

# Public Perception of the Antarctic Wilderness: Surveys from an Educated, Environmentally Knowledgeable European Community

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**Abstract**—In 2007 and 2008, students from Tilburg University (the Netherlands) collected 269 responses on a questionnaire about Antarctica and its management. Respondents in the Netherlands clearly supported protecting Antarctica as a wilderness, and acknowledged Antarctica's importance as part of the global climate system and as a science laboratory for the benefit of mankind. Since the Consultative Parties to the Antarctic Treaty frequently state that they manage Antarctica "for the benefit of mankind," research on the general public's opinion on management issues should be considered relevant information for the decision making process within the Antarctic Treaty System. The strongest opinions of those surveyed suggest that they would like to see that management of Antarctica would allow for scientific research and educational visits on a small scale, while several other categories of activities—many commercial, for-profit or extractive—would be discouraged or prohibited. Large scale tourism, land-based tourism, construction of roads and airstrips, mineral resource activities and whaling all received little support from the respondents. According to respondents, "protecting Antarctica's wilderness values," as mandated under the Environmental Protocol to the Antarctic Treaty, means ensuring that Antarctica remains as close as possible to its original condition.

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## Background

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### The Antarctic Treaty System

Since the Antarctic Treaty in 1961, the Antarctic area (south of 60 degrees south latitude, comprising the Antarctic

continent and the surrounding oceans) has been managed collectively by countries that have a substantial scientific interest in Antarctica. The number of these so-called 'Consultative Parties to the Antarctic Treaty' has grown from 12 to 28 in the past four decades. They meet annually at the Antarctic Treaty Consultative Meeting (ATCM) to discuss the implementation of the agreements that are in force and to consider the need to take additional management measures in view of new developments. Various other international agreements (separate conventions, a protocol to the Treaty and a large number of measures) have been adopted after the Antarctic Treaty to manage human activities in the Antarctic.

The main aims of this international management system—known as the Antarctic Treaty System (ATS) ([http:// www.ats.aq](http://www.ats.aq))—are to (1) safeguard peace, (2) ensure the freedom of scientific research, and (3) ensure the comprehensive protection of the Antarctic environment. A major step to pursue this third objective was made through the adoption of the 1991 Protocol on Environmental Protection to the Antarctic Treaty (commonly referred to as the Madrid Protocol or the Protocol) that entered into force in 1998. Article 2 of this Protocol designates Antarctica as "a natural reserve, devoted to peace and science" and Article 3, paragraph 1, stipulates that:

The protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research, in particular research essential to understanding the global environment, should be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area ([http://www.antarctica.ac.uk/about\\_antarctica/geopolitical/treaty/update\\_1991.php](http://www.antarctica.ac.uk/about_antarctica/geopolitical/treaty/update_1991.php)).

### Managing Antarctica "In the Interest of All Mankind"

According to the preamble of the Antarctic Treaty, the Parties to this treaty recognize "that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord" ([http:// www.ats.aq/documents/ats/treaty\\_original.pdf](http://www.ats.aq/documents/ats/treaty_original.pdf)). Later, the Consultative Parties related the concept of "the interest of mankind" also to the issue of environmental protection within the ATS. Examples include Recommendation

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Watson, Alan; Murrieta-Saldivar, Joaquin; McBride, Brooke, comps. 2011. Science and stewardship to protect and sustain wilderness values: Ninth World Wilderness Congress symposium; November 6-13, 2009; Meridá, Yucatán, Mexico. Proceedings RMRS-P-64. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 225 p.

ATCM VIII-13<sup>1</sup> on the “[p]rotection and monitoring of the Antarctic Environment” (Oslo 1975), Recommendation ATCMXII-3, “Environmental impact of scientific research,” (Canberra 1983) and the preamble of the Protocol. According to this preamble, the Contracting Parties are “[c]onvinced that the development of a comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems is in the interest of mankind as a whole.” Similar statements can be found in other recommendations, as well as declarations that have been adopted by the ATCM. For example, the declaration adopted at the occasion of the 30<sup>th</sup> anniversary of the entry into force of the Antarctic Treaty (Declaration 30<sup>th</sup> anniversary 1991) states:

The Antarctic Treaty provides an example to the world of how nations can successfully work together to preserve a major part of this planet, for the benefit of all mankind, as a zone of peace, where the environment is protected and science is pre-eminent

This statement as well as the other relevant recommendations and measures adopted by the ATCM (for a recent example, see Resolution 9 in Secretariat of the Antarctic Treaty 2009: 288-289), indicate that the Consultative Parties consider their management efforts in the interest of all mankind, particularly those efforts that support or strengthen one or more of the three pillars of the ATS: to safeguard peace, ensure the freedom of scientific research, and ensure the comprehensive protection of the Antarctic environment.

In the literature, the efforts of the Consultative Parties to manage Antarctica “in the interest of all mankind” have been related to the issue of international acceptance of the ATS. This is reflected in Francioni’s explanation for the decrease of tensions between the ATS and the United Nations (UN): “Now, few States, if any, are ready to deny that Consultative Parties have acted responsibly with regard to the protection and conservation of Antarctica for the benefit of humankind” (Francioni 1996, p.2; for the relationship between the ATS and the UN, see Beck 1994 and 2006). However, the Consultative Parties’ ambition to manage the Antarctic in the interest of all mankind has also been criticized by several authors. For example, Klaus Dodds (2006) makes the power imbalances among various Antarctic states explicit, tracing how less-developed states such as India and Malaysia have critiqued the Antarctic Treaty System in the United Nations. The Consultative Parties’ claim that they manage Antarctica in the interest of all mankind constitutes the starting point of the present study, while a discussion of the legitimacy of this claim is beyond the study’s scope.

## Research Objectives

In 2007, a team of researchers from Europe and North America set up a research project entitled “Managing Antarctica for the Benefit of Mankind: A Research Project on the Public Perception of Antarctica and the Way it Should be

Managed.” The objective of this ongoing research project is to get a better understanding of the perspectives of the global public with respect to Antarctica and the way Antarctica should be managed now and in the future. This objective is directly related to the above discussed claim of management of Antarctica in the interest of all mankind. This claim obliges the Consultative Parties to take note of the interests and views of stakeholders outside the ATS. These stakeholders include states that are not a Party to the ATS-instruments as well as members of the general public.

As the public’s opinion has received little and/or sporadic attention from Antarctica’s decision makers, the research team plans to collect the opinions of people from a wide variety of backgrounds, cultures and professions across the world.<sup>2</sup> Few systematic studies exist on this subject, and we hope that the present project can provide information that could bridge the gap. The current paper presents the findings of the first phase of our project in which a cross-section of the Dutch population—predominantly young, highly educated, and localized in the southern part of the Netherlands—responded to our questionnaire. The research team is well aware of the fact that the outcome of the survey is highly dependent on the cultural background of the respondents. We plan to continue the project in countries in other parts of the world.

## Methodology

Between March 2007 and June 2008, students in Tilburg University’s Master of Environmental Law program were asked to collect answers for a questionnaire as part of their term-time assignment. A total of 12 students participated, collecting 269 useable responses.

The questionnaire was divided into four parts, containing a total of 15 main questions, which required answers in the form of multiple choice, short answers, or longer elaborations. A short introduction at the beginning of the document provided the respondent with some factual background information on the Antarctic Treaty and the goal of the research. Every care was taken so as not to influence the respondents prior to providing their responses on their perceptions of wilderness or of Antarctica.

In part I of the questionnaire, the respondent was asked to provide some information about him/herself, including age, gender, educational level, and level of knowledge about Antarctica. In part II, the respondent was asked to elaborate on his/her general perception of Antarctica, including his/her impressions of Antarctica and whether the respondent considers Antarctica interesting or important. In part III, the respondent was asked more specific questions on his/her perception of Antarctica, including what he/she considers as the importance and role of Antarctica, human activities that he/she supports and believes are taking place in Antarctica, and whether/how he/she thinks these activities should change in the future. In part IV, the respondent was asked to elaborate on his/her general perception of wilderness and of wilderness in Antarctica, specifically.

<sup>1</sup> All recommendations and measures adopted by the ATCM can be accessed through [http://www.ats.aq/devAS/ats\\_meetings.aspx?lang=e](http://www.ats.aq/devAS/ats_meetings.aspx?lang=e).

<sup>2</sup> Anyone who is interested in participating in the study and helping to expand its geographical and social coverage is welcome to contact any one of the co-authors, who are all member of the research team.

## Results

### General Information on Respondents (Part I)

The questionnaire was completed by a total of 269 respondents, between 15 and 91 years old, mostly Dutch (table 1). There were nearly equal numbers of male and female respondents. Approximately 40% of the respondents were between 20 and 29 years old. A large proportion of the respondents had secondary or higher levels of education, and medium or high levels of environmental knowledge. None of the respondents had traveled to Antarctica and the general level of knowledge of Antarctica among respondents was low.

**Table 1**—Characteristics of respondents.

Characteristics of respondents	Percentage of all respondents
Male	57
Female	43
With secondary or higher education	98
With medium or higher level of knowledge of environmental issues	78
With medium or higher level of knowledge of Antarctica	25
Below age of 20	8
Between 20 and 29 years old	41
Between 30 and 39 years old	10
Between 40 and 49 years old	15
Between 50 and 59 years old	13
Above age of 59	13

### Perception of Antarctica (Parts II and III)

The large majority of the respondents (95%) considered Antarctica as interesting and/or important. Respondents were asked to indicate which of the following represents the importance of Antarctica:

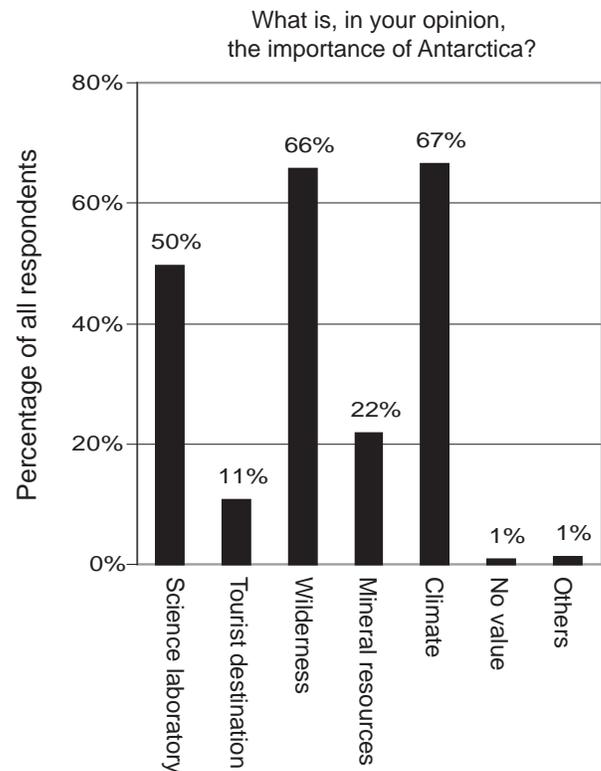
- a. A science laboratory for the benefit of mankind
- b. A tourist destination
- c. One of the world's last great wildernesses
- d. A reserve of mineral resources that might support society in the future
- e. The 'refrigerator' of the world, an important component of the Earth's climate system
- f. Antarctica does not have any value for mankind
- g. Other, namely ...

They could choose multiple answers and were encouraged to explain how multiple activities could co-exist. Two-thirds of the respondents thought that the importance of Antarctica lies in its being "c. one of the world's last great wildernesses," and "e. an important component of the Earth's climate system." Perhaps because they are from a low-lying country, many respondents were aware of the consequences of the melting of Antarctic ice sheets on sea levels. Half of the respondents also considered Antarctica as an important "a. science laboratory for the benefit of mankind" (fig. 1).

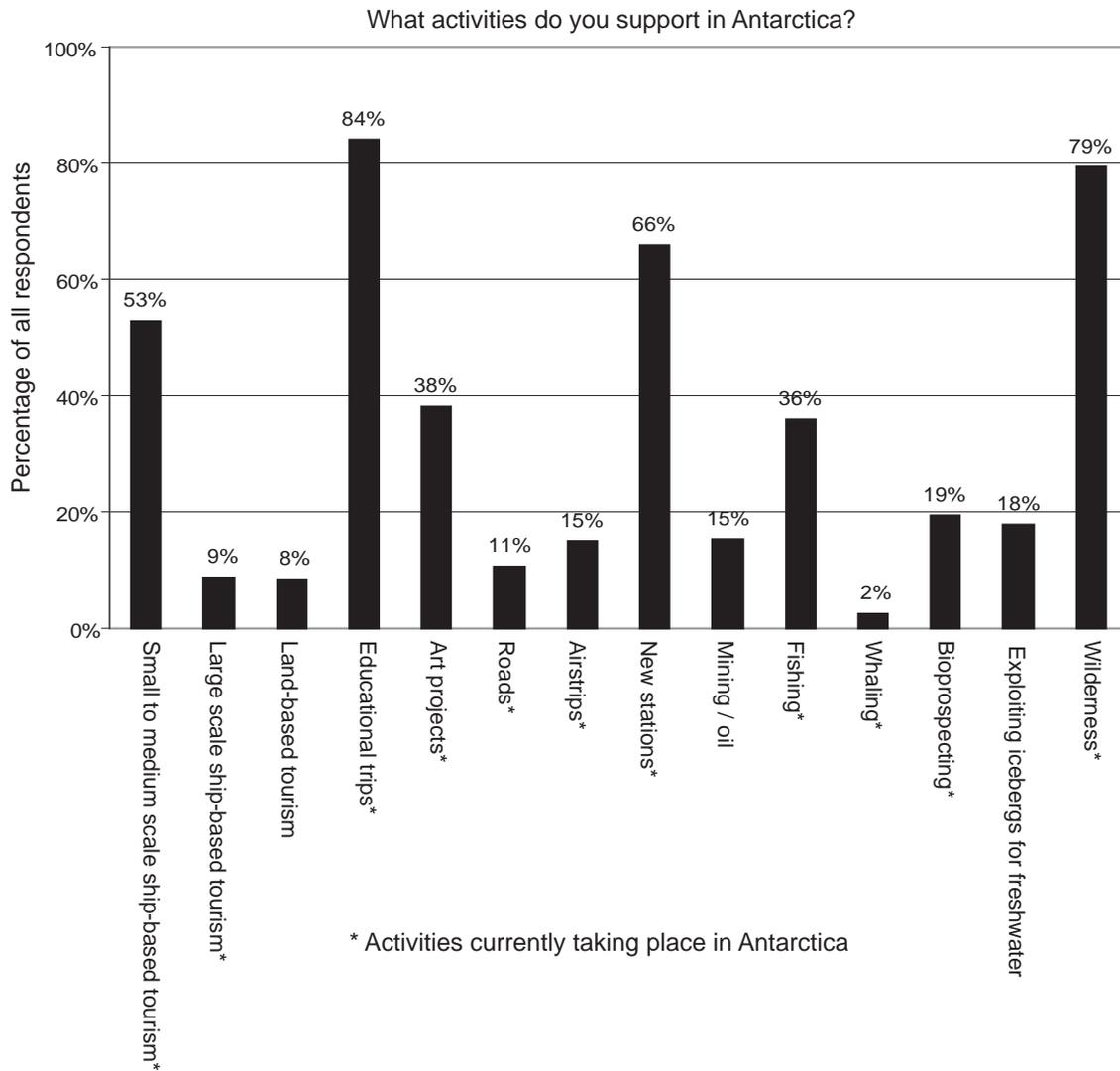
The respondents were then asked if they supported the undertaking of any of these activities in Antarctica:

- a. Small to medium-scale ship-based tourism (up to 300 tourists per ship; make short excursions ashore)
- b. Large-scale ship-based tourism (between 300 and 3,000 tourists per ship; no excursions ashore; luxury entertainment, dining and sports facilities onboard)
- c. Development of land-based tourism, e.g., building of hotels, tourist accommodation in research stations, snow mobile excursions, etc.
- d. Educational trips, e.g., students
- e. Production of art projects, e.g., films, books, music, paintings
- f. Building of over-snow road networks
- g. Building of airstrips
- h. New stations for conducting scientific research
- i. Mining / oil exploration
- j. Fishing
- k. Hunting for whales
- l. Exploitation of biological or genetic material for commercial purposes
- m. Exploitation of icebergs for fresh water supply
- n. Designating Antarctica as a wilderness reserve where development of infrastructure is limited

Again, multiple answers were permitted. The respondents were not told which of these activities are currently taking place in Antarctica. These activities are marked with an asterisk in figure 2. Seventy-nine per cent of the respondents



**Figure 1**—Respondents' perceptions of the importance of Antarctica.



**Figure 2**—Respondents' support of activities in Antarctica.

supported “n. protecting Antarctica as a wilderness,” while there was little support for the activities of “k. whaling” (2%), “b. large-scale ship-based tourism” (9%) or “c. land-based tourism” (8%) and “i. mining” (15%) (fig. 2). There was, however, significant support for “d. educational trips” (84%), “h. new stations for conducting scientific research” (66%), and “a. small to medium scale ship-based tourism” (53%).

Respondents were asked what they thought was the current level of human activity in Antarctica. Half of the respondents believed that thousands of people go to Antarctica each year (table 2). Another 45% believed that tens of thousands of people go to Antarctica each year. Approximately 74% of respondents correctly answered that the area visited and area covered by infrastructure is less than 10% of Antarctica’s surface.

According to the Council of Managers of National Antarctic Programs, all the 75 active research stations in Antarctica combined can simultaneously accommodate a maximum of 4,500 people (COMNAP 2009). While this

number can be used as an indicator, the exact number of people that cycle through the various research stations and field camps each year is not readily available and could be several times such a value. Tourism is the other activity that brings people to Antarctica and in the 2007-2008 austral summer season, a total of 74,000 passengers, staff, and crew went to Antarctica with the tourism industry (IAATO 2008a). Most tourists travel to Antarctica on expedition cruise ships (that carry from several to 500 passengers, in addition to staff and crew) and make occasional landings at specific sites on the continent or surrounding islands. Tourists also arrive by air and may spend significant amounts of time on land for the purposes of long distance expeditions or climbing. Increasing numbers arrive onboard large ships (carrying between 1,000 and 3,000 passengers, in addition to staff and crew) but no landings are made. In the 2007-2008 season, out of the 46,000 boat passengers, at least 32,600 passengers made landings at a total of 202 sites on the Antarctic continent, while 12,400 passengers traveled

**Table 2**—Respondents' perception of the level of human activity that is currently taking place in Antarctica.

In your opinion:	Percentage of all respondents answering		
	1,000's of people	10,000's of people	100,000's of people
<b>How many people go to Antarctica each year?<sup>a</sup></b>	49	45	6
	<10	10-50	50-100
<b>Humans currently regularly visit how much of Antarctica's area?<sup>b</sup></b>	67	31	2
	<10	10-50	50-100
<b>Long-term infrastructure, e.g., research stations, cover how much of Antarctica's area?<sup>c</sup></b>	74	26	1

<sup>a</sup> As a rough estimate, the number of people going to Antarctica every year is getting closer and closer to the 100,000 mark (see text for details).

<sup>b,c</sup> Human activity and infrastructure currently cover roughly less than 10% of Antarctica's surface area on a regular basis.

on large cruise ships and did not set foot anywhere within the Antarctic Treaty area<sup>3</sup> (IAATO 2008b, c). Therefore, as a rough estimate, the number of people going to Antarctica every year is getting closer and closer to the 100,000 mark. The results with respect to the Antarctic visitor numbers indicate that our respondents' perception of the level of human visitation to Antarctica is, overall, lower than what is in reality.

When asked how they would like to see the level of human activity in Antarctica change, more than 90% of our respondents supported no change or decrease in the area occupied by human activities (table 3). In the case of the number of people visiting Antarctica, of the 6% of the respondents who believed more than 100,000 people are going to Antarctica each year, most supported a reduction in the number of people going to Antarctica. None of these respondents supported an increase in the number of people going to Antarctica. For the respondents who believed that tens of thousands of people go to Antarctica each year, about half supported no change in numbers and the other half supported a reduction in numbers. Again, there was very little support for the increase in the numbers. Respondents who believed that thousands of people go to Antarctica each year also displayed a similar opinion. Thus, these results imply that over 90% of our respondents find the current number of people going to Antarctica unacceptable.

We found that there was no significant difference in the responses from respondents of different genders. Respondents who characterized themselves as having a high level of knowledge of environmental issues tended to have a perception of the level of human activity in Antarctica that was closer to reality. Apart from this aspect, we found that

<sup>3</sup> Notwithstanding the absence of landings, large scale ship-based tourism can still have environmental impacts; while interesting and extremely relevant, such a discussion is beyond the scope of this present article.

**Table 3**—Respondents' support for change in the level of human visitation to Antarctica.

Respondents who believe:	Percentage of respondents in each category who support:		
	No change	Decrease	Increase
Thousands of people go to Antarctica every year	59	32	7
Tens of thousands of people go to Antarctica every year	47	43	10
Hundreds of thousands of people go to Antarctica every year	20	80	0

levels of knowledge of respondents about environmental issues or Antarctica explained little of the difference between responses.

Respondents between the ages of 30 and 49 and above the age of 59 tended to place particular importance on Antarctica as one of the world's last great wildernesses (fig. 3a). Respondents over 20 years old considered Antarctica as a scientific laboratory being of special importance, with more respondents in the higher age group having this opinion (fig. 3b). Curiously, compared to other age groups, fewer respondents within the age group of 30-39 years old considered the importance of Antarctica to lie in its being an important component of the Earth's climate system (fig. 3d). While there is little overall support for Antarctica as a

tourist destination (fig. 3c), there is more support for small to medium ship-based tourism among respondents below the age of 40 compared to those above the age of 40 (fig. 4a). One possible hypothesis could be that the older population may consider visiting Antarctica to be less of an option for themselves, but this cannot be verified on the basis of the survey. Respondents under 40 years old were especially supportive of art projects being conducted in Antarctica (fig. 4b). Fishing, which received support from under 40% of all respondents, was particularly supported by respondents below 20 years old (fig. 4c). For the other activities that were supported by the majority of respondents, i.e., educational trips and new stations, there was little difference in the responses according to age groups. For the activities that were supported by 15% or less of all respondents, it is difficult to draw significant conclusions on the age distribution of responses, as sample sizes of supporters become small. While the majority from each age group did not support these activities, it appeared that more respondents from the lower age groups supported the activities of fishing (fig. 4c), mining (fig. 4d), large ship-based tourism, and the construction of roads than those from higher age groups. For other activities, such as whaling, land-based tourism (fig. 4e), and

the construction of airstrips (fig. 4f), there appeared to be little difference between the responses from different age groups. However, these trends should only be interpreted as indicative because of the limited sample size.

### Perception of Wilderness (Part IV)

In part IV, respondents were invited to express their opinions on wilderness, in general, and on wilderness in Antarctica, specifically, through four questions:

- *In your opinion, what is the meaning of the word 'wilderness'?*
- *What should not be allowed in a wilderness?*
- *What should be allowed in a wilderness?*
- *According to you, what is the meaning of the phrase 'protecting the wilderness values of Antarctica'?*

The majority of the respondents shared a similar understanding of the word 'wilderness.' Many respondents described it as a place with no or few people; where there is no or little human impact or interference or disturbance. The lack of infrastructure is often cited, as well as the quality of silence and solitude. Some respondents specified that

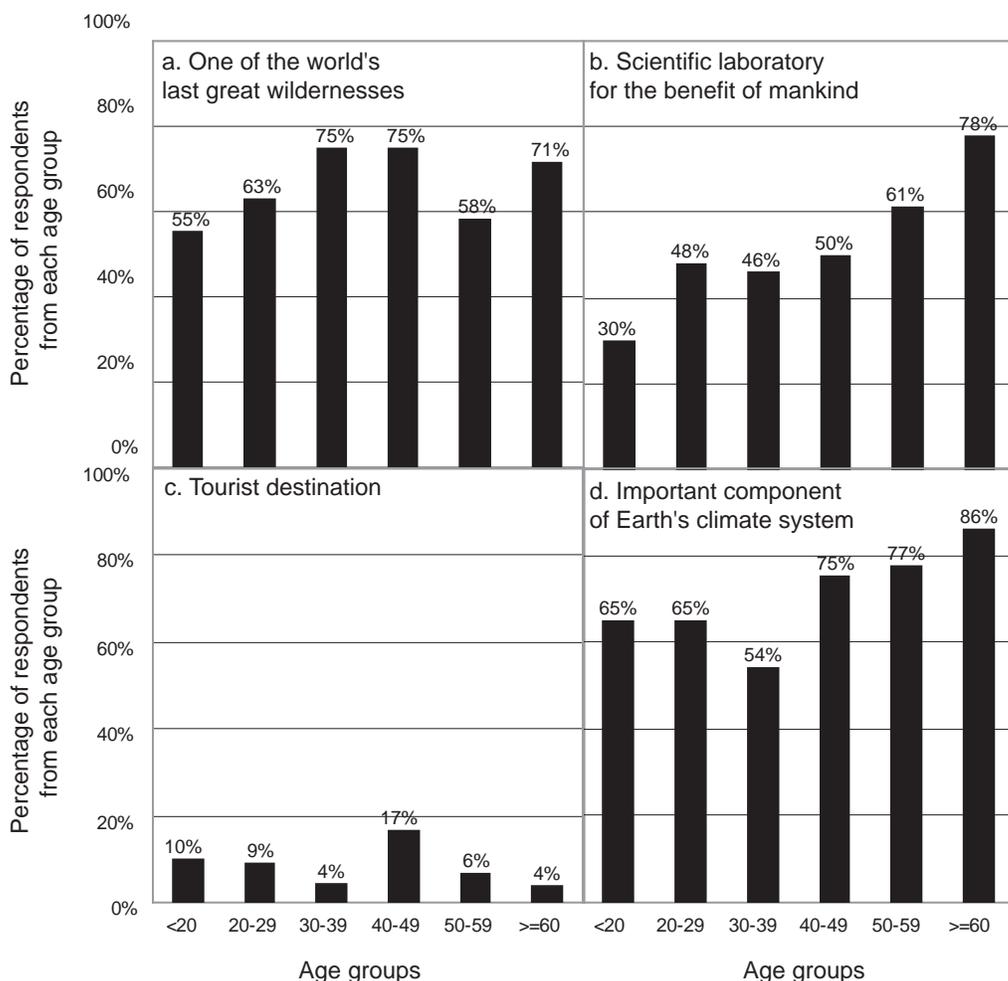


Figure 3—Respondents' perceptions of the importance of Antarctica, according to age groups.

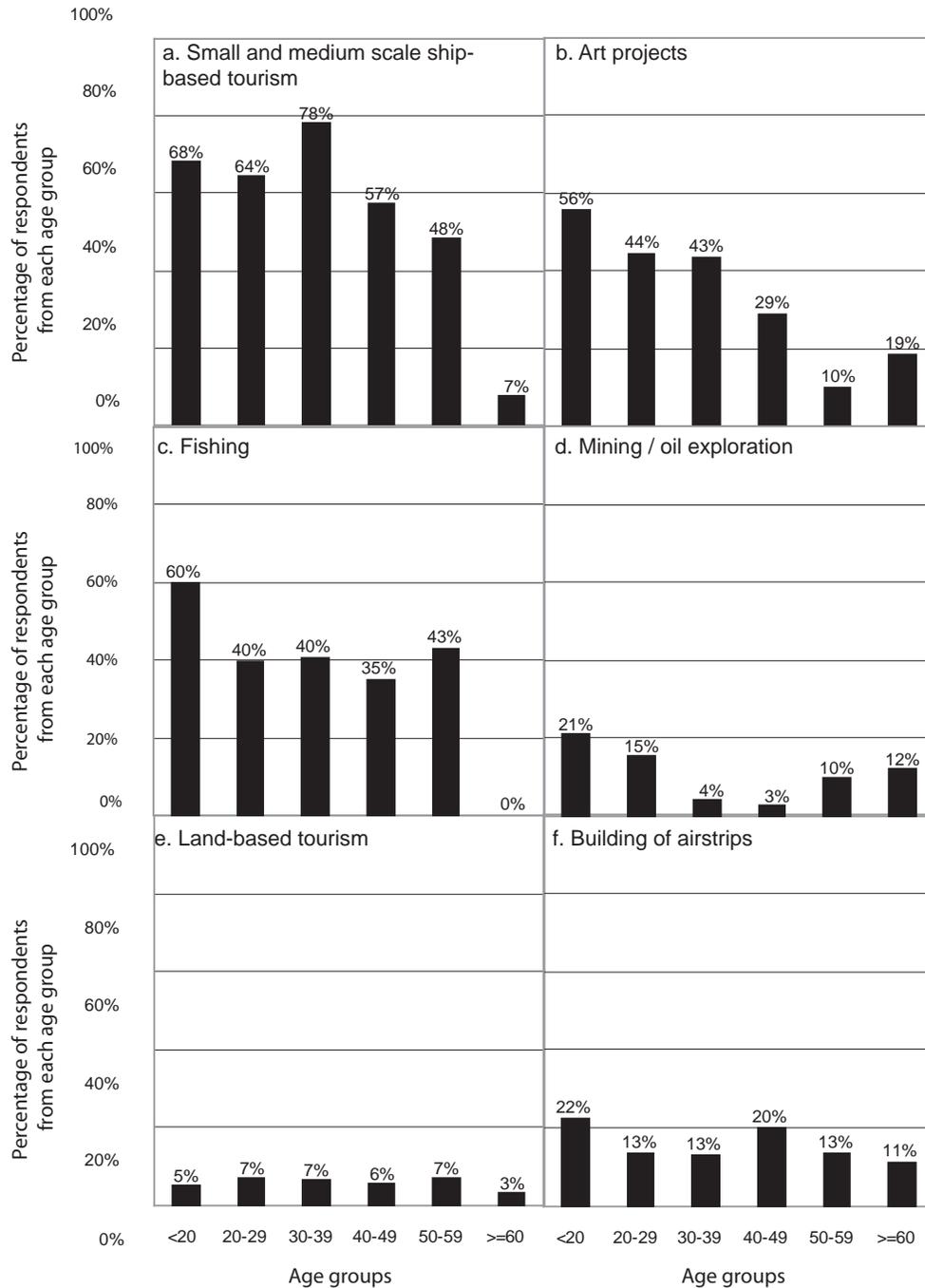


Figure 4—Respondents’ support of activities in Antarctica, according to age groups.

wilderness should be large areas while others indicated that they can be small. Overall, the respondents’ perception of the word ‘wilderness’ can be summarized as a place where *“nature goes its own path without human intervention.”*<sup>4</sup> Some examples of wilderness areas commonly mentioned were: rainforests/the Amazon, high mountains, deserts, oceans, the Polar Regions, Africa, and Australia.

<sup>4</sup> Quote from respondent. All text in quotation marks and italicized from this point on are direct quotes from respondents.

Respondents were then asked what activities should or should not be allowed in wilderness. The emphasis of these two questions is not on Antarctica, but rather is on wilderness in general. Respondents suggested a wide range of activities that should be prohibited in wilderness. The most widely cited response was of the generic type, which excluded activities that *“disturb the natural balance,”* or *“pollute,”* or *“damage the wilderness.”* Of the specific suggestions, hunting, infrastructure, industry, logging, natural resource exploitation, including mining and oil and gas exploitation,

were frequently mentioned. Overwhelmingly, tourism—specifically, mass tourism—was indicated as an activity that should be prohibited in wilderness. The prohibition of commercial activities or any human intervention is also frequently mentioned. Respondents frequently mentioned that “*as little [human activity] as possible*” should be allowed to take place in wilderness and that only “*activities that add value and have only minimal impact*” or would “*allow nature [to] take its course*” should be permitted. Research, tourism, and education—all on a small scale—were among the activities that the respondents thought should be allowed to take place in wilderness.

The final question brought earlier questions together and asked the respondents for their thoughts on Antarctica as wilderness. Respondents were asked what the phrase ‘protecting the wilderness values of Antarctica’ meant to them. Responses were not very specific. This could be an indication that the respondents were unfamiliar with the subject matter or the concepts involved, or that the question was not worded clearly. To many respondents, ‘protecting the wilderness values of Antarctica,’ as mandated under Article 3 of the Protocol, meant the need to change Antarctica as little as possible, “*ensuring that Antarctica remains as far as possible in its original condition,*” and that it does “*not become a tourist destination but just a piece of unspoiled nature, the way it was before it was discovered.*” In response to this question, respondents thought that ‘protecting the wilderness values of Antarctica’ would mean prohibiting tourism; some level of scientific research should continue; large-scale human activities should be prohibited; and all other human activities should be avoided or kept at as small a scale as possible.

## Linking Findings with Ongoing Management Debates

The results of this study provide a glimpse of the opinions of a small cross-section of the Dutch population (predominantly young, highly educated, and highly localized in the southern part of the Netherlands). Future surveys among populations of different cultural backgrounds will be needed to verify the universality of the results from this first phase of the study. While recognizing the limitations of the project, the authors also recognize the new insight that this study will bring. Most previous surveys have been conducted among target groups who have a certain level of knowledge about Antarctica, notably tourists or other visitors (Enzenbacher 1995; Davis 1999; Maher 2007) or other people on their way to Antarctica (Roura and Del Acebo Ibáñez 2000). Few have sought out the opinions of people who do not have any direct links with Antarctica. It is true that one might question the validity of the opinions of a general public that knows little about Antarctica, and we recognize that such opinions should not dictate decisions. Nevertheless, since Antarctica is a global commons, we hope that public opinion can at least be integrated as one of the numerous components that are taken into account in the decision making process. In that respect, the findings from this study provide some unique information on the views of a small part of mankind, which can potentially benefit from the management of Antarctica

but currently does not participate actively in the decision making process.

Respondents clearly supported protecting Antarctica as a wilderness, and acknowledged the importance of Antarctica as part of the Earth’s climate system and an important science laboratory for the benefit of mankind. There was general support for scientific research activities and educational trips (activities that are not driven by profit) and small-scale tourism activities (although it was not considered acceptable to develop Antarctica into a tourist destination). Large scale tourism, land-based tourism, mineral resource activities, whaling (for-profit commercial activities) and the construction of roads and airstrips all received little support. For respondents, protecting Antarctica’s wilderness means ensuring Antarctica remains as close as possible to its original condition.

Since the Consultative Parties to the Antarctic Treaty frequently state that they manage Antarctica ‘for the benefit of mankind,’ the general public’s opinion on management issues should be considered relevant information for the decision making process within the Antarctic Treaty System. If this information was to be fed into decisions regarding the management of Antarctica it would mean that, generally speaking, management should ensure that (a) there are no large-scale human activities in Antarctica, (b) Antarctica should remain in its original condition as much as possible, and (c) small scale activities should take place for the benefit of non-profit purposes, notably, science and education and not for commercial purposes.

In general, these findings match well with existing ATS instruments. For instance, scientific research is accorded priority over other types of activities (Art.3(3) Madrid Protocol), the importance of education has been underlined (Resolution 2 (1996), ATCM XX, Utrecht) and Art. 6(1)(a) of the Protocol), mineral activities for non-scientific purposes are prohibited (Art.7 Protocol), and the wilderness values of Antarctica have been given legal protection (Art.3(1) Protocol, online: [http://www.antarctica.ac.uk/about\\_antarctica/geopolitical/treaty/update\\_1991.php](http://www.antarctica.ac.uk/about_antarctica/geopolitical/treaty/update_1991.php)). However, a closer look makes clear that there are several discrepancies between the opinions expressed in this survey and today’s management of Antarctica.

First of all, on-the-ground implementation of wilderness protection has attracted little attention (Tin and Hemmings, this proceedings; Bastmeijer 2009). One often cited reason is that the concept of wilderness protection is too vague and subjective. However, for respondents in this study, wilderness appears to be a concept that is quite well defined. In fact, respondents’ perceptions, which can be summarized as a place where ‘*nature goes its own path without human intervention*’ is very similar to the International Union for Conservation of Nature’s definition (IUCN) (Dudley 2008) of a wilderness area (Category 1b protected area). The results show that there are parts of ‘mankind’ who clearly want Antarctica’s wilderness values to be protected and their perception of Antarctica as a wilderness is neither vague nor abstract.

The current system of tourism management in Antarctica also shows differences with the public’s views expressed in this survey. Relevant to this discussion, the cross-section of Dutch population sampled considers Antarctica to be more

important as a wilderness area and a scientific laboratory for the benefit of mankind than as a tourist destination. In fact, many of our respondents feel that tourism should be kept out of wilderness. If this information is to be taken into account in the management of Antarctic tourism, it would lead to the conclusion that steps need to be taken in order to avoid tourism activities having adverse impacts on science programs or the wilderness values of Antarctica. Such steps may include the prohibition of permanent facilities for tourism in Antarctica, a subject that has been debated within the ATS over the past 5 years without a final decision. In view of the outcomes of the survey, one could also think of instruments to limit a further increase of tourism numbers (in Antarctica, in certain regions of Antarctica and/or at certain Antarctic sites), and to adopt measures with respect to the types of tourist activities that should be allowed (e.g., focus on small to medium scale, ship-based tourism using the Lindblad model of cruising, with an emphasis on education of visitors). Such measures could be considered during the process of developing a joint vision on the future of Antarctic tourism, a process that has started with the adoption of a number of general principles for Antarctic tourism at the Baltimore ATCM, 2009 (Resolution 7 (2009), ATCM XXXII, Baltimore).

Currently, mining activities for non-scientific purposes is prohibited under the Protocol and commercial whaling is prohibited under the International Whaling Commission (IWC). However, these bans could be revisited in the coming decades as a result of the scarcity of fossil fuels, or a reverse in the decision of the IWC. According to the results from this study, such activities are currently not supported by the Dutch public, although it is not possible to know whether they will hold the same stance in the future.

Last but not least, this study shows that the general knowledge of the Dutch public about Antarctica is low. In view of the position of the Netherlands as a Consultative Party to the ATS, this may constitute a reason for the government to develop programs to promote and increase the knowledge of Antarctica among its population.

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*The content of this paper reflects the views of the authors, who are responsible for the facts and accuracy of the information presented herein.*

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