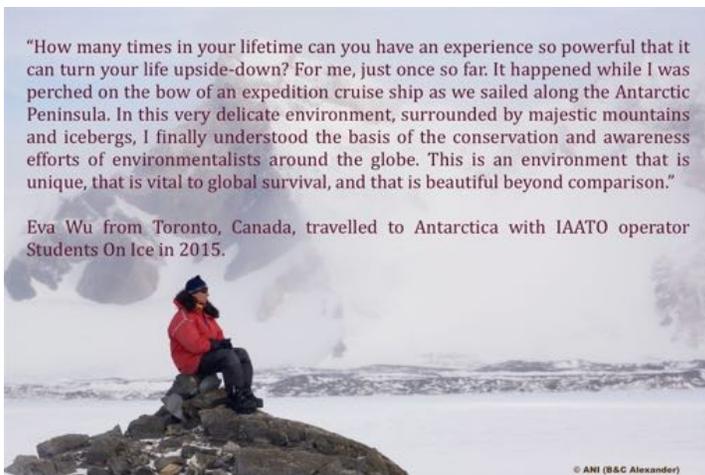
WWF is developing a platform called Wildcrowd that will gather and visualise data on multiple species from krill to whales together with human activities from a range of research projects across the Southern Ocean, including citizen science. The WWF anticipate that Wildcrowd will help create robust species distribution models, ultimately feeding science into policy implementation. Wildcrowd has the potential to improve the quality and quantity of data by facilitating feedback and communications via one platform connecting researchers, tour operators, citizen scientist projects and the interested public. It is expected to be launched in late 2016.

## WHY DOES ANTARCTICA MATTER?



Antarctica is a fascinating place but it is not at the forefront of many people's minds. Even individuals who demonstrate an inherent interest by committing their time and money to visit as tourists may start their journey with only basic knowledge. The Antarctic community including Treaty Parties, National Programmes and organizations such as IAATO and ASOC, therefore considers education and outreach to be key components of their work and important aspects of Antarctic conservation. Collectively, their efforts promote the unique values of the continent including its relevance to global science, political setting, impact on the Earth's natural processes and wilderness elements.

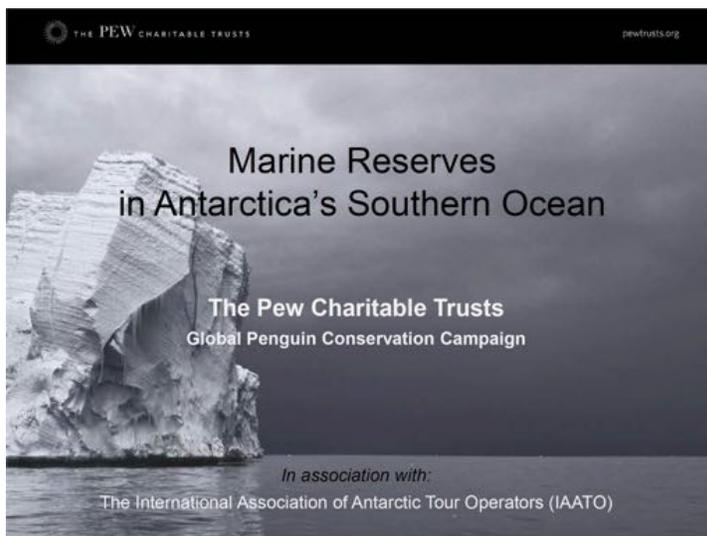
First-hand travel experiences can lead to a better understanding of the destination, the need for responsible tourism and, ultimately, continued protection for future generations. Bringing a general public audience directly to Antarctica provides a unique opportunity to focus education on some of the most polar focussed individuals amongst the travelling public.



IAATO highlights education as a component of visiting Antarctica so tour operators must not only provide informative, engaging and accurate programmes in Antarctica, but also demonstrate the educational value of their trips to their government office or competent authority as part of the Environmental Impact Assessment process required for all human activities under the Protocol on Environmental Protection to the Antarctic Treaty. IAATO member operators also subscribe to a Wilderness Etiquette, which recognizes that the wilderness aspect is intrinsic to a visitor's' experience of Antarctica. Itineraries build in space and time for people to quietly experience the natural splendor of their environment.

Visitors are invited to attend a varied series of seminars and workshops on board or in the field delivered by field staff, often trained to PhD level, and government or non-government scientists who are either travelling as part of the group, and using the tour operator as a research platform, or being transported to a research station or field site. In either case, the public get involved either by assisting with data collection and/or attending lectures.

Lecture subjects range from glaciology, oceanography, history, wildlife, climate change and non-native species and often vary according to what is being experienced day-by-day. IAATO also provides science-based resources for field staff, often in collaboration with other expert organisations. Examples include presentations about Marine Protected Areas and the Antarctic marine ecosystem developed with ASOC member the Pew Charitable Trusts.



Workshops include bird and marine mammal watching and plankton tows. Visitors are made aware of the scientific endeavours ongoing in Antarctica and the significance of long-term monitoring programmes. Visits to National Antarctic Programme Research Stations, where staff and visitors see science in action and are introduced to the challenges of research in the Antarctic environment, offer tremendous learning opportunities.

In February 2016, a 'Future of Antarctica Forum', organised by the Oceanites Foundation, was held on board an IAATO member vessel in Antarctica. The forum brought together representatives from governments, industry and environmental and scientific organizations to discuss current issues, challenges, and opportunities facing the Antarctic Treaty System. Participants focused on the global importance of climate change, Antarctica's central role in better understanding climate change impacts, the continued evolution of the Antarctic Treaty System in the 21st century, and maintaining the ecological relationships of Antarctica's living marine resources. In parallel with the representatives' closed meetings, parallel sessions were held with the passengers describing governance under the Antarctic Treaty system, Antarctic science, and the management of human activities such as fishing, tourism and operations in support of science.

Of course, relatively few people are fortunate enough to experience Antarctica first hand, so innovative ways of engaging with the public about why the continent matters continue elsewhere. ASOC has been committed to helping the public understand the need for Antarctic conservation since its inception. At that time, very few people were aware that Antarctic Treaty countries were developing regulations for mining the continent, and ASOC mobilized the public to support protection of Antarctic wilderness. Since then, ASOC has participated in a wide range of outreach activities, including developing a website and social media channels, working with Antarctic researchers to promote their findings publicly and within the Antarctic governance system, and hosting public events on Antarctic environmental issues. One recent campaign involved the creation of valentines featuring Antarctic invertebrates (see below) to raise awareness of these little-known species in a light-hearted way.



The Royal Geographical Society recently asked the question, "Why does Antarctica matter" for its Young Geographer of the Year competition. It encouraged students to explore why Antarctica still matters today, 100 years on from Sir Ernest Shackleton's Endurance expedition. To support the competition and provide inspiration, a range of Antarctic experts, including the government, WWF, IAATO, film makers and scientists were invited to provide a two-minute video about why Antarctica matters to them. The competition attracted over 1000 entries from students.

[VIDEO] <https://player.vimeo.com/video/177206539>

Since Antarctica does not have a native population, these efforts are critical to generate support for Antarctic conservation and increase public awareness of the continent.

## CREATING ACTIVE ANTARCTIC CITIZENS



Antarctica doesn't belong to any one country, and changes to its environment have the potential to affect large parts of the rest of the world. ASOC, IAATO and WWF are seeking new ways to get Antarctic visitors as well as the general public excited about, and engaged in, Antarctic conservation. These active Antarctic citizens have the power collectively to demonstrate to policymakers that Antarctic protection has public support.

Sparking a passion to contribute to conservation efforts can be achieved in Antarctica by coupling first-hand experience with quality education. Visitors, and the general public, not only have opportunities to contribute by providing helpful data to research programs through citizen science or crowd-sourcing initiatives but also financially through donations. In the last decade, over \$4 million has been contributed to science and conservation projects active in the Antarctic and the sub-Antarctic through tourism.

What can be challenging for tour operators is encouraging visitors to stay involved after they have returned to their busy lives at home. Tourists are more likely to contribute to conservation efforts if they feel connected to the cause and can talk it. Social media networks offer an opportunity, but it is also important that organizations like IAATO, ASOC and WWF work together to magnify their individual impact.

Raising the profile of Antarctic governance is one way to create active Antarctic citizens. ASOC, through its Antarctic Ocean Alliance (AOA) project, has mobilized hundreds of thousands of people from all over the globe to declare their support for marine protected areas in Antarctica by signing a petition that was presented to CCAMLR Member countries. At one CCAMLR meeting AOA organized a Twitter wall (shown below, photo by Bob Zuur) to show delegates real-time tweets from the public expressing their hopes for a positive outcome. Since the Antarctic governance system does not usually attract much public or media attention, many country delegations were pleased by these efforts.



Several IAATO operators incorporate workshops or discussions into their education programmes to discuss how continued engagement can be achieved outside of Antarctica. An 'Antarctic Ambassador' social media forum has been established to create a community whose goal is to bring individuals together who wish to learn more about the continent, share what they have learned and practice stewardship of this great wilderness.

By providing diverse opportunities to learn about Antarctica and contribute to Antarctic science, we can both enhance the experience of visitors and connect the general public to this fascinating place. For links to all the organizations and projects mentioned in this poster, please visit <http://www.asoc.org/component/content/article/1659>.

