

**ANTARCTIC TOURISM AND ENVIRONMENTAL POLICY:
POLICY SHORTCOMINGS AND SUGGESTED RESPONSES**

by

Susan J. Lewis

A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Energy and Environmental Policy

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ABSTRACT

Ecotourism, a niche form of tourism focusing on nature, wildlife, and education, is a product of the global environmental movement in the 1970s. By the early 1990s, ecotourism, along with similar nature-based and adventure tourism, had become among the fastest growing sectors of the tourism industry worldwide, and remains so today (Society, 2012). Ecotourism-style travel to the delicate Antarctic region, the only place on earth without a permanent human population, has also grown rapidly since the 1990s, and continues to grow in terms of numbers of tourists as well as diversity of activities undertaken.

The success and sustainability of the industry, and avoidance of environmental degradation, however, depend on adequate environmental and tourism policy. While the Antarctic Treaty System and the International Association of Antarctic Tour Operators have been successful in managing the modern Antarctic tourism industry, growth and expansion are outpacing the existing regulatory mechanisms in place for management, governance, and conservation. There are areas of policy weakness and gaps in environmental and tourism policy, particularly with regard to new, emergent forms of tourism. There are also challenges to the structure and comprehensiveness of Antarctic governance. Without attention to these issues, including a proactive, strategic, comprehensive approach to tourism and environmental management, these shortcomings could lead to degradation of the Antarctic environment and wildlife, as well as risks to human safety.

The main questions guiding this research are:

1. Is tourism growth outpacing current policy and regulation in relation to the Antarctic environment?
2. Can (eco)tourism be a tool for conservation, particularly with regard to growing interest in access to Antarctic Resources?
3. Where are the critical policy gaps and weaknesses, under the governance system provided by the Antarctic Treaty System, and the International Association of Tourism Operators, requiring attention, and how might these most effectively be resolved?

The research questions are addressed through three phases of research; literature review, unstructured expert interviews, and an international survey of Antarctic stakeholders. The survey poses questions about policy shortcomings and potential actions. Results from all three are evaluated in sum, in order to produce answers to the questions above, as well as conclusions and recommendations.

Results show convergence among all three phases of research on nearly all issues evaluated. Policy shortcomings identified in literature review are shared in survey findings, including areas related to the ATS, IAATO, and outlier tourism. Conclusions indicate the need for a precautionary approach to policy creation, resolving knowledge gaps through data collection and research, education for all travelers, and increased inclusion of ATCPs on tourism matters.

Chapter 1

INTRODUCTION

1.1 Introduction

Ecotourism, a niche form of tourism focusing on nature, wildlife, and education, is a product of the global environmental movement in the 1970s (Wearing & Neil, 2009). While the development and growth of ecotourism took various paths in different parts of the world, by the early 1990s, ecotourism, along with similar nature-based, wildlife, and adventure tourism, had become among the fastest growing sectors of the tourism industry worldwide. It remains the fastest growing sector today (TIES, 2012). Ecotourism is responsible travel to natural or protected areas that contributes to environmental conservation, to the well being of local people, and involves a strong education component (TIES, 2015). It is about uniting conservation, education, communities, and sustainable travel. It is, by design, unobtrusive and has minimal or no impacts on natural ecosystems.

Ecotourism to the delicate Antarctic region, widely considered one of the planet's last true wilderness areas (Hemmings et al, 2015; Deary & Tin, 2015), has the potential to safely bring people to an amazing, awe-inspiring place, while simultaneously aiding in conservation of environment and wildlife in the region, in ways such as conservation activity, funding, and ambassadorship. Not all travel to Antarctica is identified as ecotourism, but the characteristics of this type of travel can produce a better-educated

public and produce conservation benefits for the planet's largest global commons. For many travelers, the greatest appeal of Antarctica is its wildlife. Although there are few native species, those that have adapted to the harsh polar environment flourish in large numbers. Seals, whales and penguin populations are particularly attractive for visitors and visible in large numbers during the Austral summer, Antarctica's tourist season.

The success and sustainability of safe travel coupled with conservation, however, depends on sufficient environmental and tourism policy. While the Antarctic Treaty System (ATS) and International Association of Antarctic Tour Operators (IAATO) have been successful in managing Antarctic tourism for some time, the growth and expansion of the tourism industry appears to be outgrowing the existing mechanisms in place for management, governance, and conservation. There are present and emerging areas of weakness and gaps in existing environmental policy as related to tourism, and without a proactive approach, they could lead to negative consequences for the Antarctic environment and wildlife.

1.1.1 Purpose and Objectives

The two primary objectives of this dissertation were to: (1) identify the major weaknesses or gaps in current environmental policy and regulation, as related to tourism, in Antarctica and (2) identify priority areas and options for action. This second objective had two parts: suggesting initiatives that may address existing shortcomings; and identifying priority areas for research on more intractable problems (i.e. problems where there is not necessarily a clear or a priori solution). Resolving shortcomings in Antarctic

environmental policy will have lasting environmental, social, and possibly economic, implications. Research and analysis produced results with implications for future research, policy-making, management, and protection of the Antarctic continent, surrounding waters, and biota.

The research objectives were met through literature and policy review (phase 1), unstructured expert interviews (phase 2), and an internet-based international survey (phase 3) sent to various stakeholder groups around the world, with knowledge and direct involvement with Antarctic matters. The objective of the survey component was to assess the viewpoints of tour operators, academia, non-government organizations (NGOs), policy makers, and other stakeholders close to the issues with regard to environmental policy gaps and weaknesses, priorities areas of work, tourism and conservation, and perspectives on what action should be taken. These groups are knowledgeable, directly involved with, and have great interest in policy and the future of Antarctica. In order to best satisfy the research objectives, all three phases of research and acquired knowledge were analyzed in synthesis, where applicable. This enabled identification of areas of convergence, divergence, or in absence of either - new information about these issues.

This research project was designed with real-world applicability of results to policy making in mind. Determining where there is agreement or disagreement on sustainability issues among stakeholder groups is critical as Antarctica is governed by de-facto consortium and formal consensus decision-making by states. Antarctic Treaty signatory states, or Consultative Parties, make final decisions for Antarctic matters, but outside interest groups also have influence. Further, tourism operators, scientists, and

others arguably have more direct interaction with the very issues being explored, and may possess a critical level of understanding not necessarily shared by policy makers, or academics, for instance. Evaluating the viewpoints of these groups can help direct future research among a larger population of stakeholders, and/or help guide priority areas of work for the near and long term.

1.1.2 Major Research Questions

There are challenges to the current structure and comprehensiveness of environmental policy as related to tourism in Antarctica and surrounding waters. As noted earlier, the growth in tourism, both numbers and diversity of activities, and level of human presence overall, appears to be outgrowing the capacity of the existing environmental policy regime to regulate and support conservation. This creates questions and concerns about potential degradation to the Antarctic environment. The problem is that the environmental policies in place today are not sufficient to manage the growing tourism, tourism interest, and human presence in the Antarctic, while preserving the environment and wildlife. The following questions are the main drivers of this study:

4. Is tourism growth outpacing current policy and regulation in relation to the Antarctic environment?
5. Can (eco)tourism be a tool for conservation, particularly with regard to growing interest in access to Antarctic Resources?
6. Where are the critical policy gaps and weaknesses, under the governance system provided by the Antarctic Treaty System, and the International Association of

Tourism Operators, requiring attention, and how might these most effectively be resolved?

1.2 Important Terms and Concepts

In order to effectively address the questions above, this dissertation utilizes a number of important terms and concepts, which are described in the following pages. This is a critical preliminary framework, as these terms and concepts are found and referred to throughout the document.

1.2.1 Antarctic Treaty Consultative Party (ATCP)

Antarctic Treaty Consultative Parties (ATCPs) are signatory states to the Antarctic Treaty System that make all decisions, by consensus, about Antarctic matters. Consultative party status is dependent upon demonstration of long-term scientific interest in Antarctica, by way of developing a research station or National Antarctic Program. The original signatories to the Antarctic Treaty are the twelve countries that were active in Antarctica during the International Geophysical Year of 1957-58 and then participated in the diplomatic conference at which the Treaty was negotiated in 1959. 17 additional states have since become Consultative Parties. Each year at the annual Antarctic Treaty Consultative Meeting (ATCM), the ATCPs discuss the implementation of the Treaty, concerning both legal and practical matters. They also discuss new measures and resolutions and any needs to adopt additional international management policies (Lamers, 2009). Representation from the ATCPs at a given ATCM may change or remain the

same from year to year. Today, there are 29 ATCPs: Argentina, Australia, Belgium, Brazil, Bulgaria, Chile, China, Czech Republic, Ecuador, Finland, France, Germany, India, Italy, Japan, Korea (ROK), Netherlands, New Zealand, Norway, Peru, Poland, Russian Federation, South Africa, Spain Sweden, Ukraine, United Kingdom, United States, and Uruguay.

1.2.2 Antarctic Tourism

For the purpose of this dissertation, Antarctic tourism is defined as those activities that are organized (e.g. governmental, non-governmental or commercial) in the Antarctic region, i.e. south of 60° South Latitude, with the purpose of enjoying (ex: pleasure, adventure, education) specific Antarctic values (ex: wilderness, wildlife, remoteness, majestic beauty) in any form (Lamers, 2009). Some scholars argue that tourism should not be seen as “an activity per se, but rather a purpose for which particular activities are undertaken” (Molenaar, 2005). This additional definition piece adds an important element of motivation or purpose for seeking and undertaking travel to the Antarctic. Both Bauer (2001) and Murray & Jabour (2004) include the purpose or motivation for travel as a significant component of defining Antarctic tourism. The purpose of tourism can vary widely, but most often include pleasure, education, and/or adventure. Historically, nearly all tourism to Antarctica has been sea-based and focused on the Peninsula region, characterized by large wildlife populations and most easily accessed from gateway port cities such as Ushuaia, Argentina.

1.2.3 Conventional Tourism

The United Nations World Tourism Organization (UNWTO) defines tourism as “travel for recreation, leisure, religious, family or business purposes, usually for a limited duration,” and defines tourists as people “traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes” (1995). The UNWTO further defines tourism as “activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes not related to the exercise of an activity remunerated from within the place visited” (1995). The Center for Responsible Travel (CRT) defines tourism as simply, the practice of traveling for recreation (2009).

1.2.4 Ecotourism

There is no single universally accepted definition of ecotourism, but it is a form of travel where the natural environment is the primary focus. The two main facets of ecotourism relevant to Antarctic tourism are: travel to unspoiled natural environments and travel where the predominant purpose is to experience the natural environment (Wearing & Neil, 2009). The International Ecotourism Society defines ecotourism as "responsible travel to natural areas that conserves the environment and improves the well-being of local people" (1990). Ecotourism is about uniting conservation, education, communities, and sustainable travel. It prioritizes being low-impact and is usually small-scale. Traveler education is a major component, as well as producing funds or other support for conservation efforts for the destination. Ecotourism directly benefits local

communities (if one exists), and cultivates respect for different cultures and for overall human rights, as well as environment and wildlife.

Historically, there has been some debate over the specific definition of ecotourism, likely a result of the evolving nature of the field and varying cultural perspectives. In absence of a universal definition, five fundamental elements help define what ecotourism is (Wearing & Neil, 2009). These are: (1) travel to a relatively undisturbed or protected natural area; (2) Travel and activities are nature-based; (3) a strong education component that cultivates learning, understanding, appreciation, and conservation of ecosystems and wildlife; (4) leaves travelers with a sense of connection to the natural world; (5) conservation of environment and culture is a main priority (Lane, 2013).

1.2.5 Expedition or Lindblad Style Tourism

Expedition, or sometimes referred to as Lindblad style tourism, is the traditional style of Antarctic tourism. It is characterized by small to mid sized vessels, often research vessels originating from the fallen Soviet Union, carrying 50-100 passengers, starting at a gateway port city and traveling to the Antarctic Peninsula with passengers, guides, and crew. Guides and passengers disembark the vessel and are taken by zodiac to the continent to make landings, view wildlife, and other activities. All other time and activity is spent on the vessel, including sleeping quarters meals, and education presentations. The start and end point for the expedition is the gateway port city.

Lars-Eric Lindblad created this model in order to bring non-scientific travelers to Antarctica, with the first occurrence of this style trip in 1969. Lindblad's vision was that "you cannot protect what you do not know". He is widely considered the father of ecotourism, though the term ecotourism did not join the global lexicon until over ten (10) years later. This early model of expedition cruising is still followed today by the majority of companies operating ship-borne tourism to Antarctica (IAATO, 2014).

1.2.6 Gateway Port City

A gateway port city is the point of origin for most Antarctic tourism, that which is sea-based and expedition style. They are recognized as the main point of departure to and from the Antarctic region. The continent of Antarctica is an island, accessible mainly by sea. It is accessible by air but the strong majority of tourism remains sea-based. Gateway port cities are those closest to the continent, such as Ushuaia, Argentina, Hobart, Australia, Christchurch, New Zealand, and Punta Arenas, Chile. Tourists embark on the respective vessel from the gateway port city and travel from that location, by boat, to Antarctica. Passengers return the same way, disembarking at the gateway port city and traveling back to their home location. Ushuaia is the most often utilized port city due to its proximity to the Antarctica peninsula, the location of most traditional tourism to the region.

1.2.7 Outlier Tourism

Outlier tourism is the term developed for this dissertation to represent Antarctic tourism models that exist outside the typical “Lindblad” or expedition style travel model. For the purposes of this document, this specifically includes adventure tourism, non-ship based tourism, and private or other non-commercial travel. Importantly, outlier tourism often occurs outside the scope of IAATO, including the organization’s guidelines and reporting, particular if conducted by non-members. Outlier tourism is composed of new, emerging tourism models, driven by increased global interest in adventure and eco-style travel in general, and Antarctic tourism in particular. These areas exist largely outside the scope of current governance and regulation, and were agreed upon by several experts as most critical for study. These areas are the focus of the international survey undertaken within this research and recommendations derived from research results.

1.2.8 Tipping Point

A tipping point is defined as a certain threshold for abrupt and irreversible change and is commonly associated with climate change. For instance, the United Nations Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) stated, with medium confidence, that precise levels of climate change sufficient to trigger a tipping point remain uncertain, and that the risk associated with crossing multiple tipping points increases with rising temperature. Tipping point is an identifiable mark at which change occurs. With regard to the Antarctic environment, a tipping point might reference a level of tourism activity beyond which irreparable damage would occur.

Importantly, and evidenced within the pages of this dissertation, a tipping point related to tourism or other human activity is not evident, due to knowledge gaps regarding human impact.

1.3 Theoretical Framework

1.3.1 Situation

The theoretical framework of this research begins with the situation, or problem(s), being evaluated. There are a number of pieces contributing to the overall problems being addressed, all of which will be evidenced in detail in the forthcoming chapters. These problem pieces, derived through literature review, produce the driving research questions and further bring to light information gaps within the body of knowledge. Where knowledge is absent, theories are utilized to help address the problems and drive research, as well as conclusions and recommendations. For the purposes of this theoretical framework, the situation regarding Antarctic tourism and regulation can be broken down into six (6) components.

1. Antarctica is a common heritage of mankind, reserved for peace and scientific cooperation (ATS, 1959). It is also a global commons, one of the largest on Earth.
2. There is a growing human presence in Antarctica, with the focus here on the growing tourism presence specifically. Tourist numbers and diversity of activities continues to grow year after year. Human presence is addressed within the ATS, but the focus is largely on scientific presence, and tourism is minimally regulated and largely unmonitored.

3. There are more tourism operators, tourists, ATCPs, and other stakeholders than ever before in history, creating a challenging and complex governance structure. The Antarctic Treaty was signed in 1959 by 12 states and today there are 29 ATCPs, as well as 31 more signatories with non-consultative status. There are over 100 IAATO members, as well as other interest groups present at the annual ATCM.
4. Related to #2 and #3 above, there is continuous growth in the complexity of decision-making and regulatory processes due to growing stakeholders, interest, and Antarctic matters in need of attention by decision makers.
5. The governance capacity appears to be becoming insufficient with regard to the growing and evolving tourism industry in Antarctica. Tourism is only minimally regulated within the ATS, and regulations through IAATO are voluntary and non-binding. It is challenging for the ATCPs to address all Antarctic matters within the time available at the ATCM.
6. There are knowledge gaps with regard to tourism data along with both short and long-term environmental impacts. Data is inherently limited and tourism impacts are understudied, if at all.

These situational components, taken together, reflect the problems being addressed within this research. They succinctly summarize and encompass the spectrum of issues that have emerged. This helps to guide understanding and framing the problem, as well as appropriate theoretical frameworks from which to evaluate the problems.

1.3.2 Knowledge gaps

A clear, overriding issue that emerges from this research is the presence of knowledge gaps. The only data available regarding tourism numbers, activities, trends, and all other related information is what is reported to IAATO, by IAATO members. Outlier tourism and other modes or operators that exist outside IAATO boundaries go un- or underreported entirely, leaving a major knowledge gap about actual tourist numbers and activities conducted year to year. Non-scientific activity that does not self identify as tourism will not be picked up or recognized within the existing reporting systems at all. IAATO is voluntary and non-binding, so tourism activities conducted by or with non-members may go unreported entirely. Further, while it is generally assumed that IAATO members do report tourism data, there is no absolute certainty due to its non-binding nature. There is no legal mechanism to enforce reporting requirements or IAATO regulation.

Another significant knowledge gap exists with regard to environmental impacts from tourism. This is an area that is understudied within the body of knowledge on the topic. Environmental impact assessments are supposed to be conducted prior to any human activity in Antarctica, as mandated by the Environmental Protocol of the ATS. However, this requirement in the Protocol was designed with National Antarctic Program activity in mind, not tourism. The structure of the EIA requirement makes it very challenging for tourism operations to comply, as expanded on in Chapter 3. Outside of this, there are no mandatory environmental assessments and very little, if any, research on environmental impacts from tourism. This knowledge gap leads to another; that of some

sort of tipping point. The trends towards increased human presence and tourism growth are clear, but environmental impacts are not. There is no way, at this time, to identify a maximum number of tourists, boats, or otherwise that, if exceeded, will produce major, irreversible environmental damage. In order to work with these knowledge gaps and to produce solutions to the situation and problems, theory will be utilized.

1.3.3 Relevant Theories

Three theories, or conceptual frameworks, contribute to this qualitative research, (1) the tragedy of the commons, (2) the precautionary principle, and (3) complex adaptive systems. Theoretical contributions to research can take on different forms; it can be used as a paradigm to guide research design, as a lens through which to guide or inform our understanding of a given phenomenon under investigation, or as new knowledge entirely emerging from study. For the purposes of this dissertation, these two theories are used as a lens through which to view the problem, and both a lens and paradigm guiding conclusions and recommendations derived from research results. The theories are also used as models, particularly in areas where there is an absence of knowledge. Finally, where new knowledge has been produced, these theories help to guide understanding and real-world applicability.

1.3.3.1 The Tragedy of the Commons

The tragedy of the commons is a term and theoretical construct most often associated with Garrett Hardin's exploration of the concept from an ecological and social

point of view (1968). It is through that same lens that it is applied within this dissertation. It is used to illustrate a situation where individual decision-making and action is undertaken according to self-interest, but in contrast with the best interest of the collective group, with regard to depletion of common resources. Common resources, in this context, may include atmosphere, ocean, fish stocks, or any other shared resource, which is not formally regulated or “owned.” It has often been used in reference or connection with sustainable development and climate change debates.

Hardin did not intend for the terms “tragedy” and “commons” to be taken literally, but metaphorically (Hardin, 1998). The metaphor illustrates his argument that free access and unrestricted demand for some finite resource will ultimately reduce that resource either temporarily or permanently, via over-exploitation. That can translate to overexploitation in the form of physically taking a resource, or in form of activity related use producing environmental degradation. He argues that individuals benefit from exploitation but the costs are assumed by all for whom the resource is available. In the context of this research and dissertation, the common resource is the Antarctic environment; considered a global commons; and the exploitative activity is tourism, which is only minimally regulated at this time.

This theoretical framework applies to and characterizes the problems being addressed in this dissertation first, in that Antarctica is a global commons. Secondly, it is an under-regulated global commons. Interestingly, Hardin remarked that he should have titled his work “The Tragedy of the Unregulated Commons,” after misinterpretation of his metaphorical work and terminology (Hardin, 1998). The tragedy of the commons illustrates where and how self-interest based decisions can produce negative impacts to

the commons, and thus to all users. In the Antarctic context, this could have global implications.

A multi-national consortium of nations and states governs Antarctica, but regulation on human activity is not comprehensive. Regulation on tourism activity, in particular, is minimally regulated. The potential for environmental degradation due to unregulated human activity is a legitimate concern in such a scenario. As a commons without ownership, regulation, or comprehensive protection, it is at risk to environmental degradation due to human impacts. One does not want to assume that individuals or groups would behave in environmentally degrading self-interest, without regard for the Antarctic ecosystem and its protection. However under the existing circumstances, the potential tragedy of the Antarctic commons is an important viewpoint to address. It is a powerful guiding light towards identifying policy shortcomings and potential solutions in the Antarctic context.

1.3.3.2 The Precautionary Principle

The precautionary principle or precautionary approach is an approach to risk management. It is considered by some to be a theory, and others to be a conceptual framework. It states that environmental threats and health hazards should be anticipated and that they ought to be forestalled before the realization of damage, even if scientific understanding of the risks is inadequate. Further, where there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation

(UNCED 1992, Principle 15). There is an implication of social responsibility to protect the public from potential but uncertain harm.

The principle has been invoked in numerous international environmental agreements, such as the Rio Declaration and Kyoto Protocol. In some legal systems, application is mandatory. There are 3 core elements to the precautionary principle: risk assessment, monitoring, and decision-making. These elements can be viewed in isolation, but are intertwined and work in tandem. Risk assessment involves evaluating potential environment risk due to some activity. This might be accomplished through examination of a region before and after the given activity. Monitoring can contribute to risk assessment, involving observation of the activity in question, or monitoring the environment in question, through the course of the activity. Finally, decision-making involves using the information acquired from the first two elements to determine the best course of action regarding the environment and activity.

The precautionary principle provides a mechanism to behave or operate in environmentally sound ways, towards protection and conservation, with knowledge of potential risk but in absence of complete scientific knowledge about the environmental issues at hand. There are major knowledge gaps with regard to tourism impacts in Antarctica and thus scientific understanding, otherwise used to make appropriate decisions, is far from complete. That said, it could be argued that the precautionary principle is a necessary theoretical framework under which to make policy decisions related to Antarctic tourism and the environment. The contribution of this theory to this research and conclusions and recommendations developed to help resolve the problems

identified herein, is paramount. Policy makers can use the approach to guide and justify decision-making, in situations where there is possible harm from a certain actions, but extensive scientific knowledge lacks. The knowledge gaps described perfectly characterize this scenario. Simply stated, it is making decisions to be better safe than sorry.

1.3.3.3 Complex Adaptive Systems

The complex adaptive system theory is a newer contributor to the world of international environmental law. Complex adaptive systems (CAS) are self-organizing systems that have the capacity to adapt in response to shifting external conditions (Kim and Mackey, 2013). They have large networks of components but no central control. Operating rules, while simple, give rise to complex collective behavior, information processing, and adaptation. Kim & Mackey propose the viewpoint that international environmental law, formed by treaties and institutions, emulate characteristics of CAS (2013).

CAS has been useful in environmental law and natural resource management (Kim and Mackey, 2013). The environment itself is a CAS and thus managing the environment can benefit from inclusion of the model. Some scholars further posit that international environmental law is adapting to outside changes and exhibiting institutional processes not unlike natural selection (Kim and Mackey, 2013). Put simply, this theory indicates that what works should be kept and utilized, and what does not work should be discarded. However, international environmental law is complex and sometimes slow moving, raising questions about the adequacy of this model with regard to truly safeguarding the environment.

Antarctic governance is a unique model of international environmental law and regulation, and thus the complex adaptive system model is a useful lens through which to evaluate the problem. Further, Antarctic governance has continued to change evolve since its 1959 inception, requiring adaptation to shifting conditions, as this theory suggests it would need to.

1.3.4 Three Theoretical Applications to the Antarctic Tourism Policy Problem

Theories are ways to interpret information, a lens through which to view and analyze a situation. The tragedy of the commons is a theory based in real situations, but presented and utilized here as a theoretical framework. This theory is often considered in relation to environmental issues such as sustainability. The commons dilemma stands as a model for a great variety of resource problems in society today, such as water, forests, and oil.

The next step, then, is how to apply the theory to the real problems being addressed. The rate at which depletion of a resource is realized depends primarily on three (3) factors: the number of users wanting to consume the common in question, the consumptiveness of their uses, and the relative robustness of the common (Daniels, 2008). Historically, taking these pieces of information into account, stable institutions have been designed to solve the commons dilemma. In the case of Antarctica, those factors are relevant, but knowledge and understanding about them is severely limited – indeed a major knowledge gap. Nonetheless, stable institutions have been developed, found with the ATS and IAATO. These institutions do not entirely solve the problem, or potential problem; however, and in fact create new degrees of challenge.

The precautionary principle directly addresses the problem of lacking scientific information. The Antarctica situation is characterized by the tragedy of the commons, but that theory alone cannot address the problem fully. The precautionary principle picks up where the tragedy of the commons leaves off. The principle addresses the critical issue of lacking information related to environmental impacts, suggesting applicable strategies to work through such unclear territory. The commons dilemma seeks certain pieces of information to create resolution, and with regard to Antarctic tourism, that information is not available, so the precautionary principle is applied. Both have been utilized regularly in environmental management around the world and have clear implications for Antarctic environmental management. The precautionary principle, like the tragedy of the commons, also has three (3) factors or pieces contributing to resolving problems through its approach, explained above. The current body knowledge cannot meet all three components of either theory. However, through application of both, far better conclusions can be drawn. These shortcomings are addressed within the research and provided for in the results and conclusions. As such, these theoretical frameworks help guide the research from beginning to end.

The third theoretical application can be found in the idea of complex adaptive systems (CAS). Again, these are self-organizing systems that can adapt in response to shifting external conditions (Kim and Mackey, 2013). The Antarctic governance structure, outlined in chapter 4, is based in one main treaty and additional measures adopted under it. ATCPs have self-organized to create the governance structure, and IAATO is also a self-organized organization – both of which seek to manage Antarctic

tourism and other matters. It appears that the current structure is not sufficient to manage growing interest in the region—indeed conditions are changing more rapidly than ever before. Approaching this international environmental law, Antarctic governance, as a CAS, allows for adapting to changing conditions. Application of the CAS, tragedy of the commons, and precautionary principle is a complementary approach. In this Antarctic context, utilizing all three concurrently helps bridge theory-based information gaps and addresses the unique characteristics of the situation.

1.4 Chapters Preview

Chapter 1 began with an introductory overview of the topic, major research questions, purpose, and objectives. It went on to introduce the terms concepts at the foundation of this dissertation and research. The chapter concluded with the theoretical framework, broken down into the theories, relevance to topic, and applications. The theoretical framework is rooted in the concepts of the tragedy of the commons and the precautionary principle. The structure of this research is composed of a literature review, unstructured expert interviews, and an international survey of Antarctic stakeholder groups. These sources of knowledge were analyzed individually and in sum. Research conclusions are derived from the synthesis of results within the context of these theoretical roots.

Chapter 2 presents findings from the literature review. This includes an overview of ecotourism, its history and evolution, other similar types of tourism that have emerged, and how these differ from conventional tourism. Tourism is a huge global industry with

projections indicating continued growth in the coming years, with new growth in emerging and growing economies and markets. Ecotourism and nature based tourism are growing quickly within the general tourism market. Tourism choices are becoming increasingly influenced by sustainability considerations, further contributing towards growth in ecotourism, and with implications for environmental conservation. The chapter will go on to introduce Antarctica; geographically, historically, and as a tourism destination. Antarctica's history begins with early exploration to the continent, followed by the emergence of scientific research and subsequently, the tourism industry. The chapter will examine the history and evolution of Antarctic tourism, followed by current trends, growth, and outlook for the future. Ecotourism has a strong presence in Antarctica, as do other niche forms of tourism including adventure and wildlife tourism, among others. Antarctic tourism has grown significantly over the last few decades, in regard to numbers of tourists, diversity of activities undertaken, and in expanding demographics of visitors. The tourism industry will be reviewed, concluding with emerging challenges resulting from its growth and evolution.

Chapter 3 presents the methodology of the research conducted. The methodology has three components: a literature review, unstructured expert interviews, and an international survey of Antarctic stakeholders. The literature review findings were supported, validated, and enhanced through expert interviews. Both of these two drove the design of the survey. All three components produced knowledge, which was synthesized, evaluated for convergence or divergence, and analyzed in sum to produce conclusions.

Chapter 4 provides a comprehensive and critical look at the relevant regulation and policies governing the Antarctica. It explores the history and architecture of the current body of regulation and governance, how it came to be, and where insufficiencies have developed over time. A foundation for governance was established for the region with the signing of the Antarctic Treaty System in 1959, and much has evolved since that time. The chapter will begin with a historical context; the ATS and its evolution to current day, including relevant measures and protocols adopted which are relevant to conservation, tourism, and human activity. The narrative will go on to examine the International Association of Antarctic Tour Operators (IAATO), a self-governing organization that contributes to regulation of tourism and tour operators. The ATS and IAATO are the primary regulatory bodies, but outside entities that also influence tourism and environmental conservation will be examined as well. The chapter will conclude with narrative regarding weaknesses and gaps within current policy, and implications for the future.

Chapter 5 will present the research and results of this study, focused on the survey component, or phase 3 of research. A number of areas of policy shortcomings emerged through review of literature, driving the subsequent phases of this study. An international survey was designed, guided by the literature review (phase 1) and subsequent unstructured expert interviews (phase 2), to assess viewpoints of relevant stakeholders, regarding area of policy inadequacies and potential solutions. The survey was distributed electronically to a wide group of stakeholders around the world, all who work in or with relevant Antarctic matters. Results of the survey are presented, including evaluation of

convergence or divergence from literature review findings. The chapter concludes with linking findings to the main research questions, and a discussion of implications for the future.

Chapter 6 is the concluding chapter of this dissertation. It will present a summary of the problems with Antarctic tourism and environmental policy and the research objectives. Research findings will be summarized and synthesized, drawing connections between this research and the direction of policy making among the ATCPs. Recommendations and reflections on how to address the problems will be presented, including suggestions for future research. The chapter will close with final reflections and an outlook for the future of Antarctic tourism policy.

Chapter 2

REVIEW OF LITERATURE

2.1 Introduction to Ecotourism

Ecotourism initially grew out of the global environmental movement in the 1970s (Wearing and Neil, 2007) and by the early 1990s, became established among the fastest growing sectors of the tourism industry worldwide, remaining so today (TIES, 2012). In more recent years, ecotourism has been a major contributor to the generation of a variety of new niche travel styles and related terminology, such as sustainable tourism, pro-poor tourism, and responsible tourism. All of these share the concept that tourism can and should benefit environmental conservation and local host communities. Today, the principles and good practices of ecotourism are being applied increasingly broadly to dominant or traditional sectors of the tourism market, such as hotel chains, urban tourist attractions, ski resorts, golf courses, and beach resorts (TIES, 2012). Often referred to simply as greening or eco-friendly, this is an important trend within the development of sustainable tourism and a sustainable society; development and proliferation of initiatives to bring sustainability to travel and tourism in general, not only in niche markets.

The term, “Ecotourism” was coined in the early 1980s by Hector Ceballos-Lascurain. He used the Spanish term “turismo ecologico” to identify types of ecological tourism, which was later shortened to ecoturismo (Wearing & Neil, 2009). He identified

ecotourism as a form of travel where the natural environment is the primary focus. This is arguably the true core of ecotourism – a starting point to understand the concept and type of business and industry sector that it has evolved into today. As presented in Section 1.2, the two main facets of ecotourism relevant to Antarctic tourism are: travel to unspoiled natural environments and travel where the predominant purpose is to experience the natural environment (Wearing & Neil, 2009).

2.2 Differentiating Tourism Models

2.2.1 Conventional Tourism

Conventional tourism is a given situation where individuals travel to a place different than home for a temporary duration, for leisure or pleasure. Tourism can be to a new city or country, to see historical monuments, to sample wine, to ski, or to sit on a beach, to name only a few. There exist a huge variety of travel types, lengths, motivations, and purposes. People can travel by air, road, ship, or train, and can access nearly any point on the planet thanks to modern technology, communication, navigation, and accessibility. There are no particular rules for travel, though travelers are well advised to learn customs or appropriate behaviors for new countries, to avoid offending locals, if for no other reason.

Historically, leisure travel is associated with the industrial revolution in the United Kingdom, where the new middle class emerged from factory and machinery owners, among others (Singh, 2008). Leisure cruising has its origin in 1844, introduced

by the Peninsular & Oriental Steam Navigation Company (P&O), sailing from Southampton (BTN, 2012). Today, cruising is a multi-billion dollar industry, and only one sector of the massive industry that is tourism. Cruise and ship-based tourism have significant implications regarding Antarctic tourism, which will be expanded on in later sections.

2.2.2 Ecotourism

Ecotourism, a type of niche or specialty tourism, has no firm definition, but is characterized by key elements¹, as described in Section 1.2. Ecotourism is responsible travel to natural areas that contributes to environmental conservation and improves welfare of local people (CRT, 2009). Environmental conservation can be active or passive, and is achieved in ways such as traveler education about local issues, raising funds for conservation efforts, promoting conservation and the inherent valuation of natural resources over exploitation, and validating protection efforts. For some, ecotourism is luxury travel, to exotic locations that are difficult and/or expensive to access, such as Antarctica or the Galapagos Islands. On the other side of the cost spectrum, there are less costly ways to seek out ecotourism, such as traveling by backpack, camping, etc. Ecotourism is not defined by cost, but by motivation for travel, behavior while abroad, and the relationship and experience between traveler and

¹ The term “ecotourism-style travel” will be used in place of “ecotourism” at times throughout this document, to reflect the characteristics and values of ecotourism, which

environment (TIES, 2012). Despite a lack of a specific globally recognized or agreed upon definition, there are widely agreed upon characteristics differentiating ecotourism from conventional tourism.

There are synonymous titles for other types of travel that share common characteristics with ecotourism, but they are not all one and the same. According to Wearing and Neil (2009), ecotourism as a conceptual term encompasses a variety of travel types and elements. These include: the alternative nature of the travel to traditional travel, a philosophical orientation towards nature and/or wildlife, tourists' characteristics, political approaches or viewpoints, and sustainable development strategy.

Ecotourism has the potential to help enhance understanding of environmental values, support local communities' economies and cultures, and support and promote the fundamental shift in the way nature is viewed by society (Wearing & Neil, 2009).

Irene Lane describes ecotourism as having three main principles: social empowerment to protect against tourism homogenization and community marginalization, economic viability to promote collective pride of ownership and as a tool for alleviating poverty, and environmental responsibility to preserve ecosystems for future generations. It is about preserving the natural world, educating visitors about conservation, empowering localities, operating sustainable tourist attractions, and having fun, meaningful, unique travel experiences (2013). Conservation, understanding, and appreciation of the environment, wildlife, and/or cultures are sought through travel to natural area destinations that have minimal human presence. An ecotourist has a motivation and desire for environmental, cultural, and/or social education, awareness, and experience

through visiting natural, undisturbed areas (Wearing & Neil, 2009; Peake, Innes, & Dyer, 2009).

Tourists' learning and interaction with the environment through ecotourism experiences contribute to pro-conservation actions and attitudes. Close-up, personal interactions with environment and wildlife are special experiences that leave lasting impressions. While a nature program viewed on one's television might provide some education, being within close range to wildlife is a very different experience that travelers likely never forget, and inspires conservation outcomes. Further, education is often provided in the form of interpretation, something typically expected of ecotour operators. Qualified naturalists and guides provide interpretation and/or education about the places visited, before and during travel. Additionally, it is recognized that the industry operators are responsible for educating travelers about appropriate behavior in unique and fragile areas (Wearing & Neil, 2009). This might include travel concepts in the form of easy-to-remember mottos like 'leave no trace', and 'take only photographs, leave only footprints'.

2.2.3 Related Types of Tourism

Ecotourism has been mixed with and/or incorrectly equated to other types of niche tourism including green, sustainable, cultural, adventure, responsible, and nature types of tourism. All of these types of travel have positive contributions to the industry and planet, but understanding the distinctions is valuable. Some ecotourism journeys incorporate travel types below; there is certainly cross over among definitions. Other,

similar types of niche tourism are described in below, to clarify.

Table 2.1 Related Types of Niche Tourism (Lane, 2013)

Type	Focus	Difference from Ecotourism
Adventure tourism	Physical outdoor activities such as snorkeling, diving, skydiving, marathon	Operators may not necessarily be operating in a sustainable manner or providing education.
Cultural Tourism	Discovery of the cultural heritage of the destination, such as learning from a local artisan	Focus is not on nature or wildlife.
Green Tourism	Applies to any tourism activity or facility operating in an environmentally friendly way, such as renewable energy use or composting	Lodges may be owned by a large corporation or lacking focus on conservation and education
Nature Tourism	Viewing wildlife in their natural habitat, such as jungle lodges in the Amazon or cruise-only ships in Antarctica	Trips may not have an educational component, are not environmentally sustainable or responsible.
Responsible Tourism	Minimizing the environmental degradation of the destination is a priority, such as leave no trace ethics	There may be no focus on environment or no economic benefit to the host destination.
Sustainable Tourism	Does not deplete resources and allows for smaller numbers of tourists to experience nature so as not to disturb natural patterns	There may not be a focus on the preservation of the natural habitat or economic benefit to the host destination

Again, there are common threads among these different types of tourism described above, along with ecotourism. They are not mutually exclusive and an ecotourism trip may be correctly described by one of the travel types above as well. The purpose of briefly explaining the differences is to highlight what makes ecotourism and ecotourism-style travel unique and valuable to conservation and global sustainability.

2.3 Tourism Industry Growth

Travel and tourism are extremely valuable, growing industries. Eco and nature-based tourism, encompassing most travel to Antarctica, is the most rapidly growing tourism sector. Many countries place significant value on the industry within their economies and make it part of development strategies. It is a major source of income around the world, for both host and source countries. Tourism activity is expected to grow 4.3% per year through 2017, and the UNWTO forecasts that international arrivals are expected to reach 1.8 billion by 2030, up from one billion in 2012 (UNWTO, 2010).

In 2012, for the first time, the G20 world leaders formally recognized the importance of tourism and travel as a driver of jobs, growth, and economic development/recovery. According to World Travel & Tourism Council, “the industry directly will contribute \$2 trillion in GDP and 100 million jobs to the global economy in 2012 (2012). When the wider economic impacts of the industry are taken into account, Travel & Tourism is forecast to contribute some \$6.5 trillion to the global economy and generate 260 million jobs – or 1 in 12 of all jobs on the planet” (Harris, 2013).

International tourism arrival trends and forecasts through 2020 are illustrated in Figure 2.1, below.

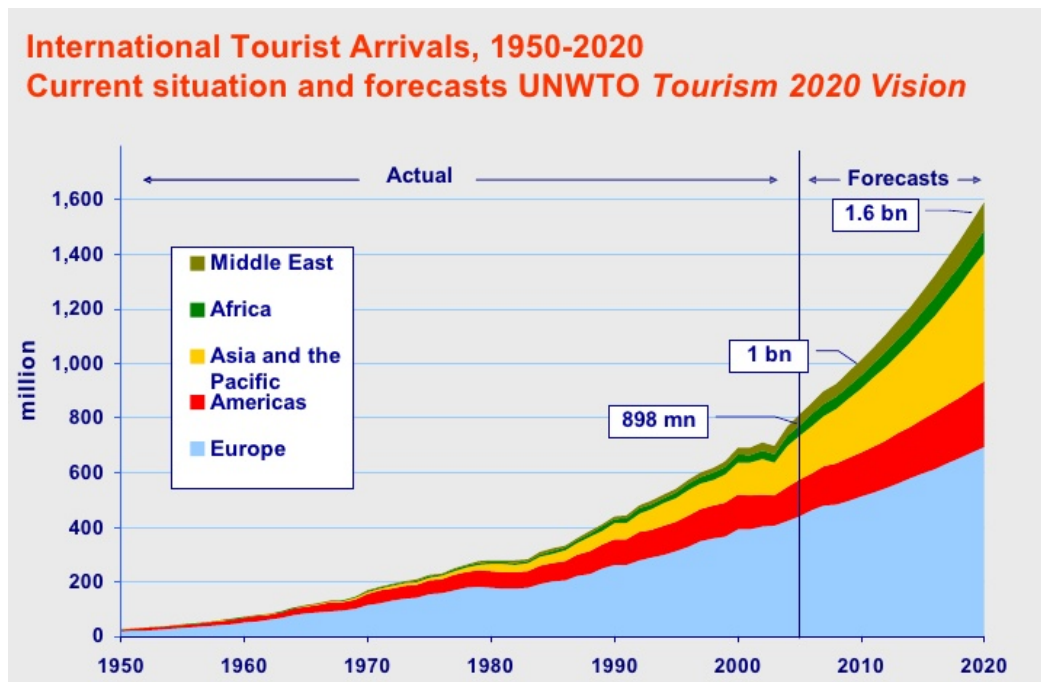


Figure 2.1: UNWTO Tourism Trends, 1950-2020 (UNWTO, 2010)

2012 also marked the milestone of one billion tourists traveling internationally for the first time, in line with UNWTO forecasting. This was the same year that China overtook Germany and the United States to become the biggest spender in international tourism, spending a total US\$102 billion (UNWTO, 2013). Data from the UNWTO indicate continuous growth, and new destinations and markets from emerging economies around the world. The tourism landscape is shifting as the rising middle class and emerging markets from countries like China, India, Russia, and Brazil seek the experiences and consumption previously enjoyed mainly by strong western economies

(Curtin & Kragh, 2014). For instance, in India's 10 most prominent tiger reserves, the average growth annual visitor growth rate was 15% between 2002-2008. Domestic tourism and India's growing middle class mainly drove this demand (Curtin & Kragh, 2014).

2.3.1 Ecotourism Growth

Ecotourism is a distinct contributor towards overall industry growth (Curtin & Kragh, 2014). Eco/nature-based tourism is growing three (3) times faster than traditional tourism, making it the fastest growing tourism industry sector (TIES, 2008; TIES 2012). While the niche ecotourism market is growing quickly, so too is the more general market for sustainable tourism, or tourism characterized by sustainable and green ideals, behavior, and methods – some shared with ecotourism. Increasing leisure time, income growth, increased mobility, technology, and communication are all seen as contributing to accessibility and travel opportunities. Growing awareness about climate change and environmental crises are also seen as contributors to changing trends.

Tourism choices have become increasingly influenced by sustainability considerations (UNEP, 2013). While this does not equate to a definition of ecotourism, it is indicative of a growing trend and consumer demand. Tourists who place greater importance on sustainability values may arguably drift towards ecotourism or nature based travel. As people become more environmentally and socially conscious, they are seeking responsible alternatives to conventional travel options. Growing awareness of the fragility of the world's pristine environments is concurrent with sustainability in tourism

in general, and ecotourism growth in particular. The promotion of socially and environmentally sound tourism, especially in areas of significant natural beauty, creates an expanding, competitive market (UNEP, 2013).

2.3.1.1 Examples

Ecotourism is the only industry of the Galapagos Islands, contributing hundreds of millions of dollars to Ecuador's national economy while keeping the islands and their unique ecosystems safe, pristine, and healthy (Epler, 2006). Since 1991, the visitation rate increased by nearly 10% per year, with industry revenues increasing by 14% per year, generating financial support for conservation and governmental institutions (Epler, 2006). The islands are protected and the Ecuadorian government recognizes the value in ecotourism over other exploitative uses of the islands. In Australia, nature-based tourism is seen as central to the country's competitive advantage in the government's Tourism 2020 strategy (WTO, 2012).

In Costa Rica, an estimated 53% of tourism income from tourism is attributable to ecotourism and related activities (UNEP, 2013). Costa Rica is often viewed as an example of how a developing country can strategically develop its ecotourism offerings, conserve its natural areas, and benefit directly from revenues (UNEP, 2013). Protected areas in Costa Rica received over one million visitors annually over 2001-2006, generating entrance-fee revenues of over US\$ 5 million in 2005, and directly employing approximately 500 local people. Similarly, in Mexico, protected areas received 14 million

visitors annual and created 25,000 jobs (Robalino et al., 2010). Identifying economic value in maintaining protected areas that are visited by tourists can bring about long-term conservation and economic benefits to local areas. This concept is explored further below.

2.4 Ecotourism and Conservation

Tourism in general and ecotourism-style travel in particular, has the potential to be a tool for conservation of environment and wildlife. It capitalizes on increasing motivations to see, experience, and preserve natural environments. This stems from changing societal values and priorities, reflecting a shift in the way humans view and connect with nature and tourism. Conservation benefits derived from ecotourism may include funding towards conservation efforts, increased protection of relevant species and habitats, enhanced appreciation of wildlife, and actions to reduce human threats or impacts on wildlife (Zeppel & Muloin, 2009).

The ecotourism industry has opportunities to produce financial support for conservation efforts. Conservation fees and donations for visits to protected areas, for instance, produce revenue, which can be used by protected area authorities and local communities for conservation measures and sustainable practices. Most eco-tourists have above-average income and are willing to pay entrance fees that will enhance conservation and are shared with local communities (UNEP, 2013). For example, Discovery Initiatives, an ecotourism operator in Indonesia, makes an annual contribution to the Orangutan Foundation of approximately US\$ 45,000. These funds are derived from

groups visiting the Tanjung Puting National Park in Central Kalimantan. The park is under substantial pressure from deforestation and river pollution due to unrestricted gold mining. The annual contribution, providing primary economic support for the park, funds park staff and rangers, rehabilitation efforts for young orangutans, and a care center (UNEP, 2003). In Belize, a \$3.75 departure tax goes directly to the Protected Area Conservation Trust, a Belizean fund dedicated to barrier reef and rainforest conservation (UNEP, 2003).

Beyond funding conservation, direct or close contact with animals has been shown to produce greater and longer-lasting change in tourist attitudes, particularly compared to passive viewing from a boat or on land. These more intense experiences produce greater emotional reaction, and thus changed attitudes and behaviors. Positive tourist experiences and interactions with wildlife tend to produce environmentally conscious, aware, satisfied, and conservation-minded travelers (Mascardo, Woods, & Greenwood, 2001; Woods & Moscardo, 2003; Zeppel & Muloin, 2008). For instance, a survey of 5,000 visitors at 15 wildlife sites in Australia and New Zealand found that a knowledgeable guide and wildlife information, key characteristics of ecotourism, were powerful supporting factors towards the overall experience of close viewing of unique wildlife species in their natural environment, and lasting impacts to the traveler (Zeppel & Muloin, 2009).

Research shows that 60-90% of US, British, and Australian tourists consider environmental protection to be part of tourist destination responsibilities, and tourists seek out operators that prioritize it (Wearing & Neil, 2009). A 2013 study found that 47%

of respondents answered that the ethical or environmental footprint of their vacation would be a main consideration (UNEP, 2013). Ideally, continued growth of ecotourism will support a more environmentally literate population concurrent with conservation of natural ecosystems and wildlife. A common theme in most definitions of ecotourism is that it is responsible tourism in natural areas able to facilitate conservation objectives (Wilson & Tisdell, 2003). Ecotourists tend to have motivations to experience natural environments first-hand, and usually already have a positive environmental attitude (Peake, Innes, & Dyer, 2009). This motivation to travel in this way can translate or grow into motivation towards conservation and sustainability.

2.4.1 Wildlife

Numerous studies have shown that ecotourism-style travel can have positive impacts on wildlife conservation in particular, especially with marine wildlife, such as whales, seals, and sea turtles (Wilson & Tisdell, 2003; Tisdell & Wilson, 2002; Zeppel & Muloin, 2009; Lambert et al, 2010). For instance, whale watching has produced economic benefit, contributed to environmental education and scientific research, and is seen by some governments as an economic alternative to whaling (Lambert, Hunter, Pierce, & MacLeod, 2010). Ecotourism trips to see sea turtles in their natural habitat, often during nesting season, has produced economic benefit for host countries, conservation benefits for wildlife, and education about endangered species for visitors. Economic benefits might include funding towards conservation initiatives, organizations, employment for local communities, and income derived from ecotourism activities. This

is especially powerful in countries where in the past, sea turtle meat and eggs were often poached and harvested, with major detriment to already endangered populations (CCC, 2006; Stoddard, 2006; Whitfield, 2006). Similar to whaling, greater value is found in conservation than exploitation.

It is the case for terrestrial wildlife as well. For instance, Africa is the market leader in wildlife-based ecotourism. Revenue from tourism to view gorillas and other wildlife brings in approximately \$20 million annually, producing incentives and validation for governments and local communities to protect their environment and wildlife (UNEP, 2014; Curtin & Kragh, 2014). As mentioned earlier, India's 10 most prominent tiger reserves are showing substantial growth, driven by domestic tourism and India's growing middle class (Curtin & Kragh, 2014), contributing to conservation and education.

Wildlife-oriented tourism has positive psychological benefits and produces positive human behavior changes (Curtin & Kragh, 2014). A conservation ethic can be elicited in ecotourists through education before and during the trip, the unique experience and emotional connection gleaned through the activities and interactions with nature/wildlife during travel, high levels of satisfaction from the trip, and other aspects unique to each individual. Satisfaction is a presumed precursor to effective conservation messages (Peake, Innes, & Dyer, 2009). Guides and naturalists have a critical role to play; not only providing information to travelers, but suggesting positive conservation action that translates into a "locus of responsibility" that stays with the visitor beyond the boundaries of the experience (Peake, Innes, & Dyer, 2009). This longer-term

conservation action may take a range of forms. Travelers may encourage peers to visit the same location, continue to participate in or support conservation, or educate others simply by discussing their experience. Peake, Innes, and Dyer argue that the ecotourist has the potential to develop a shared responsibility for conservation; that they become empowered and committed (2009). This is due to real (as opposed to controlled environments like a zoo) experiences producing a connection to the natural world in a very moving way, producing an emotional, lasting relationship with, and commitment to, nature (Peake, Innes, & Dyer, 2009).

2.4.2 Education

Conservation outcomes described above result from tourist experience coupled with environmental education while traveling. Several studies suggest that wildlife tours with a strong educational focus can engage and grow pro-environmental attitudes and beliefs of visitors (Zeppel & Muloin, 2009) (Christensen, Rowe, & Needham, 2007; Finkler & Higham, 2004; Luck, 2003; Muloin, 1998; Tisdell & Wilson, 2002). Environmental interpretation is seen and promoted as a key element of sustainable visitor interactions with wildlife, and of ecotourism overall (Zeppel & Muloin, 2009; Ham & Weiler, 2002; Russell & Hodson, 2002; Woods & Moscardo, 2003). Interpretation is essentially translation of technical language associated with natural science into terms and concepts that people can easily understand and enjoy. This style of education is an instrument to understand, and change attitudes and behaviors, helping visitors develop an environmental understanding, connection, and ethic. (Wearing & Neil, 2009).

“Interpretation is widely accepted as the most effective means to communicate in leisure settings” (Peake, Innes, & Dyer, 2009:28).

Education and interpretation is essential to conservation goals as it is a means of communicating valuable information about ecosystems, wildlife, and conservation issues in an understandable way. Education is an integral part of ecotourism-style travel and lasting conservation influence (Wearing & Neil, 2009). Importantly, conservation benefits depend on appropriate management of tourism and wildlife encounters along with consistent, high quality education and interpretation (Zeppel & Muloin, 2009). This should integrate sound knowledge of the wildlife and environment and the emotional aspects or experience of close viewing of animals in their natural settings. Visitors’ knowledge, attitude, and behavior have been found directly related to their commitment to conservation (Zeppel & Muloin, 2009).

2.4.2.1 Ambassadorship

The education and conservation benefits of ecotourism-style travel sometimes last far beyond the boundaries of the trip itself. Sometimes, experiences lead to a greater ethical and environmental transformation of the tourist (Weaver, 2005), resulting in “longer term intentions to engage in conservation actions” (Zeppel & Muloin, 2009:215). Polar tourism is a prime example: “The main positive impact of polar tourism, if well done, is its educational value. Arctic and Antarctic visitors are fascinated by the sheer beauty, wilderness and natural phenomena of the polar environment. This can be used to make them not only ambassadors for the protection of the visited regions, but also

supporters of conservation activities and organizations worldwide” (Snyder, 2007:16).

This concept of creating environmental ambassadors through ecotourism-style travel originates from the 1960s, when Lars-Eric Lindblad began ship-borne tourism operations in the Antarctic with a strong environmental ethic. That same ethic is still seen and applied today among Antarctica tourism operators (Eijgelaar, Thaper, & Peeters, 2010). IAATO embraces Lindblad’s concepts and style, as seen in Article II, Section I of the bylaws, “To create a corps of ambassadors for the continued protection of Antarctica by offering the opportunity to experience the continent first hand” (IAATO, 2009).

2.5 Exceptions to the Rule

It is important to note that not all ecotourism is necessarily benign. In fact, not all ecotourism is actually ecotourism. Unfortunately, some operators try to capitalize on growing interest in nature and wildlife, and in sustainable tourism practices. Some illegitimately offer ecotourism or self-identify as such. A company or organization spending more time, energy, and money claiming to be “green” through advertising and marketing than actually implementing relevant business practices that minimize environmental impacts is an example of greenwashing (Greenwashing, 2014). It can happen in any industry, including tourism.

Beyond greenwashing, all aspects of ecotourism-style travel activities need to be monitored and evaluated. From an environmental point of view, tourism in certain delicate areas may not be truly sustainable. Regulations and policies are needed to ensure best practices and minimal negative impacts. Failure to limit tourist numbers at popular

sites can potentially damage fragile ecosystems and habitats. Inadequate tourist education about, and monitoring of, appropriate behavior near wildlife or in delicate natural areas could produce the same result. For instance, experienced mountaineers have warned against overcrowding and massive amounts of garbage at base camps near Mount Everest in Nepal, where around 200 climbers attempt to reach the summit in a single weekend (UNEP, 2013). This issue will be explored further in the context of Antarctic tourism and ecotourism.

2.6 The Evolving Human Presence in Antarctica

2.6.1 Exploration

Antarctic tourism is a rather young industry and addition to the human presence in the region. For most of its history, Antarctica was the realm of bold explorers only, prominent examples being Roald Amundsen, Ernest Shackleton, Robert Falcon Scott, and Douglas Mawson (Spennemann, 2007). Captain James Cook was the first to circumnavigate Antarctica, between 1772-1775. He never saw the continent but was certain of a landmass. This was the impetus for the explorers that followed, with ultimate discovery of Antarctica in the early 19th century (Day, 2012). The early 20th century saw several expedition attempts to the South Pole, during what has been called the “Heroic Age of Antarctic Exploration” (Cool Antarctica, 2001). This was an era that began at the end of the 19th century (Baughman, 1994) but truly began with Roald Amundsen, a Norwegian, who led the first successful expedition, reaching the Pole in December 1911.

More explorations followed; into the late 1940s & 1950s, Antarctica became the focus of international efforts in geographical and scientific exploration by several countries, some going on to construct bases on various parts of the continent (Day, 2012). Travel and visitation at this time was almost exclusively scientific in purpose and focus. Limitations such as communication and transport technology were restrictive factors in harsh Antarctic conditions. That said, these expeditions were true feats of endurance, testing individuals to physical and mental limits, and sometimes pushing them beyond (Day, 2012). Through the course of the expeditions during this time period, both the geographic and magnetic south poles were reached, but this was not the only goal among expeditions. In addition to that achievement, other accomplishments included mapping the coastline and exploring areas of the continent's interior. Overall, the expeditions produced significant scientific data and specimens across a range of disciplines, including oceanography, earth sciences, atmosphere and geospace, and conservation (Fogg, 1992; Belanger, 2006).

The aforementioned "heroic" label recognizes the huge challenges and adversities, overcome by absolute necessity, by these explorers. Not all explorers who set out for the Antarctic survived the experience. The heroic label is also thought to refer to the way these explorers are remembered in history, and how they articulated their histories—as more than scientists and sailors, but as poets and artists. Shackleton is often considered the greatest poet of the Antarctic explorers (Simpson-Hausley, 1992), and his story is one of the most famous. There is a romanticism and awe that accompanies the perception and experience of the Antarctic landscape, identifiable in some explorers' writing. It is also

something that many who have seen it first hand can attest to.

The end point of the heroic period is difficult to define with certainty. Some argue it was with Ernest Shackleton's Imperial Trans-Antarctic Expedition, which ended in 1917 (Harrowfield, 2004). Others mark 1945 and World War II, as the turning point (Elzinga, 1993). Other writers see the end as the date of Shackleton's death, January 5, 1922, thus treating the *Quest* expedition, during which Shackleton died, as the conclusion of the Age (Cool Antarctica, 2001). According to Margery and James Fisher, Shackleton's biographers, "If it were possible to draw a distinct dividing line between what has been called the Heroic Age of Antarctic Exploration and the Mechanical Age, the Shackleton-Rowett expedition might make as good a point as any at which to draw such a line" (Fisher, 1957, p. 449). This turning point towards the mechanical age is evidenced in a journalist's report, written after inspecting the Shackleton-Rowett expedition ship pre-departure. The report noted many gadgets and new technology to assist the mission. This included wireless technology, an electrically heated crow's nest and an odograph that could trace and record the ship's route and speed (Fisher, 1957). It is interesting to note here that a major shift in the dynamics of Antarctic travel can be attributed to technological advancements decades' prior. The importance of technological advancements to Antarctic visitation is still evident today, with continuously expanding technology assisting the methods and ease with which people can access and survive in Antarctica.

2.6.2 Tourism

Antarctica's remote location, extreme climactic conditions, and presence of land and sea ice have always created prohibitive conditions and major constraints for human activity (Lamers, Haase, & Amelung, *Facing the elements: analysing trends in Antarctic tourism*, 2008). Never the less, the Antarctic tourism industry first began to overcome these limitations in the late 1950s, when operators from Chile and Argentina took around 500 paying passengers to the South Shetland Islands by means of a naval transportation ship. In 1969, cruise ships began visiting the waters. Between 1977 and 1980, commercial airlines out of New Zealand and Australia conducted low-level "flight-seeing" tours, taking some 11,000 tourists over the area in 44 flights (Spennemann, 2007). The late 1980s marks the beginning of the modern Antarctic tourism industry, with the introduction of ship-based expedition style tours, including equipment and mechanisms to enable tourists to physically get on land, which remains the prominent form of travel there (IAATO, 2001). Figure 2.2 presents numbers of tourists visiting Antarctica between 1957 and 2004², illustrating the long-term evolution of visitor numbers from the first instance of tourism, through 2004 (Bastmeijer & Roura, 2004:764). In this figure, the black bars are actual numbers and white bars are (then) projections, from 2005-2009.

² The white bar at 1991 represents the year of adoption of the Protocol on Environmental Protection.

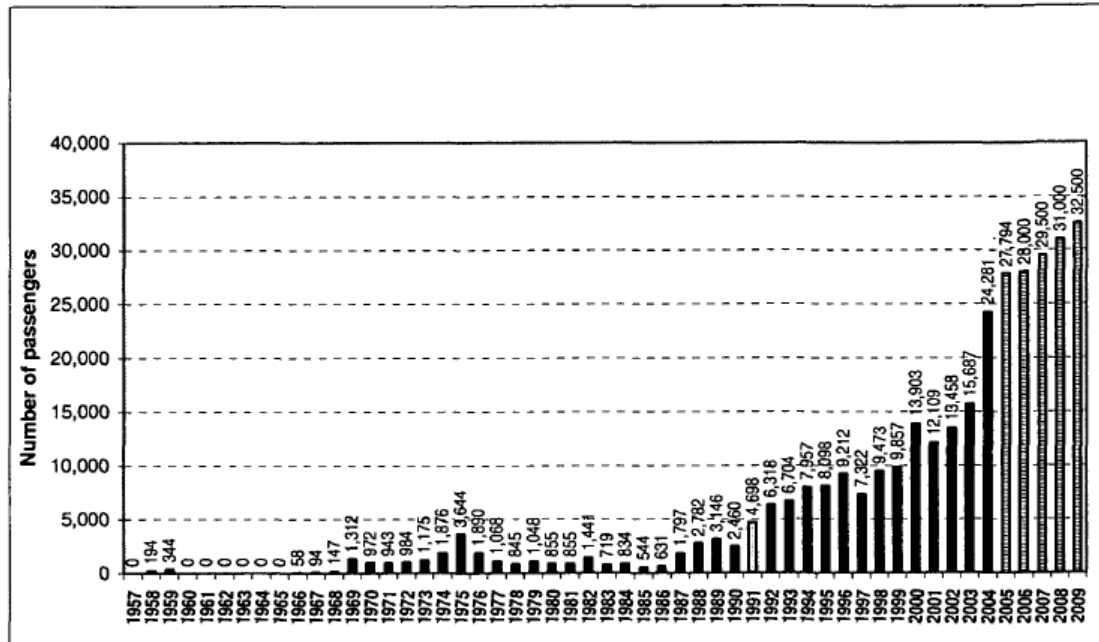


Figure 2.2 Number of Tourists in Antarctica 1957 – 2009
(Bastmeijer & Roura, 2004:764)

Figure 2.3, below, illustrates the reported numbers of tourists in Antarctica between 2002-2014. All tourists include those who visit on large cruise ships or by fly-over, never setting foot on the continent. Landed tourists are those who disembark the vessel and set foot on land. numbers represents all tourists, landed or not, and are derived from IAATO reports. Ship-based tours constituted the majority of all visits over the period. The visible decline in total numbers is attributed to the global economic crisis at that time. (Lamers & Gelter, 2012; Hemmings, 2015).

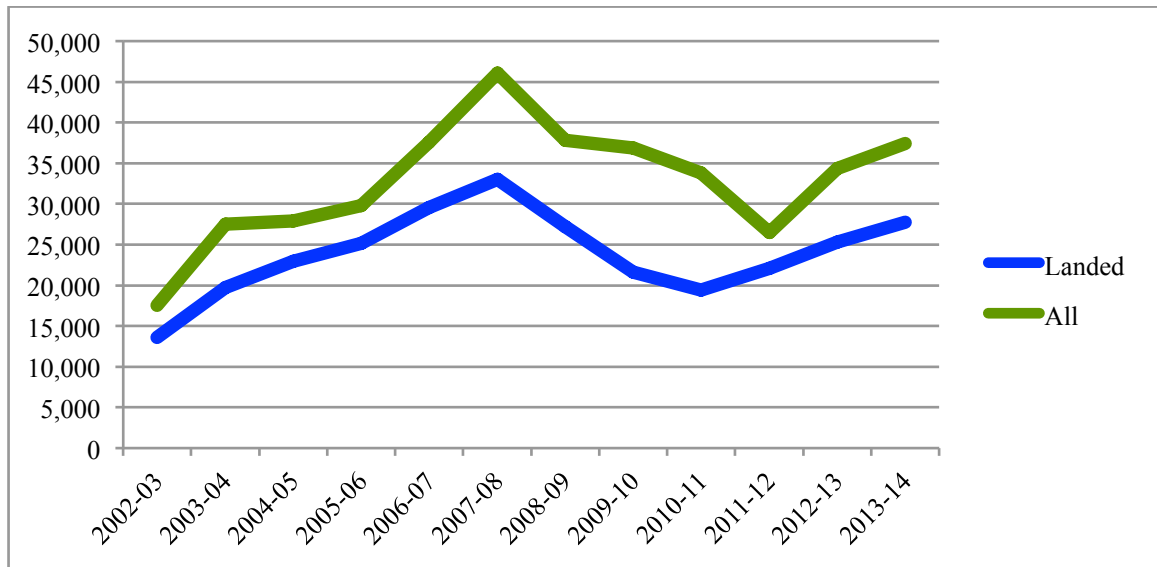


Figure 2.3: Number of Tourists in Antarctica 2002-2014 (IAATO, 2014).

2.6.2.1 Growing Numbers

In the last few decades, tourism has grown significantly in Antarctica. It is no longer only science and exploration drawing people to visit, but a desire to visit as a tourist, to see the wildlife and dramatic scenery, and experience (arguably) Earth's last remaining wildness (Bowerman, 2012). Modern Antarctic ecotourism has increased rapidly since it's beginning in the 1960s and far more so since its come into its own in the 1980s. Between 1992–2002, the annual number of tourists more than doubled. In the Antarctic summer of 2000–2001, approximately 12,250 people walked on the Antarctic continent (IAATO, 2003), and 35,000 in 2006 (IAATO, 2006). The 2007–8 season showed huge growth and marked the busiest season to date, with 46,265 reported tourists visiting Antarctica. Actual numbers of visitors may be higher, as reported numbers come from members IAATO only. The reported numbers decreased after that season,

concurrent with a global financial crisis and the ban on heavy fuel carriage by ships in Antarctic waters, impacting the 2011-12 season, but numbers have been rising again since.

One recent study suggests a conservative projection of growth to 120,000–160,000 visitors to Antarctica annually by 2060 (Woehler, Ainley, & Jabour, 2014). Considering historical growth in Antarctic tourism, recovery to nearly double the previous peak over the next 50 years seems a reasonable forecast. Increased numbers of vessels traveling to the area is also likely, particularly large vessels, as well as increased numbers of tourist flights, to more areas, and over greater periods of time each year are also expected (Woehler, Ainley, & Jabour, 2014).

Most tourism is ship based but in recent years new market segments have come online, such as airborne and land-based tourism. The ATS and ATCPs formally regulate tourism and the 1991 Environmental Protocol, aka Madrid Protocol, provides the regulatory framework for human activities in the region, including tourism. ATCP decisions are implemented through national legislation of flag states. IAATO handles day-to-day management of tourism, working along side the ATCPs and other organization. Maritime law also guides some activity, as the majority of tourism is ship-based (Jabour, 2014). The regulatory framework and governance will be expanded on in Chapter 4.

2.6.2.2 Political Distinctions

Following in line with the UN's broad definition of tourism presented in section 1.2, all human activities, including science operations, taking place in Antarctica could arguably be defined as tourism. With some exceptions, the majority of scientists conducting operations in Antarctica stay less than one year (Lamers, 2009). Additionally, it could be argued that even for the scientific population, Antarctica would not classify as "their usual environment". In the context of Antarctica, clearly more specification is needed to delineate tourism versus other motivations for time spent in the region, and these distinctions have implications within governance and management. Science has always been given priority in Antarctica, embedded as such in the ATS and subsequent instruments. There has been political interest further in maintaining a distinction between state-managed activities and those in non-state sectors, but challenges among the ATCPs in accepting functional definitions (Hemmings, 2015). The 1991 Environmental Protocol of the ATS helps bring clarity to this issue, making a distinction between governmental and non-governmental activities, and classifying tourism as the latter. Taking the concept a step further, defining Antarctic ecotourism, demands more specification, which was presented in Chapter 1.

2.7 Tourism in Antarctica Today

In May 2014, IAATO released figures for the 2013–14 season, marking notable changes in tourism patterns. The total number of reported visitors for the season, traveling with IAATO members, was 37,405: a 9% increase from the season prior. All

sectors saw an increase in numbers, with greatest growth among operators offering an air-cruise combination style trip, accounting for 5% of all visitors. On these trips, travelers are taken by air to the South Shetland Islands, where they join a ship that makes landings at sites on the Antarctic Peninsula, instead of embarking on a vessel from a gateway port and traversing the Drake Passage. Ships carrying 500 passengers or more, departing from a gateway port, appears to be the most common and popular means of visiting the Antarctic (IAATO, 2014), clearly enabling the greatest numbers of visitors at a given time. Expedition style cruising, where landings are made, is still favored for those who want to set foot on the continent.

2.7.1 Tourism in Antarctica Tomorrow

Demand for Antarctic tourism is expected to increase in coming years. This is anticipated in traditional markets especially, as a result of growing media attention, growing affluence, spare time, urbanization, ageing populations, and the growing global interest in ecotourism and adventure tourism (Lonely Planet, 2013; WTO, 2001).

Popularity of the region can be seen in more mainstream travel media, likely to contribute to even greater interest. Lonely Planet listed Antarctica as number 2 of the 10 best destinations to travel in 2014. Referred to as an adventure of a lifetime, Lonely Planet describes Antarctica as a pristine continent with abundant wildlife and majestic landscapes. It also mentions 2014 as the centenary of the start of Ernest Shackleton's famous attempted Antarctic crossing (Lonely Planet, 2013). Antarctic tourism continues to evolve tremendously from its humble beginnings.

2.7.1.1 Evolving Markets

The main Antarctic tourist markets, historically found in North America, Europe and Australia are evolving as well. Not surprisingly, considering the costs involved in Antarctic tourism, these regions represent some of the wealthiest countries in the world. It is believed that that Antarctic tour companies will continue to merge or may be taken over/bought out by larger travel companies with access to extensive resources for marketing Antarctic itineraries (Lamers, Haase, & Amelung, Facing the elements: analysing trends in Antarctic tourism, 2008). Demand for global tourism products is already growing considerably in China, Russia, India and other growing economies, and this trend is expected to continue. The 2013–14 season saw an increase in the number of Chinese visitors, making up a total of 9% of all visitors; while ten years prior, this population represented only 0.2% of all visitors. This puts China just behind the USA (33%) and Australia (11%), and ahead of Germany (8%) and the UK (8%) (IAATO, 2014), illustrated in Figure 2.4 below. Evidently, Antarctic tourism is also evolving in terms of demographics and this trend is anticipated to continue (Hemmings, 2015).

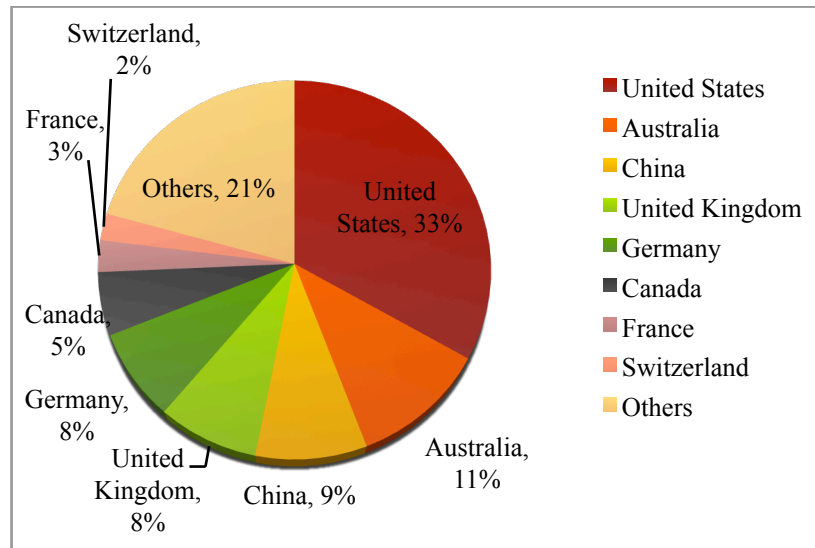


Figure 2.4: 2013-14 Tourists by Nationality (IAATO, 2014).

2.7.1.2 Evolving Activities

In the context of visits involving expedition cruises and land based itineraries, an increasing range of activities are being offered and undertaken, including helicopter excursions, camping, kayaking, scuba diving, mountain climbing, and cross-country skiing (Bastmeijer, 2003; Bastmeijer & Roura, 2004, IAATO, 2014). As a result, the range of types of visitors heading to Antarctica is broadening. Due to the development and logistics of each type of visit, what visitors may seek and experience will vary widely (Lamers, Haase, & Amelung, Facing the elements: analysing trends in Antarctic tourism, 2008). This diversification of activities reflects the increasing levels of specialization and competition among tour operators, offering ecotourism and adventure experiences (Lamers, Haase, & Amelung, Facing the elements: analysing trends in Antarctic tourism, 2008). The management implications of the diversification of visitor experiences in the

Antarctic are significant and dynamic, as are the outcomes of visitor experiences.

IAATO is a self-governing industry organization that has thus far been charged with and successful in managing Antarctic tourism, but the as the industry becomes larger and more diverse, the group's work and responsibilities grow significantly.

An important note is that while it is expected Antarctic tourism demand will increase, it is possible that energy intensiveness (ex: dependence on long haul air travel to gateway cities, shipping) will limit travel opportunities. Increases in global energy prices or international greenhouse gas mitigation policies that will affect the travel and operational costs of Antarctic tour operators may also prove limiting (Lamers & Amelung, 2007). Climate change is another point of legitimate concern, as Antarctica is not only one of the most important locations on earth for evidence and research, but one of the most dramatically impacted (Gore, 2015). These are reasonable considerations, but the strong likelihood is that tourism will grow despite these potential challenges.

2.7.2 Accessing Antarctica

The majority of voyages to Antarctica occur during the five-month austral summer season, November to March. Most tours operate in the Antarctic Peninsula region, with departures from gateway cities in South America, with the majority originating from Ushuaia, Argentina (IAATO, 2014), the closest point to the northern tip of the Antarctic Peninsula.

There are two major steps to getting to Antarctica: getting from one's home country to one of a few gateway locations in the Southern Argentina and Chile, and from

there by either sea or air to one of a few Antarctic regions that are accessible. The strong majority of tourists visit the region with an organized, professional tour operator. It is possible, though less frequent, that a tourist visits to the region independent of a tour company. Some travelers use private sea vessels or airplanes, and these methods are considered high risk and raise questions about policy adequacy, as far as following regulations set by the IAATO, ATS, and other regulatory bodies. Important to note here, is that independent tourists or operators are not obligated to report activity to IAATO, and thus knowledge of frequency or numbers is inherently limited. This will be expanded on in later sections.

2.7.2.1 By Sea

The strong majority of tourists visit the Antarctic region by sea, on ships following itineraries designed by professional tour operators. These ships typically leave from gateway cities in South America. Smaller numbers of tourists and adventurer-seekers travel to Antarctica by air from Punta Arenas in Chile and Cape Town in South Africa. A small number of tourists visit the Ross Sea region by ship from Australia and New Zealand. All parts of the expedition, such as transportation, access, and guidance while visiting the region, are almost completely controlled by the professional tour operators. These companies take tourists to Antarctica from the gateway cities each season, organizing the expedition, determining the schedule, and deciding which sites are visited and when. According to industry representatives, this is a daunting task, involving major operational costs, multiple constraints and many uncertainties (Landau &

Splettstoesser, 2007).

Tour operators sell the Antarctic as a pristine and unique destination. Interaction between different tourist vessels must be kept to a minimum, but this is a challenge of growing magnitude. More tour operators are active, and more voyages are organized every season, prompting Antarctic tour operators to collaborate in order to maintain both the reality and the image of pristine and untouched wilderness. By means of an integrated ship scheduling system, managed by IAATO, most tour operators maintain the “one ship, one place, one moment” principle, which dictates that individual operators do not interfere with each other in the Antarctic. Rather, they each have allotted times for visiting previously specified sites. Beyond maintaining the illusion of emptiness, operators also continuously stay in contact to minimize environmental impacts and safety risks by providing backup in case of incidents (Lamers, Haase, & Amelung, Facing the elements: analysing trends in Antarctic tourism, 2008).

At nearly 98%, almost all tourism operations are ship-based, with smaller (but increasing) numbers of tourists traveling to Antarctica by air (IAATO, 2008). The traditional expedition cruises involve small to medium-sized ships, Zodiac (inflatable boat) landings, and educational programs. As previously mentioned, vessels must coordinate with each other so that no more than 1 vessel is at a landing site at any one time, per IAATO guidelines. A ratio of 1:20 guide-passenger is also required while on shore, per IAATO regulation (2014). In recent years, people have also begun visiting the region via large cruise liners making no landings, over flights, and flysail operations (tourists fly to a location near the continent and then board their ship, avoiding the 2-day

Drake Passage crossing associated with traditional Antarctic tourism), as well as land based tourism using aircraft for transportation (Lamers & Gelter, 2012).

2.7.2.1.1 Vessel Variety

Not all ships are capable of safely navigating Antarctica waters. During the 1990s, following the collapse of the Soviet Union, the fleet of small passenger ships (<50 and 51-110 passenger categories) grew significantly when Russian research vessels capable of operating in polar waters became available on the free market (Cessford, 1997). More recently, over the last few years, cruise-only tourism (large cruise liners making no landings) has established itself in Antarctica, with figures and projections indicating that these large vessels are there to stay. IAATO requires members to abide by the ATS, where Measure 15 (2009) prohibits landings from vessels carrying more than 500 passengers (IAATO, 2014), perhaps necessitating the cruise-only market. This segment of large ships has been the source of the most growth in tourism, with the number of smaller ships remaining stable (Lamers, Haase, & Amelung, 2008). Large cruise vessels travel at higher speeds and cause less turbulence for the passengers than smaller expedition ships, especially when crossing the notoriously rough Drake Passage. Growth in small-scale expedition cruising is expected to continue to stabilize and remain consistent in the coming decade as a result of the limited supply of suitable expedition ships of this size, and the cost-effectiveness of building larger vessels (IAATO, 2004).

It might be argued that the experience on a large vessel making no landings, as opposed to a smaller vessel with more interaction with nature, wildlife, and the guides

would be quite different. A positive outcome of the ecotourism experience is the education component and resultant understanding and awareness acquired by tourists having first-hand experiences. It should be clear that the growing large cruise segment, making no landings, is not the same and does not necessarily meet the criteria defining ecotourism. This is not to say that there are no benefits to simply seeing Antarctica – indeed this may produce positive, lasting benefits as well. This is a new sector for Antarctic tourism and no definitive research is yet available. Another benefit that warrants mention is that there is less direct impact to the Antarctic continent and less disruption to the flora and fauna. On the other hand, marine pollution, a greater human population simply in the region, and other large-ship related impacts could have detrimental consequences that are yet unknown.

2.7.2.2 By Air

Antarctica is also accessible by air, but infrequently at this time, due largely to physical and geographical constraints. Only a small number of commercial air links have been developed - for expedition logistics, adventure tourism, day trips, and over flights. However, some National Antarctic Programs (NAPs) have established air connections between gateway cities, and various Antarctic regions and non-governmental operators (mostly independent expeditions) have been allowed to use these connections (IAATO, 2006). The future is uncertain for this type of access. Current constraints might be reduced over time as infrastructure, logistics, and technology improve. For example, there is an airstrip on King George Island in the Peninsula region, and it will likely be

upgraded, enabling capacity for larger passenger aircrafts, even in challenging weather conditions (Bastmeijer & Roura, 2007). The structure of Antarctic tourism could potentially change quite significantly; depending on the increase in air travel capabilities. Coupled with this is the persistent question about permanent facilities on land, such as hotel or other type of lodging for tourists. This represents a major question for the future of Antarctic tourism that has been under debate for some time.

Developments in gateway city ports are believed to have major influence on the opportunities for tourism in Antarctica. Betram et al. (2007) argue that in particular, the increase of ship-based tourism in Antarctica in the last decade can be connected to public policy and infrastructural developments in Antarctic gateway cities, particularly Ushuaia, Argentina. These gateway cities have clear reason for promoting Antarctic tourism today and into the future: the economic benefits from port charges, airport taxes and other expenditures of the (typically) affluent visitors (Lamers et al. 2008)

2.8 Additional Types of Non-Traditional Tourism in Antarctica

Tourism in Antarctica has evolved and grown over time. Most traditional expeditions included small groups, a strong education component, and tourist motivation related to environment and wildlife. That said, while tourism to Antarctica may not always be expressed defined or marketed as ecotourism, much of it, historically, can be loosely defined as such, or very least, the common characteristics are evident. There are other types of nonconventional tourism that share some common threads as well, but are distinctly different from ecotourism. These are related, but different, niches of tourism

also occurring in Antarctica.

2.8.1 Adventure Tourism

The rise of the technological age and related human advances has allowed far greater access to places that were previously beyond reach. Coupled with this are the increasing momentum and desire for exotic, adventure, and/or remote-area tourism. Thrill-seekers in particular are increasingly looking for the next ultimate adventure. Time and time again, first feats are copied and as the years go by and more people participate, sometimes creating events with massive numbers of participants. Edmund Hillary and Tenzing Norgay first ascended the summit of Mt. Everest in 1957, to the amazement of many. Today, many more climbers seek the challenge, with 159 ascents in 2002, nearly 300 ascents in 2003 (Spennemann, 2007, Adventure Stats, 2004), and 800 in 2013 (Shute, 2013). A similar phenomenon is occurring in Antarctica.

Antarctica is considered one of Earth's last great wilderness areas. Because of and despite this, Antarctica is growing in popularity for (eco)tourism in general and adventure tourism in particular. There are strict rules and guidelines that govern tourism in the region, including limits on the number of people on land at any one time, to protect of the natural and historic values from related impacts. Larger operators land groups in a continuous rotation during season in order to abide by regulations (IAATO, 2014).

Organized groups now seek activities such as skiing across the continent (IAATO 2001a) and climbing as of yet unclimbed mountains (Lamers et al. 2008), among other activities. A prime example is the annual Marathon that takes place on the Antarctic

continent. November 2014 marked the tenth Antarctic Ice Marathon, which takes place a few hundred miles from the South Pole. Competitors fly by private jet from Chile to the marathon location and have the opportunity to combine the trip with a mountain climbing expedition (Donovan, 2014). March 2016 will mark the 17th Antarctica Marathon & Half Marathon, organized by Marathon Tours & Travel, in conjunction with One Ocean Expeditions. Virbram and New Balance, huge commercial sporting companies, sponsor the event. This run is advertised as in terms of exploring the “most pristine corner of the planet,” and offering that runners “will come face-to-face with Antarctic gems such as icebergs, penguins, seals and whales” (Marathon Tours & Travel, 2015). Keeping in line with ecotourism, scientists and historians present lectures to running on board the ship. The voyage also includes landings to see wildlife and visits to research bases. Here, adventure tourism and ecotourism seem to occur simultaneously. Popularity continues to rise as 2016 and 2017 are sold out at the time of writing. The growth in tourist numbers and activity varieties raises issues of potential overuse and increases the threat of impact on wildlife, natural environment, and even cultural heritage.

2.8.2 Last Chance Tourism

A more recently articulated reason or motivation that some travel to remote destinations like Antarctica is the concept of last chance tourism. Climate change and other anthropogenic forces are impacting, and some would argue gradually restructuring, the tourism industry (Eijgelaar, Thaper, & Peeters, 2010). Destinations around the world are beginning to recognize and see the implications of climate change, resulting in

increasing adaptation efforts and changes in destinations (Eijgelaar, Thaper, & Peeters, 2010). This is most apparent in ecotourism destinations like the Antarctic, home to pristine, sensitive wilderness, wildlife, endangered species, etc.

The industry is responding to the climate change challenge with calls for adaptation and by setting emission targets (Scott, Peeters, & Gossling, 2010). One example of adaptation strategy is to creating an opportunity out of situation, by marketing destinations that are threatened by climate change, as “last chance tourism” (Eijgelaar, Thaper, & Peeters, 2010). This title seems to capture the motivational essence behind these travel choices. Last chance tourism was a term first used by the tourism industry to describe increasing tourist interest for endangered Arctic glaciers and polar bears (Eijgelaar, Thaper, & Peeters, 2010). This interest is confirmed by a Mintel report on circumpolar tourism: “Tour operators report that more and more travelers are asking about trips to the Arctic, evidently believing that it might vanish at any minute. They want to get there before the ice cap melts and the animals – especially the polar bears – drown or disappear” (Mintel, 2008). A similar sentiment can be extrapolated to the Antarctic.

2.8.3 Wildlife Tourism

Most tourists heading to the Antarctic are motivated to do so for the purpose of viewing wildlife. Antarctica is home to charismatic mega fauna, some unique and indigenous to the region. Marine mammals tend to be a particularly strong attraction among ecotourists and wildlife travelers, (Zeppel & Muloin, 2009) and Antarctica is a

prime example of this. Globally, popular marine mammals include cetaceans (ex: whales and dolphins) and pinnepeds (ex: seals and sea lions). Other marine wildlife of tourist interest includes penguins, albatross and other seabirds, sharks, and polar bears (TIES, 2012). Wildlife viewing in Antarctica typically includes mobile free-range marine animals, such as whales, seals, penguins and other seabirds.

Tourists on vessels that make landings have the opportunity for very close-up, personal experiences with some of these animals. Penguins in particular are abundant on the continent and at the landing sites, and frequently come into very close proximity with travelers. Guides instruct passengers prior to disembarkation to be still and not approach animals, and give them adequate room to pass or simply be. Seals can be seen on and off shore and are also quite impressive up close, on land. These experiences can be emotional and lasting for participants, and are certainly unique and usually once-in-a-lifetime.

This model is at the heart of contemporary Antarctic tourism. Often, these voyages are referred to as ecotourism, or at least share common characteristics with ecotourism. However, this is an area with potentially the most chance of conflict with established Antarctic conservation requirements, such as those in the Environmental Protocol Annex II, including prohibition of harmful interference and introduction of non-native species (ATS, 2009a). While these actions would presumably never occur intentionally, tourists making landings and being in close proximity to wildlife presents a risk of conflict.

2.8.4 Unique Environment Tourism

Coupled with wildlife experiences is the unique environment sought by travelers, certainly including Antarctica. It is in some ways otherworldly, visitors surrounded by ice covered continent and icebergs that seem to glow blue from the inside. It is also considered a last great wilderness, one of or perhaps the only place left on Earth (mostly) uncompromised by human interference. Last but not least, uniquely, Antarctica is considered a common heritage of mankind, one of the planet's largest global commons (Chown, et al., 2012).

Approaching the continent on board a ship, it gives the impression of entering another planet entirely. The voyage through the Drake Passage typically takes two full days and there is no land in site for some time. The first iceberg in view is a powerful vision – tabular icebergs off in the distance that look like small flat islands, or gigantic tables – hence the name. It only becomes more impressive from there, the pure white and gray landscape, the unique shapes of smaller icebergs – continuously but slowly changing shape as the summer sun melts them down, and finally the Antarctic continent and all of the life that calls it home. Stepping foot on land requires knee-high rubber boots and other technical attire; even “tourist season” is a very cold and winds can be quite harsh and unforgiving. The snow is deep and the terrain is mixed and sometimes challenging. It is like nothing else on Earth, unique in every way – climate, landscape, flora and fauna, and experience of simply being there.

2.8.5 Luxury Tourism

Luxury tourism can be found around the world, available to those who can afford the high cost. Luxury ecotourism trips are available to countless locations, and Antarctica is no exception. Most Antarctica-bound vessels accommodate 60-150 people, and follow published plans. In more recent years, there has been growth in availability of private, luxury cruises to Antarctica. For those who can afford it, this is available outside of typical tour operators and on mega yachts with more staff than passengers. For example, the mega-deluxe private chartered yacht, Enigma XK, allows a maximum of twelve (12) people and caters with customized activities. The cost is \$454,000, but split 12 ways works out to under \$40k per person, though air travel to Chile is not included (Lane L. , 2014). The yacht sails Antarctic waters with guides, choosing daily from a wide variety of potential activities – more variety than the typical set itinerary. This particular yacht also has a heli-pad, so helicopter tours may be included with the rest of the potential Antarctic activities. Those advertised include scientific station visits, swimming, camping, visits to volcanoes and penguin rookeries, zodiac tours to view wildlife up close, exploring historical sites, and more (Lane, 2014).

2.9 Scientific Presence in Antarctica

Today, there are two types of visitors to Antarctica: tourists and those who go as part of a National Antarctic Program (NAP). NAPs are responsible for supporting scientific research in the Antarctic Treaty Area on behalf of their respective governments and in the spirit of the ATS. Not all signatories to the ATS have established NAPs, but

achieving ATCP status requires establishment of scientific research, including a base, on Antarctica. All 30 NAPs are members of the Council of Managers of National Antarctic Program (COMNAP), an international association that works to “develop and promote best practice in managing the support of scientific research in Antarctica” (COMNAP, 2015).

Tourism industry compatibility with the NAP and science sector is considered to be crucial in maintaining and creating opportunities for recreational and tourism activities (Boyd & Butler, 1996). Per the ATS, scientific activities have precedence over many other recreational or commercial uses of Antarctic resources. However, mutual benefits can be derived from the cooperation among different users, and pro-active management to avoid or minimize negative impacts. Further, as a result of cooperative international developments, other industries might become active – though whether or not this is a positive development is debatable.

With regard to tourism development, scientific operations are extremely important, as activities from both sectors tend to occur in some of the same regions. Cooperation with tour operators frequently occurs in the areas of transport, facility use, and station visits (Crosbie, 2005). In some areas frequented by tourists, such as the Antarctic Peninsula region, the presence of science programs provides opportunities, for station visits and education, for instance. On the other hand regulatory bodies sometimes discourage non-scientific travel or visits. More recently, private adventurers have sometimes attempted to make arrangements with NAPs for certain services, in order to reduce expedition costs. Some NAPs have objected to these ‘hopping and shopping’

practices and established strict permit requirements, regulations for station visits, or called for improved communication between the NAPs. This negative attitude towards Antarctic tourists is not shared by all NAPs, but there is some variation in attitude from the science sector towards the tourism sector (Lamers, 2009).

2.10 Safety

Outside of positive and beneficial cooperation, some NAPs have raised concerns regarding “one-off expeditions”, or outlier tourism such as private expeditions and yachts, operating independently of professional tour operators. While this currently represents a small population of Antarctic visitors, it does exist and may grow in coming years. A main concern is that should they demand search and rescue (SAR) facilities in case of mishap, it presents a very costly and intensive need (Lamers et al., 2007; Murray and Jabour, 2004). On the same topic, increasing numbers of large cruise vessels are a cause for similar concerns as larger groups of tourists are much more difficult to retrieve in case of an accident (ASOC, 2007). Environmental concerns are also a factor in any sort of tourism activities, in case of accident, collision, or other mishap. Antarctica is a challenging place to visit. Weather can change abruptly, and there are geographic and climactic characteristics creating potentially dangerous conditions. Safety is a major concern for anyone visiting the area, whether on a ship with 10 passengers or 1000.

2.10.1 Climate Change

Navigation in Antarctic waters poses some fundamental safety risks, by virtue of the inhospitable climate, quickly changing weather, geography, and poorly charted areas. Climate change exacerbates this area of risk (Jabour, 2014). The entire Antarctic environment is vulnerable to climate change, but not consistently so. Some parts of the polar icecap are warming and melting faster than others, impacting sea level rise and related consequences. The Antarctic Peninsula is warming most rapidly, and sea ice reducing at the greatest rate, compared to the rest of the continent (Jabour, 2014).

That said, these changes may enable greater numbers of larger ships in the region, due to easier access thanks to sea ice reductions. A longer tourism season may also result due to the same factors (Jabour, 2014). The safety concerns above will only be exacerbated with changing sea ice distribution and increased vessel presence, particularly if the vessels are not ice-strengthened³. The area is characterized by extreme and quickly changing weather, particularly during the tourist season. Navigation at these latitudes is already risky, and only more so with increasingly unpredictable sea ice, weather, and related conditions (Jabour, 2014). As climate change contributes to sea ice and other changes, this may produce changes in tourism patterns as well. Should vessels opt or need to visit different areas than are typically visited now, more safety concerns will develop, particularly with increased remoteness and distances traveled (Jabour, 2014).

³ There is a Polar Code in the works, but until such time that it is completed and enforced, this remains a risk.

2.10.2 Examples

One example illustrating the sort of safety risk associated with Antarctic travel is in an attempt made by an Australian pilot, at a solo flights in single engine aircraft, where he was forced to land at the US-NZ McMurdo-Scott base due to high winds preventing him from reaching Argentina as planned. The views of the Governments involved were that the pilot was irresponsible and unprepared (Anon, 2003). This attempted adventure put the pilot and others at risk, along with nature and wildlife on the ground, and required help from NAPs for safety and rescue needs.

Another example is the collision with an iceberg and subsequent flooding of the M/V Explorer, a tourist vessel carrying 154 passengers, in 2007. The passengers and crew spent about 4 hours drifting in lifeboats before two other cruise ships in the area came to the rescue. 15 hours later, the ship sank in around 1,500m (4,920 feet) of water. This event occurred on a ship with an experienced crew and the vessel having a double-reinforced hull, but a captain on his maiden voyage in the region (Bignell, 2009). In this situation, there was no loss of human life, but the environmental detriment was evident. The ship went down carrying approximately 178m³ of diesel fuel and 1,200 L of gasoline. Subsequently, a surface oil slick was seen and reported by the Chilean Navy, which measured 1.5 km long and covering 2.5 km². Further slicks were seen in the days following, suggesting a slow leak from one or more submerged tanks (Bignell, 2009). This incident was thought to contribute to international pressure for stronger regulations. Clearly safety concerns include human, wildlife, and environmental.

Knowledge and experience is of utmost importance for operating in a continent as

extreme and remote as Antarctica. Depending on the mode of transport and the activities scheduled, skills and knowledge for safe and responsible transportation, and additional skills for adventure activities and landings, are unquestionably needed. Hiring experienced and qualified staff is considered increasingly problematic, especially for new operators with specialized requirements (Lamers, Haase, & Amelung, Facing the elements: analysing trends in Antarctic tourism, 2008)

2.11 Conclusion

The review of literature revealed critical elements towards this research with regard to tourism and ecotourism, and the growth and evolution of both. Tourism is a huge global industry with projections indicating continued growth in the coming years, with new growth in emerging and growing economies and markets. Ecotourism and nature based tourism are growing quickly within the general tourism market, typically associated with Antarctic tourism.

Growing awareness among the public about climate change and other environmental issues is resulting in tourism choices becoming increasingly influenced by sustainability considerations. This may contribute to further growth in ecotourism and has implications for environmental conservation. Ecotourism-style travel has been shown to help towards conservation in locations around the world. Tourism to Antarctica, in particular, is an example of this. However, education is a major contributor to conservation outcomes, and must be coupled with appropriate tourism policy to ensure the positive results.

Antarctica itself has a fascinating history, dotted with amazing stories of exploration, success, and failure. It is still a region under exploration, though the human presence on the continent has evolved drastically since the early exploration and heroic days of Cook, Shackleton and others (Spenneman, 2007; Day, 2012). At one time in the not-distant past, this was a place that was far from desirable for personal travel, and at times is still omitted from world maps, seemingly forgotten. It has evolved significantly, with regard to knowledge via exploration and later science, the tourism industry and market, and governance.

Exploration began with circumnavigation without land sighting, in the late 1700s. This was followed by exploration voyages originating from a number of countries, with actual discovery credit contested still today (Day, 2012). The first steps were taken on the continent in 1911, with subsequent voyages to explore and potentially stake claim. Scientific research began emerging in the 1940s and 50s, and the Antarctic Treaty was signed in 1959, reserving it for peace and science and proactively prohibiting militarization. The ATS set the framework and remains the foundation of contemporary governance.

Today, Antarctica is a desired location, established within the tourism industry, promoted by tour operators, tour agents, and regularly featured in media (Lonely Planet, 2013; WTO, 2001). Most tourism to Antarctica falls within the general realm of ecotourism or ecotourism-style travel, characterized by environment and wildlife as the motivation, small groups, regulated operators, guides, and education. Increasing numbers of people are drawn to this unique place, to see the beauty and wildlife found nowhere

else on Earth.

Commercial tourism dates back to the 1950s, with expedition cruising becoming and remaining the most common contemporary model (IAATO, 2014). Newer tourism models have emerged recently though, part in reaction to changes in governance, such as the 2009 ATS Measure limiting passenger numbers to 500. This may have been the impetus for emergence of cruise-only visits, which is a growing segment. Other niche forms of tourism are also appearing on the landscape, including adventure and land-based travel, or outlier tourism. Trends in tourism numbers and diversity point to continued growth and expansion of activities, as well as an increasingly diversifying blend of nationalities.

This evolution raises questions for the future of tourism in Antarctica, and the balance of ecotourism characteristics being met by growing numbers of operators and activities. Tourists to Antarctica seek a much greater variety of experience today than they did in years past, such as adventure and land-based expeditions, as opposed to the sea-based expedition style tourism that has been common historically. IAATO has been a successful regulatory body, but emergent activities and operators may conduct business outside of this organization and its guidelines. This creates shortcomings in environmental and tourism policy, and creates questions and serious concerns about human safety and environmental conservation. Travel and survival in Antarctica requires special equipment, vessels, and knowledge. Weather can change abruptly, some areas are poorly charted, careful planning is necessary, and more. These factors may become even greater challenges with consideration of climate change. The risks are great and costs of

rescue operations are very high.

Lacking knowledge of tourism operations, expeditions, etc., creates an only more daunting scenario under which to regulate the industry. Operations occurring outside the view and scope of IAATO are of considerable concern with regard to policies, conservation, and safety. Private operators, for instance, operating independently, limit availability of information about activities, statistics and data. It is very difficult to estimate numbers of travellers, what activities are undertaken, where travellers are located, types of equipment is used, and how well trips are planned. Such information is typically gathered only when an accident occurs (Lamers, 2009). The information known is only that which is reported to and by IAATO. This places tremendous responsibility on the organization, and simultaneously limits the information available. This has implications for policy making, safety issues, conservation efforts, and more.

While the ATS, IAATO, and others have evolved with the changing dynamics of human presence on Antarctica, it does not appear that governance has kept pace with the growing tourism industry. There are a number of areas of policy shortcomings today as a result of the industry's evolution. Outlier tourism and resultant lacking data is one of several areas policy weakness, impacting the ability of IAATO and the ATS to accomplish their goals. It is the objective of this study to identify and address some of these issues and explore potential solutions. Regulation and management for Antarctica is explored and analyzed, including history, evolution, current status, and emergent shortcomings, in Chapter 4.

Chapter 3

METHODOLOGY

3.1 Introduction

Antarctica is a global commons, and considered a common heritage of mankind (ATS, 1959). Scientific interest has produced a human presence in the region since the 1950s, and tourism significantly since the 1990s. Growing interest in these and other Antarctic resources will contribute to a continued expanding human presence in Antarctica, with potential for negative environmental impacts. Antarctic governance capacity is limited in its ability to manage these growing interests and human presence, and is becoming increasingly complex with regard to decision-making processes within the current governance structure. Further complicating the situation are knowledge gaps regarding tourism and short and long-term environmental impacts, contributing to regulatory capacity challenges. This study addresses these problems through three major research questions, listed below in Section 3.1.2.

Research was conducted through three (3) phases: a literature review, unstructured expert interviews, and an international survey of Antarctic stakeholders. Findings from the literature review, the first phase of knowledge acquisition, set the stage for identifying the current situation and problems within Antarctic tourism governance. Unstructured expert interviews provided further detail and real-world knowledge about

these same issues, and helped guide phase three of research and knowledge acquisition; the international survey. The results of all three phases of research were evaluated and synthesized. The synthesis enabled identification of areas of convergence or divergence among the knowledge sources. In nearly all circumstances, convergence was found; findings from the survey largely mirrored findings from the literature review.

Some points of knowledge did not share space within each of the three research phases, so convergence or divergence could not be identified clearly. For instance, some concepts evaluated within the survey did not have a strong presence in the literature review, but were generated through researcher hypothesis or presentation of a new or understudied idea. In such cases, new information has been produced, but convergence is unclear or irrelevant. Synthesis of all three knowledge sources and research results produced the conclusions, which are presented in Chapter 5 along with detailed results and discussion from the survey component.

3.1.2. Major Research Questions

1. Is tourism growth outpacing current policy and regulation in relation to the Antarctic environment?
2. Can (eco)tourism be a tool for conservation, particularly with regard to growing interest in access to Antarctic Resources?
3. Where are the critical policy gaps and weaknesses, under the governance system provided by the Antarctic Treaty System, and the International

Association of Tourism Operators, requiring attention, and how might these most effectively be resolved?

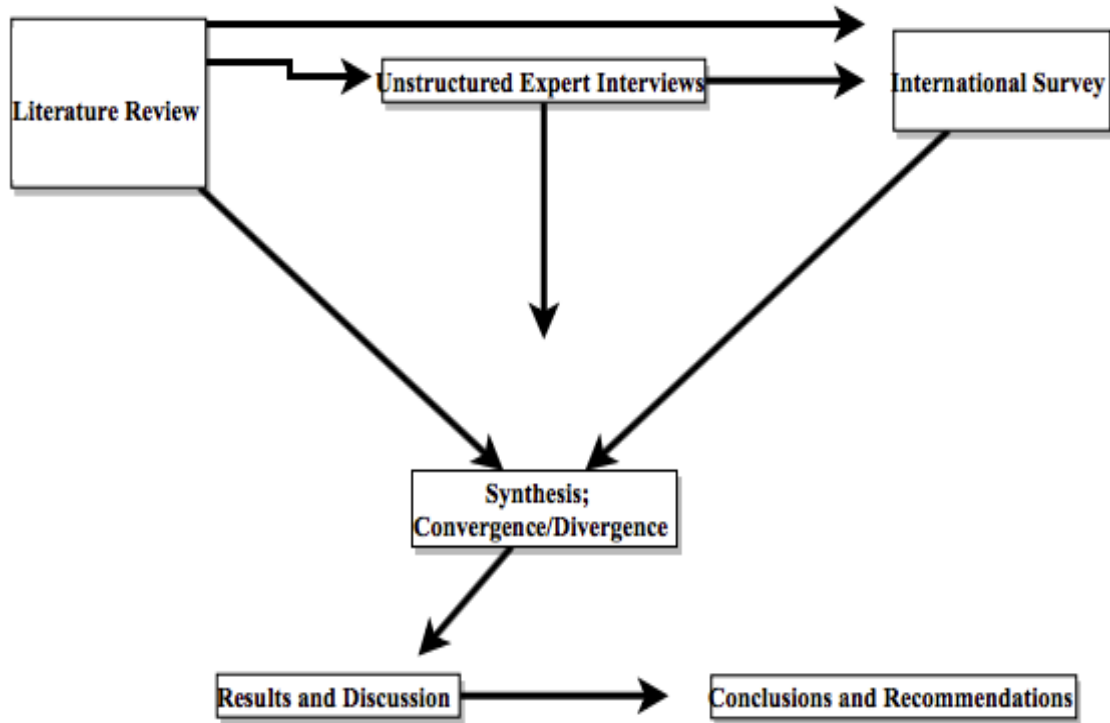


Figure 3.1: Methodology Process

3.2 Literature review

Research objectives, outlined in Section 1.1.1, were met first through an extensive literature review. To summarize, this included a thorough inventory and evaluation of the current state of affairs for Antarctica, tourism, and other human presence. This evaluation went on to explore the intricacies of existing environmental policy. Policy weaknesses and related threats to Antarctic conservation were explored, and analyzed

within the context of areas of concern related to current governance. There are a number of areas of policy shortcomings that were revealed through the literature view, which are analyzed and presented in detail in Chapter 4. These include issues related to the ATS, IAATO, and areas outside these two regulatory bodies. With regard to the ATS, policy shortcomings were evident in areas including permanent structures on the Antarctic continent, adventure/sport tourism climate change, cumulative impacts of tourism, tourism occurring near scientific research facilities and related interference. With regard to IAATO, policy shortcomings were evident including the organization's membership being non-mandatory and that the regulations are not legally binding. Related to this issue is that of private tour operators or others who are not IAATO members – these sorts of operations do not fall under IAATO's regulation and operators are under no obligation to follow industry standards or policy. Finally, there are policy gaps and weaknesses that exist outside both the ATS and IAATO. This includes the challenge of independent operators, non-ship based tourism, the problem of managing tourism without binding guidelines, and the continue debate over creation of Marine Protected Areas.

Addressing all of the issues listed above is beyond the scope of this project. As such, based on literature review findings and subsequent unstructured interviews with experts, certain key topics were identified as priority areas of research within the field and thus selected for the focus of this study. These key areas focus on outlier tourism, which exists outside the scope of the ATS and IAATO. Outlier tourism also appears to be largely understudied, and perhaps the most challenging issue to resolve.

3.2.1 Unstructured Expert Interviews

As indicated above, subsequent to the review of literature, five (5) unstructured expert interviews were undertaken. This was done to better clarify, understand, and negotiate the inventory areas of policy shortcomings developed through review of literature. These interviews were also undertaken to help determine where the most pressing research needs existed, based on the perspectives of individuals who have substantial real-world, applied, practical understanding of the problems. This knowledge source is another level entirely, compared to literature review, and these together provided a far more comprehensive and dynamic understanding of the problems than either could independently. Interviews were conducted via Skype technology with Antarctic experts, researchers (field and academic), and IAATO executive leadership. These discussions validated and confirmed literature review findings as well as researcher hypotheses. The information gleaned from these interviews, coupled with literature review findings, helped to drive the context, direction, design, and distribution of the international survey; phase three of this research.

3.3 Surveys

An online survey instrument was designed using University of Delaware licensed Qualtrics software. Questions were designed to assess the opinions or viewpoints of members of various stakeholder groups, including tour operators, academia, NGOs, ATCM attendees, and others, directly involved with or otherwise highly knowledgeable about the issues. The stakeholder group categories available for respondents to select

from were generated through review of literature and unstructured expert interviews. The goal was to identify the perspectives of those closest to the issues in regard to environmental policy gaps and weaknesses, priorities areas of work, perspectives on what should be done, and related information. Antarctica is governed by de-facto consortium and formal consensus decision-making by states, and therefore determining where there is agreement or disagreement on these issues among stakeholder groups is critical. Survey questions were posed as statements to which respondents could select one of five responses. All questions were presented using a Likert Scale; where response choices were as follows: “strongly agree,” “agree,” “neither agree nor disagree,” “disagree,” and “strongly disagree.” Some questions had a follow up free-answer response, which are presented in table format within Chapter 5. No personal information was asked of respondents and the survey responses were anonymous.

3.3.1 Survey Design and Distribution

Survey questions were drafted, discussed, and edited with assistance from committee members and relevant experts. Advisement from experts was provided to the researcher to create surveys that were anonymous and succinct, with cautions of resistance from some stakeholder groups and/or lower response rates if not executed in this way. The survey questions were designed with this advice in mind. After a series of practice surveys were given to committee members and outsiders, and final edits, approval was given by the dissertation chair to move forward and distribute the survey. The full list of survey questions can be found in Appendix B. The survey was distributed

via Qualtrics on March 18, 2015 and remained open until July 23, 2015. Reminder emails were sent out via Qualtrics.

3.3.2 Limitations

Limitations are inherent in a study such as this, despite best efforts to remove or reduce them. It is important to be clear about these limitations with regard to the results, discussion, and recommendations found in chapters 5 and 6. First, the results and discussion are based on the respondents input only. This study is not making inferences on the entire Antarctic community; results tabulated are only from those who responded to the survey. Related to this is that respondents were limited to those contacted and their networks. There are undoubtedly others around the world who would have been appropriate participants, but who were inaccessible to the researcher based on geography, time, or otherwise. Also inaccessible were most travelers who have been to Antarctica, due to tour operators concerns to maintain client privacy. The perspective of travelers for this study would have made an interesting addition, but is suggested instead for future research.

Next, there is a limitation in the form of language barrier. The survey was produced and distributed in English only, thus limiting respondents to those who can speak English fluently enough to understand the questions. Many countries were represented among the respondents, 29 in total, but translating the survey into multiple languages was beyond the scope of this work.

Another limitation is that information currently available regarding travel and tourist data for Antarctica are limited to that which is reported. IAATO manages most data of this nature, so operators or travelers operating outside the scope of IAATO or the ATS, i.e., outlier tourism, may not be accounted for. This may include private operators, non-IAATO members, or others who do not report tourism numbers or activities. This further produces a possible bias in results. Tour operator respondents were largely IAATO members, indeed very few non-members responded. Important to note is that while this does produce a bias in research results, it is nearly unavoidable as there are only a small number of (known) operators conducting tourism activity in Antarctica that are not IAATO members.

Finally, there may be potential biases within the body of work, as the researcher is working independently and it is difficult to remove all bias in an area where one has some degree of expertise and their own set of opinions. Questions were worded to avoid leading the reader or otherwise influencing results in any way, but despite best efforts, potential biases may exist.

3.3.3 Participant Acquisition

Potential participant contact lists were compiled through a number of sources. A wide net was cast to potential respondents, in order to acquire the most comprehensive results from a wide range of stakeholders. This includes individuals in the field encountered through the duration of this research, contacts generated via literature review, i.e., authors, editors, researchers looking at similar or relevant areas of study,

attendees of the joint SCAR Humanities and Social Sciences Expert Group and History Expert Group conference in May, 2015 (author presented research at this event), and networked names provided by those with whom the researcher had unstructured interviews or other contact, contributing to this study. Finally, lists of attendees of the ATCMs and contact points for CEP and CCAMLR are public record, and all individuals were contacted for this study.

These latter lists were attained online:

- ATCM / CEP Contact Points (2014):
http://www.ats.aq/devAS/ats_meetings_contacts.aspx?lang=e
- CCAMLR scientific committee reps (2014):
<https://www.ccamlr.org/en/science/scientific-committee-representatives>

3.3.3.1 Participant Communication and Response Rate

The instrument for this study was only available online as a Qualtrics survey, though information about the study and how to access the survey was distributed over a series of media. All (potential) participants were first sent an email on March 9, 2015 advising and explaining the forthcoming survey. The purpose was to give adequate notice, and introduce the research, purpose, and background of the study. The email also enabled recipients who felt they were contacted in error or were otherwise uninterested to be removed from further correspondence.

Surveys were emailed, via Qualtrics, to a total of 447 unique email addresses. Additionally, a one-page information sheet was provided to all attendees of IAATO's annual meeting in April 2015, with the support of IAATO leadership. Finally, those who received the survey via email were asked to provide contact information from their

relevant networks, or if they preferred, were able to forward the online link to others in their Antarctic networks. This was permitted in order to increase the number of respondents. Because the Antarctic community is spread around the world, there was great help in utilizing networking and the support of colleagues involved with the topic. The survey was closed on July 23, 2015. The survey was opened and started by 218 individuals, and fully completed by 157 of those. These 157 responses are used in the data sets to follow. 97 respondents were derived from original emails sent by the researcher and the remaining 60 were accessed via networking within the international Antarctic community. The response rate of those who began, but did not complete the survey, was 49%. The response rate for completed surveys was 35%.

The following information was provided to respondents before question 1, to eliminate confusion or room for interpretation on key terms:

Important acronyms:

ATCP: Antarctic Treaty Consultative Parties

ATCM: Antarctic Treaty Consultative Meeting

ATS: Antarctic Treaty System

IAATO: International Association of Antarctica Tourism Operators

For the purposes of this questionnaire,

“Antarctica” is defined as the entire area, including at sea and on land, south of 60° South.

"Land-based tourism" is defined as activities keeping travelers on land for 36+ hours.

3.4 Conclusion

The research process was a three-tiered one, including an extensive review of literature, a series of unstructured expert interviews, and an international online survey of

stakeholders. All three phases of research produced discrete critical findings, but all three synthesized and evaluated in sum produced the results and conclusions of this dissertation. The bulk of literature review findings were presented in Chapter 2. Review of literature also included a thorough evaluation of Antarctic governance, and that analysis is presented in Chapter 4. Subsequently, Chapter 5 presents all research and results from this methodology and contributory findings from Chapters 2 and 4. Survey results are presented in detail along with identification of convergence and divergence from the literature review findings. While there were three separate identifiable processes undertaken to acquire knowledge within this research, as presented in this chapter, the process was an iterative and cohesive one, with all pieces contributing to each other and to the whole, and to the results, conclusions, and recommendations presented.

Chapter 4

GOVERNANCE AND MANAGEMENT IN ANTARCTICA: A CRITICAL ASSESMENT

4.1. Introduction

Antarctica is unique, as tourism destination and in general, for a multitude of reasons. Antarctica is the only landmass on earth without a generally recognized sovereign government. During the first half of the 20th century, seven states claimed territories in Antarctica: Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom. Today, a consortium of states and countries around the world, collectively known as the ATCPs, make decisions cooperatively, based on consensus, for Antarctic matters. There is no single sovereign entity that makes and/or enforces a set of uniform laws or regulations for the continent and surrounding waters. There is no set of laws or regulations universally applicable to tourist either, or to every tour operator, tourist, or vessel (Jabour, 2014). The states involved in Antarctic regulation can and do create their own regulations applicable to their own tourists, vessels, and otherwise, but these regulations do not need to be followed by others outside that individual country (Jabour, 2014). Despite these unique characteristics, there has been peaceful management of the region over the last several decades.

Antarctic governance today includes a number of agreements and other adoptions that have been largely successful, thus far, in managing the region. Most existing

frameworks have been adopted over time through the 1959 Antarctic Treaty, now collectively referred to as the Antarctic Treaty System (ATS)⁴. Also relevant to Antarctic Governance, including environmental and tourism matters, a number of global environmental instruments (Hemmings, 2011), and non-binding regulations set by non-governmental organizations working alongside the ATS, with IAATO, being of critical importance to such matters. While Antarctic governance has a history of peace and general success with its unique, nontraditional, international governance, there are areas of management and regulatory weaknesses, gaps, and challenges. These areas may increase and/or become more complex in coming years, particularly considering growing tourism and other interest in Antarctica. Of particular relevance to this paper are weaknesses related to Antarctic tourism, including non-traditional tourism such as land-based, adventure, and private operations. These are areas that are not well addressed within the regulation or governance scheme, as it currently exists. This chapter will present the history and current status of governance and management of the Antarctic region, followed by areas of weakness and challenges, where current regulation may be inadequate moving forward.

4.2 Antarctic Treaty: A Historical Context

The first major milestone in Antarctic governance was reached in 1959; the

⁴ Defined under Article 1 of the Madrid Protocol as meaning “the Antarctic Treaty, the measures in effect under that Treaty, its associated separate international instruments in force and the measures in effect under those instruments.”

Antarctic Treaty. The seven aforementioned claimant states, and five other states involved in Antarctic researching during the International Geophysical Year (IGY) in 1957-58, made the early and critical decision to create a system to manage the continent collectively, and simultaneously reserve their positions regarding the legal status of Antarctica. Following the IGY, those 12 participants⁵ (frequently referred to as the “original parties”) negotiated the treaty, which transformed the legal, political and scientific status of the continent and surrounding Southern Ocean (Dodds, 2010; Lamers M., 2009). The treaty, signed on December 1, 1959 declared that ‘in the interests of all mankind (sic)’, Antarctica would be demilitarized, denuclearized, and radioactive material disposal prohibited. Peaceful coexistence, the free exchange of information, and science were at the heart of the treaty’s philosophy. The treaty entered into force in 1961 and the participants have effectively managed Antarctica on behalf of the international community since (Dodds, 2010; Lamers M., 2009). The signatories committed regular meetings to address and negotiate Antarctic matters. At the time of signing these meetings were to occur every 2 years, and now the parties meet annually. These meetings are known as Antarctic Treaty Consultative Meetings (ATCM), hosted each year by a different party state.

⁵ 12 participants = original 7 claims and 5 other IGY polar participants: Belgium, Japan, South Africa, Soviet Union, United States

In 1959, when the ATS was negotiated, seven claims to the continent had already been made. The justification for these early claims was based on declaration of prior discovery, exploration, and subsequent evidence of ‘effective occupation’ (Dodds, 2010). This was most often in the form of living resource regulation, mapping and surveying, and/or the construction of bases or camps in identified national sectors (Dodds, 2010). The legitimacy or legality of these claims has been disputed over the years, particularly due to overlapping claimed territories. For example, a clear conflict, evident then and still today, is that Argentina, Chile, and the United Kingdom all claim the Antarctic Peninsula and surrounding islands, illustrated in Figure 4.1, below (Dodds, 2010). Further complicating the matter was another geopolitical issue, in that early claimant countries refused to recognize the then-newly appearing world powers like the United States and the Soviet Union (Lamers M. , 2009).

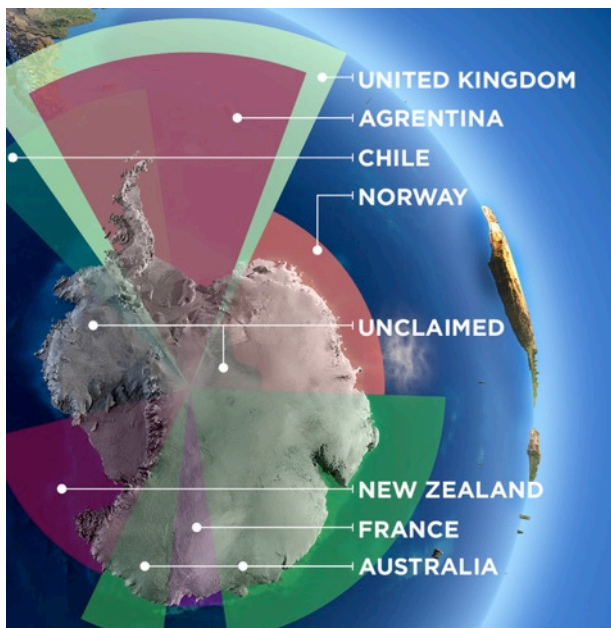


Figure 4.1: Antarctic Territorial Claims (Ritter, 2013)

The remaining five parties were other IGY participants that joined treaty discussions: Belgium, Japan, South Africa, Soviet Union (now Russia), and the United States. Both the US and Russia reserved the right to make claims in the future, particularly if there were some major change to Antarctic Treaty's legal status quo. Japan is uniquely prevented from making any territorial claim, as per the post-war Peace Treaty (Dodds, 2010). The original non-claimants present in 1959 have not, at any point in time, acknowledged the legitimacy of the original seven territorial claims, indeed they and other non-claimants have periodically reiterated their non-recognition of such claims (Hemmings, 2012). Likewise, there has been little or no willingness among the 7 claimant states to alter or dissolve their claims in any way.

Agree to Disagree

Part of the reason that this has never become a major geopolitical or governance problem is that Article IV of the treaty declared that the territorial question would remain unresolved indefinitely. This was in order to secure continued scientific and political cooperation. Central in the Treaty is this 'agreement to disagree', regarding the questionable legitimacy of the sovereignty claims. Article IV, and the also-central holistic promotion of science within the treaty, along with other aspects including banning nuclear testing and disposal found in Article V (pending the negotiation of any international agreement that allowed this – which has not occurred), provides a stable means for cooperation despite those territorial disagreements (Dodds, 2010). The treaty also states that the parties act on behalf of 'the interests of all mankind [sic]' and the

‘continuance of international harmony’. The treaty also declared that it would ‘further the purposes and principles embodied in the Charter of the United Nations’ (Dodds, 2010). The legal status quo, as it exists, has never been endorsed or revoked by an ATS signatory. Today, the Antarctic Treaty is acknowledged as a successful model of complex, cooperative regulation of one of planet’s largest global commons (Chown, et al., 2012), and “on the whole it has produced a peaceful, stable, effective and widely accepted regime for cooperation on a range of scientific, environmental, and related issues (Saul & Stephens, 2015)”.

Beyond the promotion of science and agreement to disagree, another central piece of the treaty is the focus on free exchange of scientific information and signatories’ right to establish research bases and programs on the Antarctic continent. This also meant that claimant states could not prohibit others from developing scientific stations in “their” national sector(s). This freedom of access is highlighted in Article VII, which was intentionally written to help counter any idea that activities might be restricted to territorial sectors (Dodds, 2010).

Related to this is again Article IV, which rules out uniformity in regulation and management as it indefinitely limits territorial claims. Claimed territory does not have full sovereign territory status in the typical sense for any purpose besides the application of laws to the claimant’s own citizens, companies, ships, and aircraft, including tourism-related. Claimant states can make laws applicable to their own Antarctic claim areas only. This becomes a regulatory challenge, however, when an attempt is made to apply those laws to foreign nationals as well (Jabour, 2014). Again, there is no single government

entity or set of laws that applies universally to all humans setting foot on Antarctica outside of what is dictated in the ATS.

Back in 1959, issues such as tourism, fisheries, and mineral resources were not on the agenda, or even the radar for Antarctic governance. It was recognized at the time that the treaty was a launching point, and that more work would be needed, and this remains true today. This historical context is important for understanding the governance structure today and into the future, with changing needs and dynamics for the region.

4.3 The Antarctic Treaty: Then and Now

In the late 1950s, Antarctica was a place that most were unlikely to ever see, or ever visit. Nearly 60 years later, Antarctica is an established, desired destination within global tourist markets and a regular feature in media. Environmentally, the region is a key fixture within global climate change debates. Commercially, the Southern Ocean is home to fishing, whaling activity, and heated debates over these and other resources.

Politically, the ATS has seen dramatic increases in membership, with member states coexisting alongside a range of international bodies and nongovernmental organizations, collectively concerned with the governance and management of the continent (Dodds, 2010). It remains difficult to access geographically, but over the years increasing numbers of scientists, fishing personnel, and tourists have traveled to the continent and surrounding ocean – and those numbers continue to grow. The fastest growing category of visitor is the tourist, with the strong majority traveling by sea (Jabour, 2014).

Much has changed since the early days of Antarctic Governance. There is much

more international interest in the continent, for a variety of reasons. There are now 50 parties to the Antarctic Treaty, representing every inhabited continent on the planet. The ATS remains the foundation of the Antarctic governance system, along with other legal instruments and institutions implemented over the last few decades. All combined, these measure, shape, and guide the governance of Antarctica today (Dodds, 2010). Antarctica can no longer be characterized as geopolitically isolated, politically remote, or remote in general as it once was. The region's isolation is diminishing in a variety of contexts; political, scientific, commercial, cultural, and environmental (Dodds, 2010). Further, the Antarctic is increasingly implicated in wider circuits of ideas, commodities, industries and technologies (Hemmings, 2007). All of this points to questions regarding the adequacy of the current governance regime and structure.

As indicated previously, central within the Antarctic Treaty is safeguarding peace and ensuring freedom of scientific research and access in the region. Consultative membership to the Antarctic Treaty is based on demonstration of long-term scientific interest in Antarctica, accomplished by setting up both a scientific program and research infrastructure (such as establishing a research station). Today, the 29 ATCPs make decisions cooperatively, based on consensus, for Antarctic matters. In addition to the ATCPs, there are 21 non-Consultative parties to the Antarctic Treaty. Countries with the non-Consultative Party status are invited to attend the annual ATCMs but do not participate in consensus driven decision-making (Bastmeijer, Lamers, & Harcha, 2008). Each year, the ATCPs discuss the implementation of the Treaty, concerning both legal and practical matters. They also discuss new measures and resolutions at the ATCM, and

any needs to adopt additional international management policies (Lamers M. , Introduction, 2009). ATCM pronouncements are separated into legally binding “Measures”, administrative “Decisions”, and hortatory “Resolutions”, the adoption of each requiring consensus amongst the ATCPs. Important to note is that while consensus may imply full agreement, it can sometimes mean a lack of opposition (Lamers M. , 2009).

Changing interests in and access to Antarctica have brought a host of issues to the surface that were not factors, or even on the diplomatic radar screen, in 1959 (Dodds, 2010). This includes, but is not limited to, tourism. Antarctic governance has, and continues to become, increasingly complex and multilayered as states, non-governmental organizations, international actors, and media participate and shape Antarctic governance and political relations (Dodds, 2010; Hemmings & Gilbert, 2015). Over the long term, and evident now, this will test the capacity and ability of the ATS to secure regional governance in this model, and also its power to maintain legitimacy beyond the member states (Dodds, 2010).

4.3.1 Additional Measures & Conventions

The ATS membership has expanded alongside institutional measures designed and implemented since the treaty’s inception. Originally a relatively simple treaty, the ATS has negotiated a series of agreed measures and conventions intended to broaden capacity to govern the continent, its living resources, and other needs. More recently, environment-specific management was put on the map with the 1998 Protocol on

Environmental Protection, aka the Madrid Protocol. This protocol placed ecological management, wilderness values and environmental impact assessment at the heart of all human activities in the region (Dodds, 2010; Bastmeijer & Roura, 2004).

This Protocol also helped to clarify the potential significance of Antarctica's mineral resources. Article 7 declares that 'any activity relating to mineral resources, other than scientific research, shall be prohibited'. This point helped to neutralize tension that existed in the 1980s over a minerals controversy, which remains a point of contention for some today. Geological and geophysical exploration regarded as scientific research can still carry on. The 1980s also saw attempts to create a Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA), but were unsuccessful as leading states such as Australia and France publically rejected the process (Dodds, 2010).

One consequence of the 1980s minerals controversy was to open the workings of the ATS to greater public scrutiny, leading to expanding the annual ATCM invitation list to nongovernmental organizations. These negotiations revealed the growing influence of environmental and/or nongovernmental organizations such as Greenpeace and the Antarctic and Southern Ocean Coalition (ASOC). Also, the influence of international media to challenge the legitimacy of the ATCPs became evident. All of this has contributed to an evolution of the ATCM. These meetings today are nearly unrecognizable from the early meetings in the 1960s (Dodds, 2010). The Protocol will be explored further in an upcoming segment of this chapter.

4.4 Evolution of the ATS

The growth and expansion of the ATS over time has been important for two elemental reasons (Dodds, 2010). First, it increased the collective responsibility of the ATCPs and brought existing membership closer together with the work. There were some geopolitical challenges in the early days, such as the governments of Argentina and Chile considerable difficulty in persuading their legislatures to ratify the treaty in 1960–1961, nearly losing it entirely. There was some degree of competition over the territory early on (Day, 2012), quite a different picture from the peaceful international agreement that was the ATS. Some countries were concerned that they were ‘giving up’ their sovereign rights in the Antarctic. Australia did not want the Soviet Union to be a fellow signatory. Countries like Britain were on the verge of pulling out due to financial costs. Institutional development helped to build trust and bolster a series of intergovernmental and international relationships. It was highly significant that Britain and Argentina managed to conduct Antarctic business, considering previous disagreements, such as the 1982 Falklands conflict (Dodds, 2010).

Second, the treaty’s membership, through the development of agreed measures, conventions and protocols, established broader political legitimacy globally. Antarctica has increasingly attracted the attention of nongovernmental organizations, particularly that of environmental groups in the 1980s and 1990s. ASOC and other NGOs became n presence in ATCMs. More recently, the IAATO and fishing organizations have established a regular presence at the ATCMs. All these parties recognized the authority of the ATS and simultaneously, the ATCPs recognized the legitimacy of other commercially

based activities. Representation for those interested in other emerging activities, such as bioprospecting, may have a presence in the foreseeable future (Dodds, 2010).

The ATCPs have made necessary changes and adaptations over the years. The ATS has changed its mode of operation towards greater transparency and information exchange, especially with regard to interested non-state parties, like NGOs, and the global media. Antarctica became a global issue in the 1980s, transforming it from its previous geopolitical and public interest isolation. For some, the continent was considered a global commons, similar to the earth's atmosphere or deep sea, and as such became and remains part of a global dialogue about governance and rights, and today, about climate change and conservation. The mineral resources of the region were indicative of this trend and closely followed discussion of the Third Law of the Sea Conference, which culminated with the Law of the Sea Convention, signed in 1982. Environmentalists shared that conviction concerning Antarctica's global status but argued that no mineral exploitation should ever be entertained. Scientists further contributed to the debate, bringing the issue of anthropogenic climate change to the table. Operating in 'interests of mankind' (Dodds, 2010) has evolved in definition over time but remains the basis of the ATS.

Clearly the ATS and its membership have evolved over time. It was designed proactively in the 1950s, to protect what parties saw as important. We live in a time of change, globalization, and increasing transparency and communication. The ATS remains a solid foundation to work from and represents broad conservation ideals, but there are weaknesses and gaps in the framework today.

4.4.1 Tourism

4.4.1.1 1960s - 1990s

The ATS, historically, has not provided much substance for tourism specifically, but there has been an evolution over time. Early attention to potential tourism concerns was only in regard to interference with scientific conduct (India, 2015). In 1970 at the ATCM in Tokyo, there was a recommendation put forth, though vague, indicating that the (at the time) twelve ATCPs should exert appropriate efforts ensuring tourism activities are not in contrast with ATS principles and purposes. This may have been seen as perfectly sufficient, considering tourism was in very early stages with relatively few visitors (India, 2015). In subsequent ATCMs through most of the 1970s, tourism was given cursory attention or mention, if any. Most recommendations were based on non-interference with science, abiding by the ATS principles, gaining permission to visit Antarctic stations, and otherwise vague and general areas.

The 1979 ATCM in Washington, DC produced a working document listing tourism dos and don'ts, specifically including environmental and ecosystem protection. It was also pointed out in documentation at this meeting that scientists had only preliminary understanding about Antarctic ecology and that tourists can help conserve and protect by following guidelines (India, 2015). This was all done fairly proactively, as the modern tourism industry had not yet appeared. Between 1982 and 1992 no new recommendations on tourism were passed, though there was further discussion among ATCPs and papers written about the inadequacies and gaps in policy as well as lacking

information. By the late 1980s it had become evident that recommendations alone were not sufficient with growing tourism and concerns about negative impacts.

The Environmental Protocol opened for signatures in 1991 and came into force in 1998 (more below). 1991 also marks ASOC's initial involvement in the ATCM, through which the need for comprehensive tourism policy was further revealed. Identified issues at that time included marine pollution, waste disposal, interference with wildlife, and lack of awareness among visitors. This was the point of initial resistance to the idea of permanent land-based tourism facilities by ASOC (this remains an issue to this day) (India, 2015). The WTO had recommendations at this point also, including support for a self-regulating body (IAATO), and the importance of cooperation among ATCPs, tourism industry, and NGOs. The varying perspectives of operationalizing tourism policies began to surface at this time as well. No consensus was reached in 1991 about an annex for tourism, but there was a shared recognition for lacking and needed tourism regulation within the ATS. Disagreement continued among ATCPs, not about whether tourism needed regulation, but how to go about creating and operationalizing it (India, 2015).

Institutional complexities further complicated progress on tourism policy. The ATS is implemented and enforced by each signatory state, within its own government structure. There is no universal implementation. Tourism is inherently multinational, with operators from various countries and tourists from many more various countries, a clear enforcement challenge. Tour ships registered in non-ATS states present another enforcement challenge for ATS measures. The regulation lacks, as does means to

enforce any that might be created, because of the nature of Antarctic law. Further, ATCP's vary on many levels, including politically, culturally, and economically – presenting only more challenges to finding consensus on the issues (Enzenbacher, 1995; India, 2015). Still today, there is no comprehensive tourism policy or framework.

4.4.1.2 Late 1990s - Today

In more recent years, there have been efforts towards adding new voluntary and binding measures to the ATS on tourism-relevant issues including: codes of conduct, pre-trip and post-trip trip notification, information exchange between ATCPs, compulsory insurance and contingency planning, and site specific guidelines (Bastmeijer & Roura, 2004; Molenaar, 2005). However, disparity remains among the viewpoints of the ATCP governments, based largely on the fact that some benefit directly (ex. parties with gateway ports) while others do not (Jabour, 2014). In the past 50 years, actual measures related to tourism total at only two, and neither has entered into force as of 2014 (Jabour, 2014). Measure 4 (2004) Insurance and Contingency Planning for Tourism and Non-governmental Activities in the Antarctic Treaty Area requires the ratification of the (then) 27 Consultative Parties to bring it into force. Only 11 parties have signed. Measure 15 (2009), Landing of Persons from Passenger Vessels in the Antarctic Treaty Area, has only five of the needed 29 Consultative Party signatures (ATS, 2009a). Requisite unanimous approval has not been found with other attempted mechanisms; such as extended port state controls (Lamers, Liggett, & Amelung, 2012), accreditation schemes (Molenaar 2005), and prohibition of land-based infrastructure for tourism purposes

(Lamers, Liggett, & Amelung, 2012; Bastmeijer et al. 2008). Thus, none have turned into policy. Greater unity was attempted with creation of a list of general principles for tourism in 2009 (see Figure 4.2), but they remain fairly vague with regard to the scope of tourism today, and are subject to interpretation. Overall, it appears that the ability of the ATS to respond to tourism developments and needs is rather low, in part hindered by complexities of Antarctic law and tourism both (Lamers, Liggett, & Amelung, 2012).

Historically, since the 1990s, the treaty parties have been reluctant to show clear leadership in tourism regulation, instead deferring responsibility to IAATO (Crosbie & Lynnes, 2015). This has been successful in general, but tourism growth along with increasing Antarctic complexities leaves questions about the adequacy of the current management structure, how to best manage the industry, and whether the ATS might play a larger role in that particular issue in the future, and how. Antarctic tourism has some direct and indirect regulation from other governance bodies as well, such as the WTO and the IMO in the case of shipping and transport in polar waters (Molenaar, 2005; IMO, 2014).

4.4.2 Protocol on Environmental Protection (Madrid Protocol)

As noted above, several conventions and recommendations have been adopted since the Antarctic Treaty was signed in 1959. A few of these adoptions have direct relevance to environmental policy and tourism and will be explored here. In 1991 the Protocol on Environmental Protection to the Antarctic Treaty, also known as Environmental Protocol or Madrid Protocol, was adopted, and entered into force in 1998

(Lamers M. , 2009). This protocol provides a crucial piece to the ATS: protection of the Antarctic environment, in addition to safeguarding peace and freedom of science. It establishes a system of obligations and prohibitions, addressing most types of human activity in the Antarctic Treaty area, including tourism (Bastmeijer, Lamers, & Harcha, 2008). The Protocol has six operational annexes – Environmental Impact Assessment; Conservation of Antarctic Fauna and Flora; Waste Disposal and Waste Management; Prevention of Marine Pollution; Area Protection and Management; and Liability Arising From Environmental Emergencies (Hemmings & Roura, 2003; Dodds, 2010).

The Environmental Protocol also established the Committee for Environmental Protection (CEP). The Committee's functions are "to provide advice and formulate recommendations to the Parties in connection with the implementation of this Protocol, including the operation of its Annexes, for consideration at Antarctic Treaty Consultative Meetings. " The CEP consists of representatives of the Parties to the Environment Protocol and normally meets once a year in conjunction with the ATCM, with additional attendance by various experts and observers (ATS, 2011).

At the time that the Antarctic Treaty was drafted in the 1950s, tourism was non-existent. At the time when the Environmental Protocol was drafted in the 1990s, tourism had begun, but numbers were still small. Despite the small scale at the time, the Environmental Protocol was written, in part, to address budding tourism activities and as a result, those activities are subject to regulations within the document. (Lamers M. , 2009). Because there are no universally-applicable laws, the Protocol requires state parties to create and execute provisions in their respective domestic legal and

administrative systems, and that they are executed in practice to all Antarctic activities under their jurisdiction. While tourism was addressed to some degree within the Madrid protocol, tourism today has become a much larger component of human activity and continues to grow. Again, this raises questions about the adequacy of the current structure and system. Tourism – relevant parts of the Protocol are discussed below.

4.4.2.1 Annex I

Annex I, Environmental Impact Assessment (EIA), was the most significant added duty within the Protocol, requiring an EIA prior to conducting any activity in Antarctica. It evolved to deal with National Program/Scientific conduct activities, primarily, but has implications for tourism. It evolved to become a “central pillar for improving environmental performance in Antarctica” (Hemmings & Roura, 2003:14). This annex of the Protocol addresses tourism, specifically including it, such as with regard to the obligation that “activities must be planned and conducted on the basis of sufficient information to allow prior assessments of, and informed judgments about, their possible impacts” (Hemmings & Roura, 2003:15) on the Antarctic environment and associated ecosystems. This obligation is shared broadly with all Antarctic operations; tourism along with scientific research programs and all other governmental and non-governmental activities. Advance notice of intended activities is required and the EIA is designed to consider environmental impacts of a given proposed activity. As long as it is determined to less than a minor or transitory impact, it may proceed. Further evaluation is required if a greater impact is determined. The next phase is Initial Environmental

Evaluation, (IEE), where required details include activity description, including purpose, location, duration, and intensity. If the IEE determines greater than minor impact, then a Comprehensive Environmental Evaluation (CEE) is required. Descriptions of the initial environmental reference state with predicted changes are required, as well as methodology and data used to forecast the predictions, consideration of indirect impacts, knowledge gaps, and much more. The list goes on, but the information requirements are daunting, particularly when considering tourism as the activity in question.

Unlike most other parts of the world, the EIA is the only mechanism in place to control Antarctic access. It is an effective model for national programs, where there is a long lifetime, it doesn't move, and responsibility and ownership are clear (Hemmings & Gilbert, 2015). For tourism, it is not so clear. There are challenges with regard to what state a ship is registered under, where it departs from, and where it goes, and who is responsible for providing requisite advance notice. There are challenges with operators providing the necessary level of detail to truly assess potential environmental impact, such as specific landing sites. This is not a matter of secrecy, but unknown variables such as weather or ice conditions that may require a change of plans. Secrecy may play a role as well, in that operators may not care to disclose their intended sites, as well as the desire to be seen by consumers as a true expedition, characterized by intentional spontaneity (Hemmings & Roura, 2003). Further, tourism activities take place for short amounts of time in many different locations. Private operations may not abide by any of these requirements and/or may not know about them, and carry on without anyone knowing at all (Hemmings & Gilbert, 2015). In this regard, the commercial industry

struggles to negotiate requirements of the EIA process. Further, unlike national programs, conducting EIA for tourism is more complex, involving multiple sites, distributed over a large area, that are possibly unstudied (Hemmings & Roura, 2003).

So, there are challenges with applying the EIA process, designed with national programs in mind, to international tourism. There is a need to address these issues, particular since the EIA is the main barrier to Antarctic access. In order to improve the industry's ability to work within the system, or alter the system in a way to better incorporate the industry.

4.4.2.2 Annex II

Annex II (Conservation of Antarctic Fauna and Flora) contains some tourism-specific implications. Here, harmful interference is prohibited as well as introduction of non-native species. There is a provision for unavoidable consequence, but this is with regard to science far more than tourism. Included in harmful interference is flying and landing helicopters, vehicles and vessels (including small boats), damaging native plants by walking or other means, and any other activity that results in adverse modification of habitat or wildlife. Tourism can include any or all of these activities. Non-native species introduction is a risk, which only increases with more individuals from more places around the world setting foot on Antarctica.

Measures are taken to avoid introduction of non-native species, but the risk exists. The Lindblad style expedition tourism model brings tourists on land and within close proximity of wildlife, and Annex II directly addresses potential related issues.

4.4.2.3 Annex V

Annex V (Area Protection and Management) also has tourism-specific relevance, with a provisions for special protection of area; Antarctic Specially Protected Areas (ASPA) and Antarctic Specially Managed Areas (ASMA). Article 3 (ASPAs), paragraph 2 indicates, "Parties shall seek to identify, within a systemic environmental-geographical framework, and to include in the series of Antarctic Specially Protected Areas". There are a total of 73 ASPAs under this provision. They are designated under 9 categories, based on their cultural, historical, or biological value (Shaw, Terauds, Riddle, Possingham, & Chown, 2014). Of these, 55 are designated in ice-free areas for their biodiversity value. Permits are required for entry to these sites and tourism is not permitted.

There are seven ASMAs, and activities, including science and tourism visitation may take place at these sites. The purpose of ASMAs is "to assist in the planning and coordination of activities within a specified area, avoid possible conflicts, improve cooperation between ATCPs and minimize environmental impacts. ASMAs may include areas where activities pose risks of mutual interference or cumulative environmental impacts, as well as sites or monuments of recognized historical value" (ATS, 2009). These areas may be entered, but special codes of conduct are usually required. There are also sites which have specific Visitor Guidelines; these are the sites of particular interest to visitors and the guidelines are useful for providing information of what to see at these sites while causing minimal disturbance to wildlife and environment.

4.5 International Association of Antarctic Tour Operators (IAATO)

4.5.1 Introduction

The Antarctic tourism industry began in 1969, and at that time, the number of annual tourists in Antarctica was a few hundred at most, most by way of fly-over, and few stepping foot on land. Today, that number has grown to over 30,000 tourists annually, reaching over 45,000 in the 2007-08 season. This number grows to 74,000 visitors to Antarctica with the tourism industry, when including passengers, staff, and crew (Tin, Bastmeijer, O'Reilly, & Maher, 2011). Recognizing the potential environmental impacts of this growing tourist population, seven private tour operators conducting excursions in Antarctica joined together in 1991 to create the International Association of Antarctic Tour Operators, or IAATO. The voluntary member organization was founded to advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic. The purpose was, and is, to practice and promote the highest possible standards of travel in this remote, wild and delicate region of the world (IAATO, Home, 2014).

Today, IAATO is an international organization comprised of over 100 voluntary members, Antarctica-bound travel companies and organizations from Argentina, Australia, Belgium, Canada, Chile, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, People's Republic of China, Russia, South Africa, Sweden, Switzerland, United Kingdom and United States. IAATO's Administrative Director and Office Manager work from the Secretariat office located in Providence, Rhode Island.

IAATO's Operations Director works from Edinburgh, Scotland, and the Environmental Operations Assistant works from Johannesburg, South Africa (IAATO, Home, 2014). IAATO membership has grown from seven members in 1991, to 95 members in 2007, and over 100 today, in different membership categories. Member companies are based in a wide range of countries, although most of the tour operators are based in affluent countries in Europe and North America (IAATO, 2007).

Tour operators have an incentive to organize themselves, coordinate traveling schedules, and institutionalize best-practice guidelines (Splettstoesser, 2000; United Kingdom, 2004a). This is for the benefit and sustainability of their industry as well as sustainability of their product – the pristine Antarctic environment. Through the establishment of IAATO, many of the emerging problems related to tourism have been successfully resolved. IAATO has imposed a wide range of operational procedures and environmental standards upon its member companies. In addition, IAATO functions as a main point of contact for the ATS.

4.5.2 Mission

IAATO's mission is to:

- Advocate, promote and practice safe and environmentally responsible travel to Antarctica;
- Operate within the parameters of the Antarctic Treaty System along with IMO Conventions and similar international and national laws and agreements;
- Have minimal or no impact on the Antarctic environment;
- Foster continued cooperation among its members;
- Provide a forum for the international, private-sector travel industry to share their expertise and opinions and to uphold the highest standards;
- Create ambassadors for the continued protection of Antarctica by offering the opportunity to experience the continent first-hand;

- Support science in Antarctica through cooperation with National Antarctic Programs, including logistical support and research and to foster cooperation between private-sector travel and the international science community in the Antarctic; and
- Ensure that the best qualified staff and field personnel are employed by the Membership through continued training and education; and to encourage and develop international acceptance of evaluation, certification and accreditation programs for Antarctic personnel (IAATO, 2014).

Uniquely, IAATO has set a global example of best practice self-regulation in the field. Industry-wide agreed upon best practices demonstrate that environmentally responsible tourism is possible in remote and fragile wilderness areas. IAATO sees this as more than possible, but that tourism is, and should continue to be, a driving force in Antarctic conservation. As with ecotourism in general, firsthand travel experiences to the Antarctic cultivate a far better understanding of this unique destination where no indigenous population exists to speak for itself or its home environment. Visitors should return home as “ambassadors of goodwill, guardianship and peace” (IAATO, 2014). IAATO's focus on protection, management and education tries to promote a greater worldwide understanding and protection of the Antarctic – in order to leave it as pristine, beautiful, and full of life for future generations as it is today (IAATO, 2014).

4.5.3 Membership

There are four types of membership in IAATO: Members, Associate B1 Members, Associate B2 Members and Affiliate Members. The category of membership depends upon the commercial interest that the company has. IAATO membership is made up of ship operators, land-based operators, ship agents, travel agents, one

government office and travel companies that charter ships and airplanes from existing operators. Types of membership are explained in Table 4.1 below.

Table 4.1: IAATO Membership

Members	Experienced organizers that operate travel programs to the Antarctic, have been Associate Members for at least one year, and have fulfilled certain membership and operational requirements.
Associate B1 Members	Organizers that operate travel programs to Antarctica but are new to IAATO and have not yet met all of the membership and operational requirements. Once they do, and have had their operation assessed by an observer, these companies can apply for full Member status.
Associate B2 Members	Tour operators, travel agents or organizers that do not operate tour programs themselves, but book into other members' programs.
Affiliate Members	Companies or individuals with an interest in supporting Antarctic tourism and IAATO Objectives. This category includes port agents/ship agencies, government tourism bureaus/tourist boards, expedition management service providers, conservation organizations and product/service providers (IAATO, Home, 2014).

IAATO meets once annually, at minimum. At these meetings, policies, procedures, challenges and tasks are discussed and must be agreed to by at least a two-thirds majority vote to move forward. Committees include Executive, Finance, Membership, Marine, Bylaws, Site Guidelines and Accreditation, all of which actively participate throughout the year when decisions need to be made. When these decisions are made or changes occur, an extensive e-mail network allows all of members to be updated quickly. IAATO also works in close collaboration with governments and scientific foundations, and IAATO's representatives attend all relevant Antarctic Treaty Consultative Meetings and other international conferences throughout the year.

At the present time, not all Antarctic tour operators are members of IAATO, though the majority are (IAATO, Home, 2014). There is no mandate that operators or private charters that wish to visit Antarctica must join IAATO, and no obligation that they follow IAATO guidelines. This is a growing point of contention as more people want to travel to the Antarctic, and thus more tour operators in more countries will seek to provide that service. While it is impossible to predict specific numbers, growth trends are clear with regard to tourism numbers and activities. Again, IAATO is not mandatory and non-members are under no obligation to abide by their rules or standards. This creates concern about the future of travel to this delicate area and raises important questions about the adequacy of policy going into the future (Lamers, Haase, & Amelung, 2008).

4.5.4 Standards and Guidelines

Since inception, the group has established extensive guidelines and procedures designed to ensure appropriate, safe and environmentally sound private-sector travel to the Antarctic. These regulations and restrictions include but are not limited to:

- Number of people ashore: the maximum number of passengers allowed to disembark at any site is 100,
- Staff-to-passenger ratios: minimum 1:20,
- Site-specific and activity guidelines,
- Wildlife watching: ex: no tourist may get closer than 15 feet to seabirds,
- Pre- and post-visit activity reporting,
- Passenger, crew and staff briefings,
- Previous Antarctic experience requirements for tour staff,
- Contingency and emergency medical evacuation plans, and more.

IAATO standards are meant to apply to all tourist operators who do or intend to conduct travel to Antarctica. Operators must notify their National Authority in advance of their plans to visit, in order for the appropriate government agency (in the U.S., this is the Department of State) to verify they have jurisdiction over the operation. They are required to file a detailed environmental impact assessment (in the U.S., this is to the Environmental Protection Agency), verifying that their planned activity will have “less than a minor or transitory impact on the Antarctic environment and dependent and associated ecosystems”. This is a requirement by the ATCPs and these regulations apply to all tourism operators, but enforcement presents significant challenges.

Additionally, Antarctica-bound ships must comply with applicable international marine legislation, applying to nearly all ships at sea. This includes compliance with fuel oil standards adopted within the International Maritime Organization (IMO), mandating that ships burn lighter-grade fuels while in the Antarctic Treaty Area. This requirement came into effect recently, in August 2011, and has required some of the larger ships (cruise-only vessels, icebreakers, and expedition ships alike) to switch from burning heavy fuel oil to lighter-grade fuels, such as marine gas oil (IAATO, Home, 2014).

An additional regulation placed on the large cruise ships by IAATO, and more recently within the ATS, is that if the vessel is carrying more than 500 passengers on board, it is not allowed to bring any passengers on land while visiting Antarctic waters. These operators and voyages are then defined as cruise-only. Otherwise, the same strict standards apply to these cruise-only vessels as they do to all other ships and operators (IAATO, Home, 2014).

IAATO is an industry group that is committed to high tourism operating standards in an effort to protect Antarctica from potential negative impacts of tourism. Membership in IAATO could be considered the "seal of approval" of an outstanding company. This international, industry-based, coordinated effort is one of a kind, in purpose, scope, and geographic challenge and uniqueness. Indeed, a challenge and effort of this caliber, maintaining environmentally responsible tourism to this extent, exists in no other region of the world. The association has created and implemented guidelines and thorough operational protocols to ensure that travel to the region is not only safe but also that all of the necessary precautions are taken to minimize impact on the environment and wildlife. All members share this commitment to the region and industry. This self-regulation is combined with the authority of the ATCPs to regulate tourism in their official capacity. The IAATO's viewpoint is that there has been "virtually no discernable impact" from tourism activities on the environment in the nearly 50 years that tourism has been taking place to the region (IAATO, Home, 2014) thanks to the cooperation and dedication of members.

4.5.5 IAATO Future

The majority of IAATO members also operate eco, wildlife, and related tour expeditions to other environmentally sensitive areas, such as the Arctic and the Amazon, as well as educational excursions to all seven continents. The experience and awareness these tour operators have gained through IAATO membership and participation is seen to extend and translate to environmentally safe and responsible travel to many other remote

regions of the world. IAATO has been successful in developing and enforcing high operational standards among members as well as convincing tour operators and other actors to join (Molenaar, 2005). In its existence, IAATO has managed to largely anticipate regulation needs and solve managerial issues raised by the tourism industry (Crosbie & Lynnes, 2015). However, with new operators coming into the Antarctic sector with differing aims, operational scales, and origins, pressure on IAATO has been increasing with regard to maintaining its operational standards across the board. As a result of growth and changes among members and potential new members, IAATO has to carefully define its bylaws and guidelines in order to keep everyone on board, following the regulations, and avoid free-riding among operators (Lamers, Haase, & Amelung, 2008). As with the ATS, there are questions about the adequacy of the current standards and regulations with regard to growing tourism and other interest in Antarctica.

4.6 Beyond the ATS and IAATO

4.6.1 The Polar Code

The safety of ships operating in the harsh polar waters, and the protection of the pristine environments around the North and South poles, has been a matter of concern for the International Maritime Organization (IMO) for some time. Ships operating in these regions face myriad unique challenges, including weather conditions, poor charts and navigational aids, remoteness, difficulty in rescue or clean up operations, and more. Further, the environment is delicate and sensitive to anthropogenic impacts. As such, many relevant requirements, provisions, and recommendations have been developed over

the years.

It is anticipated that use of polar waters for transit - for shipping, tourism, and otherwise - will grow in volume and diversify in nature in coming years. Impacts from climate change are likely to enable more shipping routes, and tourism, which is largely ship based, continues to grow. These challenges need to be met without compromising either safety of life at sea or the sustainability and conservation of the Antarctic environment (International Maritime Organization, 2014).

4.6.1.1 Polar Code Development

The development of a Polar Code began nearly fifteen years ago. At that time, the International Maritime Organization (IMO) started working to develop a polar shipping code for waters surrounding both poles, but that work ultimately resulted only in guidelines for ships operating in the Arctic (ATCM, 2011). In 1999, the ATCPs agreed on the need to develop a set of guidelines for Antarctic shipping and related activities. Despite a meeting of Antarctic Treaty Experts in 2000, developmental progress was slow. In 2004, the ATCM adopted a Decision on Guidelines for Ships Operating in Arctic and Antarctic Ice-Covered Waters (ATCM, 2004) and sent them to the IMO with a recommendation on amendment to the IMO Arctic Guidelines. In December 2009, the IMO adopted new Guidelines covering both Arctic and Antarctic waters, taking effect January 1, 2011. All ATCPs, except Belarus, are also IMO parties. The IMO initiatives now applicable to Antarctic tourism and non-governmental activity are noteworthy for two reasons in particular; the broad scope and an important shift in status: from

recommended to mandatory (Jabour, 2014).

Over the course of this work, strong support developed to create a new mandatory and legally binding instrument. The Polar Code would be an International Code of safety for ships operating in polar waters- to cover the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the challenging waters surrounding both poles. In 2011, an information paper was presented at the ATCM XXXIV calling for the ATCM to adopt a resolution or collaborative actions ensuring that the “Mandatory Polar Code” would provide safety and environmental protection standards for vessel operations in polar waters (ATCM, 2011). As of 2014, the Code was still in development.

The Polar Code would require ships with intent to operate in polar waters to apply for a Polar Ship Certificate. This would classify the vessel according to table 4.2, below.

Table 4.2: Polar Code Categorization

Category A	Ships designed for operation in polar waters at least in medium first-year ice, which may include old ice inclusions
Category B	Ships not included in category A, designed for operation in polar waters in at least thin first-year ice, which may include old ice inclusions
Category C	Ships designed to operate in open water or in ice conditions less severe than those included in Categories A and B (IMO, 2014)

Certification would require an assessment, taking a number of factors into account. These include anticipated range of operating conditions, potential hazards the ship may encounter, information on identified operational limitations, and plans or procedures or additional safety equipment necessary to mitigate incidents with potential safety or

environmental consequences.

Additional issues to be covered by the Polar Code include the need for all vessels operating in Antarctic waters to be polar class vessels (existing and new), an extension of the geographic boundary of polar waters, a comprehensive suite of environmental protection mandates, and the development of an Antarctic vessel traffic monitoring and information system. It is important that the Code be clear and unambiguous, including clear definitions of issues such as ice-covered waters, open water and ice-free waters, and clarity on the appropriate vessel class.

4.6.1.2 Polar Code and Environmental Protection

Importantly, the Polar Code is to include an environmental protection chapter (ATCM, 2011). In 2011, ASOC recommended that the Polar Code should include provisions to comprehensively address environmental protection for vessels operating in Antarctic waters. This includes stringent provisions on sewage discharge, grey water, food waste, and air emissions. Other areas for consideration included oil and chemical spills, sewage and related discharges, grey water, black carbon, underwater noise pollution, ballast water discharges, antifouling systems, and planning and operations to avoid interaction with cetaceans. As of 2014, a number IMO Committees and sub-committees with expertise in these areas were working on this environmental protection section, which still needed considerable work (ATCM, 2011).

4.6.1.3 Polar Code and Tourism

Two initiatives in particular have significant relevance to tourism. First is the 2009 polar shipping code, which outlines new ice classifications for ships. These classifications will be applicable to all signatories to the International Convention for the Prevention of Pollution from Ships (MARPOL) and the Safety of Life at Sea (SOLAS) convention (Jabour, 2014). This will provide a greater scope than ATCP measures or adoptions alone, and should reach ships operating in Antarctic waters that have not agreed to ATS or IAATO regulations. Reclassification of ships will reduce numbers of legally operating vessels in certain ice conditions or during certain times of year, without making adjustments to meet regulations (Jabour, 2014). The full impact on tourism is difficult to predict and will not be clear until the new rules have been in effect for some time, but since the strong majority of tourism is ship-based, impacts are fairly certain.

The second tourism relevant initiative is an amendment to MARPOL regarding types of fuel oil used in Antarctic waters. As of August 2011, it became illegal for IMO-party flagged vessels to use or carry heavy or intermediate fuel oil to the region. This initiative is a precautionary-environmental one, taking into consideration risk of accident, spill, etc. Lighter fuels are less detrimental to the environment and more readily dispersed, causing less damage overall in case of an unfortunate event. Some older vessels may not be able to operate in Antarctic waters as a result, without major engine modifications (Jabour, 2014). Many tourist vessels are older, ex-Soviet ships acquired in the 1990s, suitable for ice conditions. Their age, however, may present issues in meeting the new fuel oil standards.

4.6.2 Antarctic and Southern Ocean Coalition (ASOC)

The Antarctic and Southern Ocean Coalition (ASOC) is a non-governmental organization made up of a coalition of more than 100 NGO's interested in the environmental protection of Antarctica. It was founded in 1978 during a time of growing public awareness about environmental issues overall, and at a time where environmental legislation was being passed in many countries. Early objectives included blocking the proposed Minerals Convention and to open up the ATS and ATCMs to include NGOs and others. Other campaign issues included challenging waste disposal practices at scientific research stations and destructive plans to build an airstrip (ASOC, 2014).

In 1991, ASOC was granted observer status to the ATCM and today represents the community at the meetings, working to promote conservation goals, including issues related to shipping, climate change, and tourism. The group believes that the continent and its surrounding ocean are the natural heritage of all mankind and seeks to ensure that Antarctic marine and terrestrial ecosystems remain protected and healthy. Currently, the organization focuses on two major campaigns; creation of a marine protected area (MPA) in the southern ocean, and negotiation of the legally binding Polar Code (ASOC, 2014). This group works alongside ATCPs, IAATO, and others to help manage and create regulation related to the Antarctic environment.

4.7 Are Existing Standards Enough?

4.7.1 Changing Dynamics

While the ATS, IAATO, and other groups have been successful in managing Antarctic tourism for some time, the growth of the industry appears to be outgrowing the existing mechanisms in place for management and conservation. The ATS is seen as a successful model of cooperative regulation of one of the globe's largest commons, but is more a framework than a full regulatory system, and is under substantial pressure. Concerns have been raised about increased stress on Antarctic systems from global environmental change including climate change, and growing interest in the region's resources – from tourism to marine minerals. Although policy-makers may recognize these challenges, failure to respond in a timely way may have significant negative consequences (Chown, et al., 2012).

Developments in Antarctic tourism bring policy gaps to light and raise a variety of questions about international management related to areas including: safety, diversification of activities, permanent land based structures, the interaction between science and tourism, the impacts to the Antarctic environment, and more. An immediate conservation threat to species, ecosystems, and resources in and around the region are consequences of regional warming, ocean acidification, and changes in sea-ice distribution. Climate change elevates risks of introduction of non-indigenous species, which could prove detrimental to the delicate polar ecosystem. It also may create easier transit and access to the continent, increasing human presence. Increasing human

activity in the region means escalating risks of disturbance to wildlife, pollution from vessels and vessel emergencies (at least 12 over the past 5 years), point-source discharges, and other sources (Chown, et al., 2012). Diversification of both science (ex. and tourism challenge regulatory responses, which appear to be becoming insufficient. The Committee for Environmental Protection (CEP), responsible for advising Antarctic Treaty Parties about conservation measures and implementation, has yet to adopt a dynamic conservation planning approach for protected areas.

The nearly six decades since the ATS entered into force have seen acceleration in the pace of global climate change, reflected in accelerating rates of ice loss in the Antarctic. Growing use of the continent, coupled with such environmental change will mean substantial impacts on ecosystems, including those that are globally unmatched. The capability of current conservation governance to deal with these challenges is becoming outpaced, if not already.

4.7.2 Policy Weakness

There are a number of areas of policy weakness, identified through extensive literature review. They are summarized below, to provide a full scope of Antarctic tourism regulation and areas of policy weakness. However, the focus of this study is an evaluation of policy areas that exist largely outside the current scope of the IAATO, that are less often the focus of discussion at ATCMs, and are thus of significant import for study (Liggett, 2015; Crosbie & Lynnes, 2015; Maher, 2015, Hemmings, 2015) The comprehensive list is presented below.

4.7.2.1 IAATO

1). Regulation on non-ship based tourism.

The very strong majority of tourism in Antarctica is ship based, and (non-binding) regulation/guidelines exist for these operators. However, land-based tourism, adventure tourism, and overflight tours, to name a few, are not being addressed or regulated within existing systems. Further, ship-based tourism that is non-commercial, private, yachts, etc. operate outside the scope of the IAATO. The same is true for non-members operating in Antarctic waters. These operations are overlooked and non-regulated at this time. This has been identified as a major policy gap in need of support (Liggett, 2015).

2). Effective tourism management with non-binding guidelines.

While IAATO has provided effective management tools and guidelines for tourism, they are non-binding. Related to the issue above, there is no legal requirement or enforcement of the tourism guidelines. The main question is, how to effectively manage Antarctic tourism under this model. There are questions as to whether the ATS should be more involved, to create binding measures, and how IAATO can continue to be effective in the face of growing tourism and voluntary guidelines.

3) The IAATO's code is not legally binding.

IAATO has been a successful system for self-governing of the tourism industry. However, with growth in interest and ability to access Antarctica, there are concerns about its ability to remain adequate. One significant issue is that its regulations are not legally binding, and tour operators can choose whether or not to become members. Concerns from the ASOC, for instance, include that some operators land with more than

the IAATO's 100-passenger limit (Rowe, 2006). Operators are not legally required to be a part of, or follow the standards set by, IAATO. Private and independent operators, such as private yachts, are also under no obligation to meet IAATO guidelines. There may be a need for greater or outside pressure to ensure enforcement and/or make guidelines binding.

4). IAATO is not mandatory and non-members are under no obligation to abide by their rules or standards.

At the present time, not all Antarctic tour operators are members of the IAATO, though the majority is (IAATO, 2014). Growing numbers of people from a wider variety of home countries want to travel to the Antarctic, and thus more tour operators (will) seek to provide that service. This is a major policy weakness and raises questions going into the future (Lamers, Haase, & Amelung, 2008).

4.7.2.2 ATS

1) No clear policy regarding permanent structures.

Despite years of debate and discussion, there is no consensus among ATCPs on this issue. There are differing opinions and arguments for and against the future of allowing permanent structures for tourism purposes on the continent. Further, there exists an unclear scope of the issue and proposed management measures, particularly because terms such as 'semi-permanent', 'facility' or 'infrastructure', are without clear definitions, and could have varying interpretation among parties. Several Consultative Parties and expert organizations argue that land-based tourism facilities are inconsistent

with the fundamental obligation towards Antarctic conservation. Other parties take a stance of reserving their right to build tourist centers or lodging if they see fit or desire to do so.

2) Minimal policy and lack of information on Adventure Tourism.

This issue is related to that of permanent structures, as growth in adventure and sporting events require such infrastructure. Growth in interest and availability of these sorts of events and experiences will only push this issue further into the forefront. Some of these activities are coordinated and executed by private or independent operators, not IAATO-member tourism companies – relating to the priority topics above. This is another issue that has yet to reach consensus and has driven a range of different viewpoints. There are safety concerns about this sort of tourism as well, as Antarctica is a harsh and unpredictable environment. Accidents and injuries happen with adventure and sport even in the most hospitable conditions. Antarctica's location and characteristics present not only added risk, but also much greater difficulty and cost in rescue and care.

3) No policy on climate change impacts, mitigation, education, etc.

Transport to Antarctica requires long distance flights and/or cruising, both of which tend to be very energy intensive, contributing to negative environmental impacts. It is estimated that travel to Antarctica may entail emissions 1000 times greater than domestic travel (Farreny, et al., 2011). The future is uncertain, but a low carbon future is necessary for long-term health of life on earth. Impacts to Antarctic tourism are unclear in a low-carbon future. Activities that do not reduce CO₂ emissions will add to problems associated with ocean acidification, predicted to be most acute in the Southern Ocean.

Climate change is a very real threat to the Antarctic and to the sustainability of a tourism industry. No policy in place cannot help the situation, and may serve to make matters worse.

4) Cumulative impacts of tourism visitation is not adequately measured or managed.

Simply put, there is insufficient study and/or monitoring of long-term or cumulative impacts of tourism visitation to the Antarctic. This is an area widely viewed as in need of study in order to guide and advise appropriate environmental and tourism policy.

5) Tourism activities or frequently visited locations are sometimes near scientific research facilities, potentially causing interference.

There is a question as to whether tourism activities or frequently visited sites that are near scientific research facilities are potentially causing interference with important work. Scientific research is considered the top priority for human presence in Antarctica, but with the growth of tourism there, this perspective might not be shared by all relevant parties. How near is “too” near is not specifically defined at this time. It is the viewpoint of some ATCPs and NAPs, however, that this is an issue in need of attention. Most tourism activities are concentrated in the Antarctic Peninsula region, but outlier tourism models sometimes take tourists outside the Peninsula region, creating a new policy and regulatory concern, not previously on the diplomatic radar screen.

Related to this issue is the question of insufficient oversight over tourism activities overall, in regard to the ATS and IAATO. Policies and regulations are only as good as their enforcement and oversight. The tourism industry is largely self-regulated

and follows its own guidelines. Again, the growth in interest and visitation may outgrow the successful self-regulation of years past.

4.7.2.3 Outsider Observations

Important information about these issues can be gleaned from visitor reflections and other observers who are outside the ATS and IAATO. One visitor from Bristol gave an interview in 2006 to reporter Mark Rowe (2006) and indicating that the regulations have little bearing on some tourists. "People clambered over colonies of chinstrap penguins in pursuit of the killer photograph, I was watching Gentoo penguins from a distance - it was magical. But then a teenage boy lumbered after them with his camcorder. You could see the birds were anxious but the guides didn't seem bothered." (Rowe, 2006)

Concerns from ASOC include that some operators land with more than the IAATO-mandated 100 passenger limit. The IAATO's code is not legally binding, and this is of significant concern to ASOC and others (Rowe, 2006). Operators are not legally required to be a part of, or follow the standards set by, IAATO. It has been observed and documented that the voluntary ban is on ships carrying over 500 passengers entering Antarctic Treaty waters is not always followed; non-IAATO ships with over 500 passengers have indeed entered Antarctic waters in the last several years (Dodds, 2010; Rowe, 2006). For instance, in the 2006-07 season the IAATO member vessel *Golden Princess* carried over 2700 passengers, 3000 including crew, into ATS waters (Dodds, 2010).

4.8 The Future of Regulation and Management of Tourism in the Antarctic

Creation of a new or different system to manage and regulate tourism growth is exceptionally difficult due to Antarctica's unique characteristics, and because there is no precedent. Cues can be taken from other regions or fields, but there is nowhere on Earth like Antarctica, with regard to climate, industry, governance, and beyond. Regulation measures that have been, and continue to be, available to the ATCPs include legally imposing specific operational requirements on all vessels (ex: via mandatory shipping code), open and closed tourism seasons and areas, quotas, centralized reporting to the Antarctic Treaty Secretariat and IAATO, independent accreditation, independent observers to conduct compliance audits and recommend remedies for breaches (Jabour, 2014).

The ATCPs have treated tourism with arguably gentle regulation, leaving most efforts in the hands of IAATO, but this has begun to change, with more efforts among the ATCPs and with increasing involvement of the International Maritime Organization (IMO) (Jabour, 2014). Inclusion of international organizational bodies such as the IMO creates a more robust governance structure, which may help with the challenges of tourism outside the scope of IAATO, and even outside of the ATS. It is widely viewed that regime change is both overdue and inevitable (Bastmeijer & Roura, 2004; Bastmeijer, Lamers, & Harcha, 2008; Chown, et al., 2012; Jabour, 2014, Hemmings, 2015). As discussed earlier in this chapter, there is no way, currently, to create or enforce universal Antarctic-specific law. Perhaps, this can, in fact, be used to strengthen tourism management and regulation in the future.

Over the last several years, there has been more recent work towards tourism policy efforts among the ATCPs. While adoption of firm or enforceable measures remains weak, recent efforts should set the stage for meaningful creation and adoption. In 2009, a list of general principles for Antarctic Tourism was adopted by means of a nonbinding Resolution at the ATCM in Baltimore. They are based on an initiative of the United Kingdom, where an inventory of vision statements from a range of ATCPs and organizations, including a list of general principles, was created (Lamers, 2009). While these principles cannot resolve the entirety of policy inadequacies discussed in this chapter, and further discussion is needed on how these principles will be interpreted with regard to concrete issues (Lamers, Liggett, Amelung, 2012), it is a step in a productive direction and they may provide a useful framework for future policy making among ATCPs (Lamers, 2009). These principles are presented in Figure 4.2 below.

Figure 4.2: 2009 Tourism Principles

1. All tourism activities undertaken in Antarctica will be conducted in accordance with the Antarctic Treaty, its Protocol on Environmental Protection, and relevant ATCM Measures and Resolutions;
2. Tourism should not be allowed to contribute to the long-term degradation of the Antarctic environment and its dependent and associated ecosystems, or the intrinsic natural wilderness and historical values of Antarctica. In the absence of adequate information about potential impacts, decisions on tourism should be based on a pragmatic and precautionary approach, that also incorporates an evaluation of risks;
3. Scientific research should be accorded priority in relation to all tourism activities in Antarctica;
4. Antarctic Treaty Parties should implement all existing instruments relating to tourism and non-Governmental activities in Antarctica and aim to ensure, as far as practicable, that they continue to proactively develop regulations relating to tourism activities that should provide for a consistent framework for the

- management of tourism;
- 5. All operators conducting tourism activities in Antarctica should be encouraged to cooperate with each other and with the Antarctic Treaty Parties to coordinate tourism activities and share best practice on environmental and safety management issues;
- 6. All tourism organizations should be encouraged to provide a focus on the enrichment and education of visitors about the Antarctic environment and its protection.

At the 2011 ATCM, General Guidelines for Visitors to the Antarctic was adopted. These provide general guidance for visiting any Antarctic location; with the objective of ensuring visits do not have adverse impacts on the Antarctic environment, or on its scientific and aesthetic values. It provides a comprehensive list regarding wildlife, protected areas, respecting scientific research, safety, landings, and other topics (ATS, 2011). The guidelines include those from IAATO and ATS requirements, as well as behavioral instructions.

In 2012, the CEP conducted a tourism study. This was done in response to the fact that the ATCPs have expressed concern over environmental impacts of tourism, considered a range of responses, but have implemented very little. The intent was to provide an assessment of environmental impacts, both realized and potential (CEP, 2012). That study included eight recommendations for further work. Four of those recommendations were referred back to the CEP by the ATCM, with two recommendations to be addressed "as a matter of priority". At the time of writing, these recommendations have not been further addressed.

At the 2015 ATCM in Bulgaria, there was a special session dedicated to resolving some challenges faced with the EIA process. The intent was to look at difficulties in assessing activities that involve participants from multiple nations and/or organizations,

as most tourism activities do. Most important is that ATCPs cooperate to ensure that obligations are met and that Antarctica's environmental protection is adequate and successful (Hemmings & Gilbert, 2015).

Looking at more recent developments and efforts regarding tourism policy among the ATCPs, it is clear that the Parties, as well as other interest groups, are aware of the problems and now more than ever before, there are efforts to address them. A familiar pattern persists however, where there is agreement on the issue and need for policymaking, but follow-through, consensus, and adoption of measures appears to continue lacking.

4.8.1 Concluding Remarks

As evidenced in this chapter, there are many parts and pieces that in sum, make up the governance regime for Antarctica. Antarctica is unique in every way imaginable, and its governance and management are no exception. The ATS and IAATO are the largest contributors to governance as related to environment and tourism, but other groups and agreements also play a role concurrently, such as ASOC and the Polar Code. Generally, the geopolitics and international governance strategies have been seen as a success over the years, but growing interest in the region for tourism, resources, and other interests are creating concern for the future.

Challenges are big and small; Antarctic law is implemented within each State's own government; tourism is inherently multi-national in nature, liability is unclear, enforcement of safety and conservation standards is lacking, and consensus is difficult to

achieve (Hemmings & Gilbert, 2015; India, 2015). Governance needs to expand alongside tourism expansion, but it has not. The rapid growth and expansion of Antarctic tourism requires structural, institutional, and legislative change if Antarctic tourism regulation is to remain successful (Liggett, et al, 2011).

There are many questions regarding the current regime and structure for Antarctic governance and management, particularly with regard to current and projected future growth in tourism and other interest. The ATS, IAATO, and other groups have been successful thus far in managing human presence there, but growth in tourism and other interest is evident and all signs point to this trend continuing. Antarctica has historically been managed, in some regards, in a proactive and precautionary way, with the original Antarctic Treaty in 1959 and the establishment of IAATO early in the development of the tourism industry. Maintaining this culture of proactive decision-making necessitates action on these inadequacies, lest action become reactionary, fixing instead preventing environmental problems. Most notably, this includes outlier tourism models, IAATO's non-binding nature, and that operators are not required to join and/or follow regulations, and the minimal significant contributions of the ATS to tourism regulation and enforcement.

Antarctica is one of the last remaining wildernesses on Earth, largely undamaged and unexploited by human interest. It is important to address the concerns, weaknesses, and inadequacies that are becoming clear within Antarctic governance now, before measures are forced to be reactionary instead of precautionary. There is no sovereign government or universal set of laws. Antarctica's future rests with an international

community of groups and individuals charged with maintaining the values of the ATS and conserving the Antarctica for all mankind. Decisions are made by consensus and with input from involved parties of many stakeholder groups. Identifying the opinions and perspectives of these groups, about the issues above, is critical for moving forward with policy work and determining priorities. The following chapter will present the research conducted for this study to identify some of those perspectives and help contribute new information towards the future of Antarctic regulation and policy making.

Chapter 5

RESULTS AND DISCUSSION

5.1 Introduction

This chapter presents the research and results of this qualitative study. The preceding chapters presented and explored where the problems and shortcomings in current environmental policy, related to tourism in Antarctica, exist. While there exists decades worth of policy and agreements in place, the growth in tourism and interest in Antarctica appears to be outpacing and outgrowing what exists, leaving questions about the adequacy of current governance and management moving forward (as detailed in the previous chapter). A steadily increasing trend in tourist numbers and diversity of activities, mean that examination of the environmental aspects and impacts of tourism and non-governmental activities is warranted (CEP, 2012), including stakeholder perspectives on the issues.

The two primary objectives of this study were to: (1) identify the major shortcomings in current environmental policy, as related to tourism, in Antarctica and (2) identify priority areas for action. Resolving shortcomings in Antarctic environmental policy will have lasting implications. Meeting these research objectives will, ideally, produce applicable concepts, with implications for future research, policy-making, management, and protection of the Antarctic continent, surrounding waters, and biota.

As described in chapter 3, three methods of knowledge acquisition supported the research objectives of this study; a literature review, unstructured expert interviews, and an international electronic survey. The literature review was undertaken in order to thoroughly explore the issues related to current shortcomings, including an inventory and evaluation of the current state of affairs for Antarctica, tourism, and other human presence. An analysis of the intricacies of existing environmental policy was undertaken and presented in the preceding chapter. Policy weaknesses and related threats to Antarctic conservation were explored through and based on existing research and published work, and analyzed to meet the research objectives. Ten general areas of policy weakness were identified and categorized through the literature review; these were areas that came up repetitively and at the time of writing remain unresolved. Subsequently, through further review of literature and unstructured expert interviews, specific issues areas related to outlier tourism were identified and selected as most pressing and critical for this study to evaluate (Hemmings, 2015, Liggett, 2015; Maher, 2015).

The international electronic served both research objectives, with questions designed to assess the viewpoints of a wide variety of stakeholder groups, all close to the issues under study. A wide net was cast to acquire potential respondents, in order to assemble the most comprehensive results from a large sample group of a range of stakeholders. The results of all three knowledge sources were synthesized and analyzed to determine areas of convergence, divergence, or neither. The results were also analyzed to identify problems, priority areas in need of attention, and explore potential new options to help resolve policy shortcomings. The following pages present results from the

international survey, as well as discussion of those results synthesized with the literature review.

Survey questions and results are organized into five (5) sections:

- 1) Background
- 2) Perceptions of current policy inadequacy
- 3) Tourism as a tool for conservation
- 4) Outlier tourism
- 5) Action

Each of the five sections closes with concluding remarks. Some questions warranted further evaluation and analysis, which was executed in the form of respondent deconstruction. In this section, the responses were broken down by stakeholder group and analyzed accordingly. These items are presented with figures, followed by a discussion of findings. The chapter closes with linking findings back to the research questions and a conclusion.

5.2 Main Research Questions

1. Is tourism growth outpacing current policy and regulation in relation to the Antarctic environment?
2. Can (eco)tourism be a tool for conservation, particularly with regard to growing interest in access to Antarctic resources?
3. Where are the critical policy gaps and weaknesses, under the governance system provided by the Antarctic Treaty System, and the International Association of Tourism Operators, requiring attention, and how might these most effectively be resolved?

5.3 Survey

5.3.1 Section 1: Background

The survey was designed to be anonymous and confidential. As such, respondents were not asked any personal information and responses were kept free of identifying information, but two background questions were asked. First, respondents were asked to identify their primary role with regard to Antarctica. The purpose of this was to examine the range of responses across stakeholder groups. Antarctica is governed by consensus, so a particularly polarizing question would have implications for this process, for instance.

Role options provided were: Academia, ATCM attendee as representative from an expert group, Conservation group, Government, Political involvement or association, Science/research stationed in Antarctica, Science/research stationed elsewhere, Tour operations/industry - IAATO member, Tour operations/industry - not IAATO member, Traveler with no other connection to industry, Other NGO, and Other. Respondents were asked to select the best fit. Some chose more than one option, which is appropriate if their work and/or role with Antarctica cross over multiple sectors. The group options and particular wording choices were selected and designed through literature review and consultation with other researchers who have conducted analogous studies among similar population(s) (Crosbie & Lynnes, 2015; Hemmings, 2015; Liggett, 2015; Maher, 2015).

Table 5.1: – Self Identified Stakeholder Group.

Academia	57	31%
ATCM attendee as representative from an expert group	21	12%
Conservation group	15	8%
Government	34	19%
Other	20	11%
Other NGO	1	1%
Political involvement or association	6	3%
Science/research, stationed elsewhere	22	12%
Science/research, stationed in Antarctica	22	12%
Tour operations/industry - IAATO member	20	11%
Tour operations/industry - NOT IAATO member	3	2%
Traveler with no other connection to industry	7	4%

Respondents were then asked to identify the country they represent for the purposes of the survey and their work related to Antarctica. This may not be the same as their country of residence, and this distinction was made in the survey question. There were 100 responses to this query, so some respondents chose not to answer this question. Of those that did answer, 29 different countries were represented, and an additional three (3) respondents stated “International Organization” as their representative country (not included in the table). It is difficult to know with certainty why some respondents chose not to provide an answer to this background question. Presumably, this is either due to working in an international capacity where there is no appropriate response (i.e., tour operator, NGO, IAATO), or, for possible concerns regarding confidentiality issues, despite clear notifications at the front end of the survey that all information would be private and confidential.

Table 5.2 – Countries Represented By Survey Respondents.

Country	#	%	Country	#	%
AUSTRALIA	9	9%	NETHERLANDS	7	7%
AUSTRIA	1	1%	NEW ZEALAND	6	6%
BELGIUM	3	3%	NORWAY	2	2%
BRAZIL	2	2%	POLAND	1	1%
BULGARIA	1	1%	PORTUGAL	1	1%
CANADA	2	2%	REPUBLIC OF KOREA	1	1%
CHILE	3	3%	RUSSIA	1	1%
CHINA	1	1%	SOUTH AFRICA	2	2%
CZECH REPUBLIC	1	1%	SPAIN	1	1%
ECUADOR	1	1%	SWITZERLAND	1	1%
FALKLAND ISLANDS	2	2%	UK	11	11%
FRANCE	1	1%	UKRAINE	2	2%
GERMANY	3	3%	URUGUAY	4	4%
ITALY	1	1%	USA	24	25%
JAPAN	1	1%	VENEZUELA	1	1%

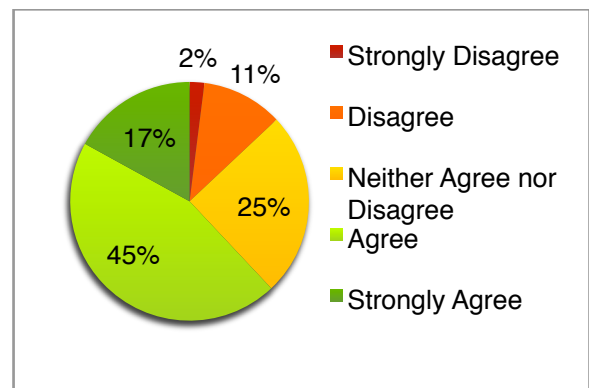
Following these two background questions, a total of 26 questions were asked in the survey, all using a 5-option Likert Scale question style. Some questions had an option for free responses in addition, which will be presented below. Questions were asked to seek opinions of respondents regarding current environmental policy related to tourism, weaknesses and gaps, issues related to ATS and IAATO, tourism as a tool for conservation, and ideas for policy changes or additions moving forward. Survey responses and literature review results were analyzed in synthesis, to identify areas of convergence or divergence between the two sources of knowledge, and to develop potential options to fix policy inadequacies, and identify areas for further research.

5.3.2 Section 2: Perceptions of Current Policy Adequacy

5.3.2.1 Questions, Figures, and Discussion

Five (5) statements were posed covering current environmental policy as related to tourism in Antarctica, seeking opinions of respondents. Literature review revealed that there are areas of policy weakness or inadequacy, but it was important to establish and confirm that the sample population of stakeholders responding to the survey also perceived these problems to exist. The strong majority of respondents agreed that existing policy is inadequate. The following statements were presented in this section.

Perceptions Q1: There are weaknesses in existing environmental policy as related to Antarctic tourism.

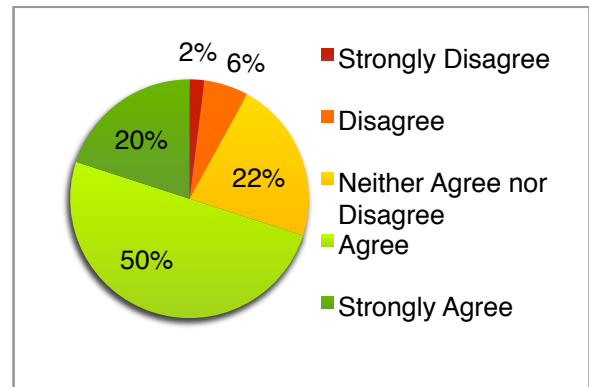


Perceptions Q1: Results and Discussion

Responses to this initial general question reflect strong support for the observation that there are weaknesses in environmental policy. 17% of respondents strongly agreed with the statement and 45% agreed, thus 62% of respondents actively concurred. 22% of respondents selected neither agree nor disagree and a small remainder fell into a disagree category. This helps set a preliminary baseline of agreement that there is a general problem with the regulatory and management regime as it exists. Findings from the

literature review revealed many areas of policy weakness, and thus there is convergence between the two areas of research on this item.

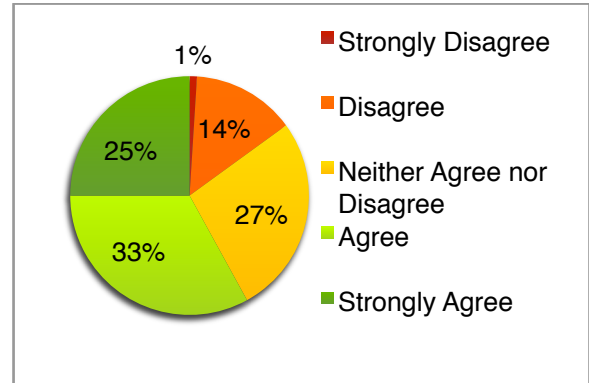
Perceptions Q2: There are gaps in existing environmental policy as related to Antarctic tourism.



Perceptions Q2: Results and Discussion

Responses to PQ2 reflect a similar trend to perceptions PQ1. Weaknesses and gaps represent different types of inadequacy with regard to policy so both ideas were presented separately. Results from both were very similar, though slightly higher agreement was found with PQ2. Here, 20% of respondents strongly agreed and 50% agreed, or 70% actively concurred. Just under 25% selected neither agree nor disagree and again a small remainder selected a disagree response. This helps set a preliminary baseline of agreement that there is a general problem with the regulatory and management regime as it exists. Similar to the question above, convergence is found between the literature review and survey findings.

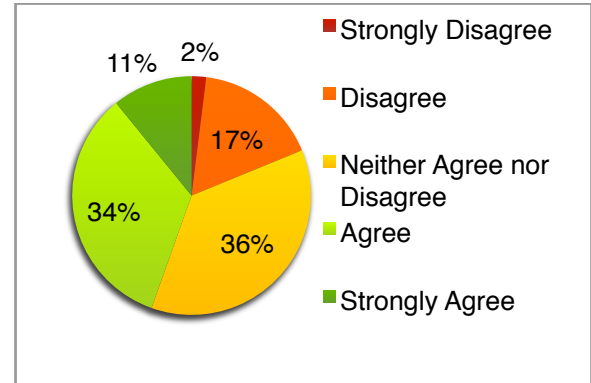
Perceptions Q3: There is growth in Antarctic tourism, as far as numbers of people, diversification of activities, etc.; This growth is outpacing both legally binding obligations and hortatory [or voluntary] guidelines adopted under the for protection of environment and wildlife.



Perceptions Q3: Results and Discussion

Responses to PQ3 reflect a similar trend to PQ1 and PQ2. This question serves to identify whether, in general, respondents agree that the current management regime is being outpaced by tourism growth. Growth in the tourism industry is evidenced in literature and ATS and IAATO reports, and responses to PQ3 reflect majority agreement among respondents that the growth is outpacing adopted guidelines for environmental and wildlife protection. 25% of respondents strongly agreed and 33% agreed, thus 58% actively concurred, with the statement. Neither agree nor disagree was selected by 27% and a total of 15% selected a disagree response. The slightly higher representation of neither agree nor disagree might reflect lacking clarity on the issue by some stakeholder groups represented, such as those who are not familiar enough with the specific policies and guidelines that exist. It may also be possible that some respondents disagree with either binding or voluntary, but not both, are being outpaced. Statements presented later in the survey will help negotiate that specification and provide clarity.

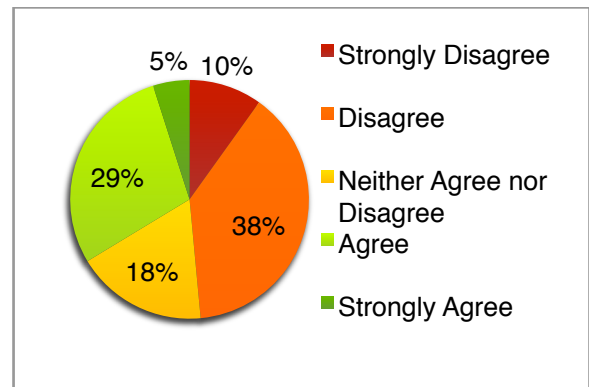
Perceptions Q4: The growth described above is outpacing industry voluntary standards and guidelines adopted through IAATO for protection of environment and wildlife.



Perceptions Q4: Results and Discussion

Responses to this statement reflect perceptions of tourism growth in relation to voluntary IAATO guidelines, specifically. Literature review revealed a clear issue with regard to IAATO standards, in that they have been effective and successful historically, but that growth in tourism is raising questions about the adequacy. Responses here show 11% strongly agree, 34% agree, a total 45% actively concurred, and 36% neither agree nor disagree. 17% disagreed with the statement and 2% strongly disagreed. This presents a striking contrast with the previous figures, responses here show considerably more variance than the preceding statements in the section. Reasons for this may include a lack of strong familiarity with IAATO standards among some respondents, and that a range of stakeholders were presented with the same statement, including IAATO members and leadership. Considering the stronger agreement rate in PQ3, it is possible that some respondents feel that IAATO is not the source of policy inadequacy, but the ATS or other measures are. Further, this may indicate reluctance among respondents to concede IAATO standards are insufficient. Data from this sample group cannot be extrapolated to universality, but it is worth enunciating this possibility, bearing those caveats.

Perceptions Q5: Currently, Antarctica may be used for a wide range of tourism and other non-governmental activities, as long as they are conducted in accordance with the Environmental Protocol. This is sufficient for effective environmental and/or wildlife conservation.



Perceptions Q5: Results and Discussion

This statement brings the focus of environmental conservation policy to the Environmental Protocol, an arm of the ATS. Similar to PQ4, this statement takes a closer look at the possible source of policy inadequacy, following PQ3's general approach to the concept. Responses here show considerable variation. This statement was posed as a "false negative", presenting the idea that the Environmental Protocol is sufficient for conservation. To this statement, 5% strongly agreed, 29% agreed, so 34% actively concurred, and 18% neither agreed nor disagreed. 38% of respondents disagreed that the Protocol is sufficient and 10% strongly disagreed, a total of 48%. A large portion of respondents, then, finds the environmental protocol insufficient for effective conservation, though 34% of respondents find the protocol sufficient. Reasons for such wide variation in perceptions on this statement may include the specification on the Environmental Protocol, as opposed to the ATS as a whole. This is also a rather complex question, requiring more (perhaps prohibitively so) knowledge than other questions, in order to answer confidently and with reliability. In this case, neither convergence nor divergence can be concluded, as the literature review did not produce a substantial

amount of information on the item. It is an area in need of study, and was thusly included in this survey, in order to generate new information on the issue.

5.3.2.2 Perceptions of Current Policy Adequacy: Concluding Remarks

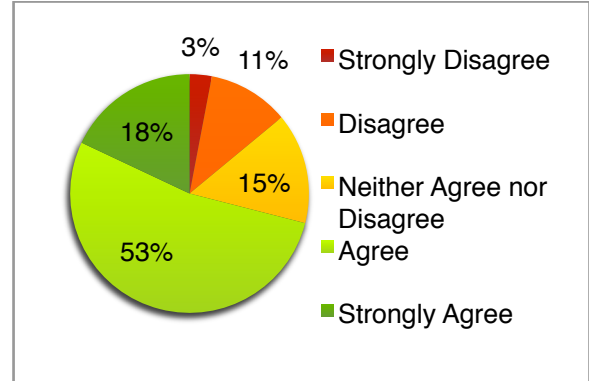
The dominant trend in this section is agreement that there are indeed both weaknesses and gaps in current environmental policy for Antarctica. General statements asking about these issues both reflected perceptions among stakeholders that the problem does exist. Convergence between literature review, unstructured expert interviews, and survey results was found. The general statement that tourism growth is outpacing both binding and voluntary guidelines showed majority support as well, but less so than simply asking about weaknesses or gaps. Statements asking more specifically, about IAATO and then the Environmental Protocol, reflected considerably more variation in responses. This seems to reflect a familiar political pattern, where it is easy to see the problem but more difficult to take ownership or identify who or how to address the issue. The pattern of responses in PQ5, considerably more variant than the others in the set, may reflect that the question was prohibitively complex, as it required a solid foundation of knowledge on the matter to answer effectively. Understanding the range of tourism activities and the requirements of the Protocol are needed, as well as the ability to distinguish whether the Protocol is sufficient for those activities. Some respondents likely did have the knowledge base for this, but it is unlikely that all respondents had adequate familiarity.

5.3.3 Section 3: Tourism as a Tool for Conservation

5.3.3.1 Questions, Figures, and Discussion

Tourism, and ecotourism in particular, have the potential to be strong tools towards conservation, as evidenced in Chapter 2. For Antarctica, tourism and conservation should go hand in hand, and both must be managed sustainably for concurrent success. Literature review revealed that ecotourism has proven to be an effective conservation tool in other locations, with education and experience providing lasting positive impacts to travelers and subsequently to the place they visited. The following three (3) statements regarding the potential for tourism to be a tool for Antarctic conservation were presented in the survey.

Tool for Conservation Q1: Tourism can be a tool for short-term environmental conservation in Antarctica. Meaning, the tourism industry can contribute positively to environmental and wildlife conservation, in ways such as appropriate behavior while in Antarctica. Short term may be defined as; the tourism experience, plus 1-5 years following.

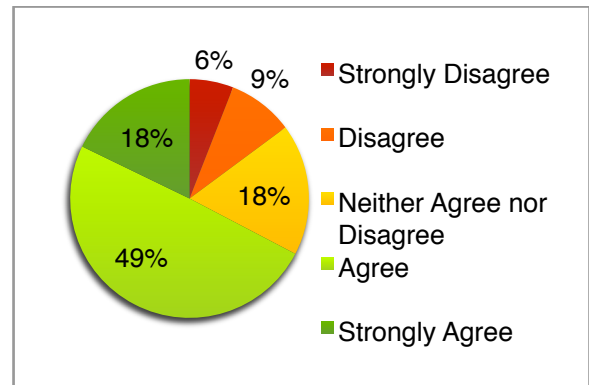


Tool for conservation Q1: Results and Discussion

Responses to TQ1 reflect strong agreement that tourism can be a tool for short-term conservation in Antarctica. 18% of respondents strongly agreed, 53% agreed, or 71% actively concurred, and 15% neither agreed nor disagreed. A remaining 14% of respondents selected a disagree response. The strong agreement among the sample

population reflects a positive view of the ability for tourism in Antarctica to contribute to short-term conservation, and shows convergence with literature review findings and researcher's hypothesis. This is likely indicative of a positive relationship, or a positive perception of the relationship, of Antarctic tourism and conservation historically and today. Tourism has not yet appeared to produce negative impacts to conservation, and the perception of tourism as a tool for short term conservation illustrates the positive perception of tourism overall.

Tool for Conservation Q2: Tourism can be a tool for long-term environmental conservation in Antarctica. Meaning, the tourism industry can contribute positively to environmental and wildlife conservation, through education, funding, ambassadorship, etc.

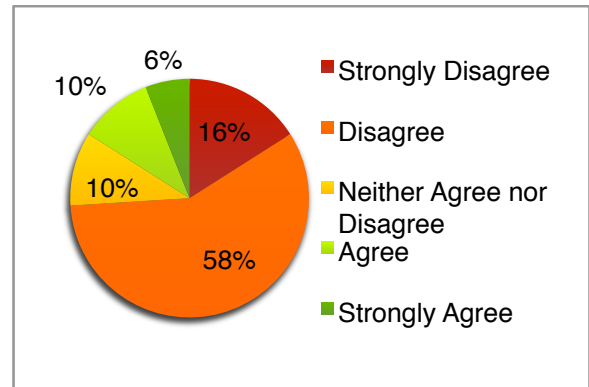


Tool for conservation Q2: Results and Discussion

Responses to TQ2 show a very similar pattern of responses to TQ1. These responses reflect strong agreement that tourism can also be a tool for long-term conservation, showing convergence with discoveries from the literature review and the hypothesis of the researcher. 18% strongly agreed with the statement, 49% agreed, and 18% selected neither agree nor disagree. A total of 14% selected a disagree response with 6% strongly disagree. TQ1 and 2, taken together, indicate strong support for the idea among this sample population, that overall, tourism can be a tool for environmental and wildlife conservation in Antarctica. Similar to the question above, this is likely a reflection of a

positive perception of the tourism/conservation relationship. If there were a negative perception of tourism's impact towards conservation today, the responses here would likely be less favorable to the idea of tourism as a tool for long-term conservation.

Tool for Conservation Q3: A sustainable tourism industry cannot coexist with policies that keep Antarctica's environment and wildlife conservation as an international priority.



Tool for conservation Q3: Discussion

Responses to this statement reflect perceptions of whether or not tourism can coexist simultaneously with a sustainable tourism industry, while keeping conservation as a policy priority. This statement was posed as a “false negative”. 16% of respondents strongly disagreed that a sustainable tourism industry cannot coexist with conservation policies, 58% disagreed, and 10% neither agreed nor disagreed. 6% strongly agreed that tourism cannot coexist with conservation policies and 10% agreed. A striking 74% total disagreed, and 16% agreed, with the statement. Thus, there is majority agreement that a sustainable tourism industry can indeed coexist alongside policies keeping conservation as a priority. These results carry forward the idea from the previous statements in this section, that tourism can be a tool for conservation, both short and long-term. Convergence is found here between literature review findings and survey results, that tourism and conservation priorities can coexist, and even perpetuate one another.

5.3.3.2 Tool for Conservation: Concluding Remarks

Responses from this section indicate strong majority agreement, with similar numbers, that tourism can be a tool for conservation, both short and long-term, showing convergence with literature review findings. The reality of this outcome in practice is contingent on education before and during tourism activities in order to produce positive results, in line with standards of ecotourism. As tourism is a major source of human activity in Antarctica, and growing steadily, this can have implications for future conservation. Responses to TQ3 also share a similar response pattern that a sustainable tourism industry *cannot* exist while keeping conservation as an international priority. Removing the false negative shows a similar trend of agreement results across this section.

The results from this section show that, in the views of this sample population, tourism and conservation can coexist and work hand-in-hand, producing positive conservation benefits for wildlife and environment in Antarctica. This might also be interpreted as indicative of the positive relationship between tourism and conservation that exists today. It seems unlikely that many respondents would have a positive view of the tourism/conservation relationship, as a future hypothetical one, if the evidence did not already suggest this today. This also reflects the importance of the tourism industry in Antarctica, particularly with regard to growing interest in marine and other resources. Ecotourism has proven to be a conservation tool in its own right, but also part of governance plans to protect natural areas in lieu of other interests. Finally, it has often been said that the ATS and IAATO are excellent and successful examples of international

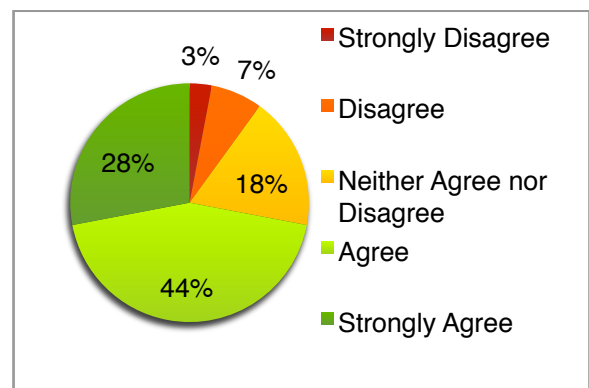
policy making, and these responses support that idea with regard to this section of questions.

5.3.4 Section 4: Outlier Tourism

5.3.4.1 Questions, Figures, and Discussion

Five (5) statements were presented to gather respondent's opinions regarding regulations for outlier tourism, or outside the models for which most current policy and regulation is targeted, or those who are not IAATO members. These areas and activities tend to fall outside the scope of current policy and guidelines, a major source of policy inadequacy. This includes private yachts, non-commercial operators, land based or adventure style tourism, and those who are not IAATO members.

Outlier Q1: There are insufficient regulations or policies targeting private operators (such as private yachts or non-commercial operators) in Antarctica.

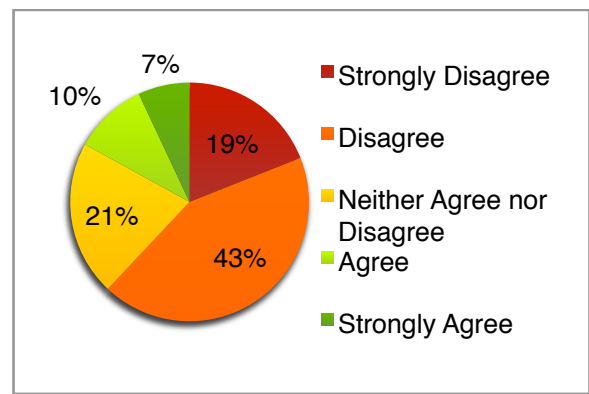


Outlier Q1: Results and Discussion

Responses to Q1 show very strong agreement among respondents that private and non-commercial operators are not sufficiently regulated. 28% strongly agreed, 44% agreed, so 72% actively concurred, and 18% selected neither agree nor disagree. A remaining 10% of respondents disagreed with this statement. This illustrates agreement across many stakeholder groups that policy is inadequate in general. This particular

statement does not differentiate what organization or system such policies come from, i.e. ATS vs. IAATO, but a general perception of a problem. Outlier tourism is an emerging area within Antarctic tourism, so there is little information or research available at this time. This knowledge gap is one of the drivers of this study. From what literature does exist on the topic, there is convergence on this matter between literature review and survey result findings.

Outlier Q2: IAATO should not create measures or guidelines specifically designed to address tourism outside of the common Lindblad (ship-based with excursions on land typically by zodiac) tourism model, such as non-ship based adventure tourism (ex: air supported, marathons).



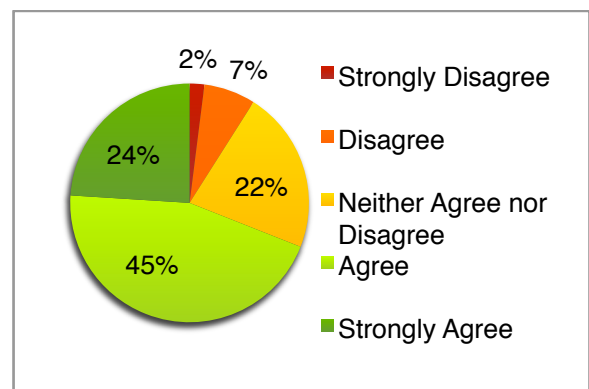
Outlier Q2: Results and Discussion

This statement places focus squarely on IAATO, as opposed to the general statement presented in OQ1. The majority of respondents agreed that IAATO should design measures to address outlier tourism, such as land and adventure tourism. Here, 19% strongly disagreed and 43% disagreed, or 62% actively concurred, that IAATO should *not* create measures; with 21% selected neither agree nor disagree. 7% of respondents strongly agreed and 10% agreed that IAATO should not create measures to address outlier tourism. Responses indicate majority respondent support for IAATO – specific action regarding these areas. IAATO has historically handled most tourism related matters with regard to policy and guidelines, so it is logical that respondents

would see IAATO as the appropriate organization to fill this policy void. Similar to the question above, this is an emerging area, but there is convergence between literature review findings and survey responses.

There is a complexity to this question and responses that warrants mention, regarding non-members of IAATO, which are under no obligation to follow IAATO standards. Members and non-members alike conduct outlier tourism, so policy creation to this end is still limited in usefulness to the larger problem. Further, while some have called for IAATO's ability to impose regulations on all operators, members or not, there is a concurrent moral and legal issue with making operators subject to policies under an entity which is not a state to whom they are responsible and to which they do not belong (Hemmings, 2015).

Outlier Q3: IAATO should create measures or guidelines specifically designed to address private yacht and/or non-commercial operators in Antarctica.

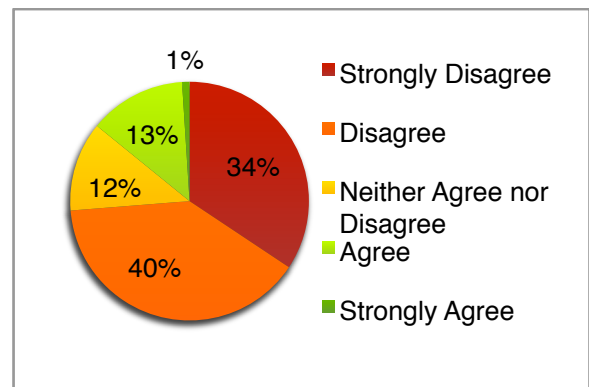


Outlier Q3: Results and Discussion

This statement becomes more specific, focusing on IAATO and private yachts and non-commercial operators. Here, 24% strongly agreed, 45% agreed, or 69% actively concurred, and 22% neither agreed nor disagreed that IAATO should create measures to address these outlier tourism areas. A remaining 9% of respondents selected a disagree

response. These results suggest that there is a perception of a need for policy in the area of private and non-commercial operators, and that IAATO, specifically, should take action with regard to these currently under-regulated areas. The complexity outlined in the Outlier Q2 discussion applies here again, with the challenges faced by IAATO's ability to regulate. The legal mechanism to do what this OQ3 proposes does not exist at this time. Again, these are emerging tourism models and research is limited. According to what was discovered within the literature review, there is convergence between that knowledge source and the survey results.

Outlier Q4: There has been growth in land based tourism, including adventure style tourism like marathons, mountain climbing, and other activities requiring substantial equipment, support, and time spent on the continent. For the purposes of this study, land based adventure tourism is that where tourists are on land for 36 hours or more. This type of tourism and related infrastructure poses no threat to Antarctic wildlife and/or environment.

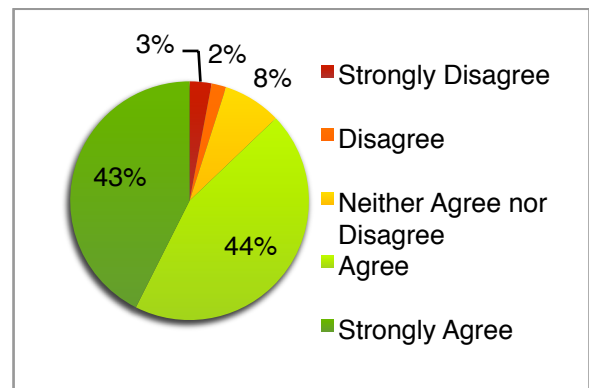


Outlier Q4: Results and Discussion

Q4 looked at whether growth in land-based tourism, specifically, presented a threat to environment and wildlife. Presented as a false negative, 34% strongly disagreed and 40% disagreed, or 74% actively concurred, that land-based tourism does *not* present a threat to environment and wildlife, and thus the majority of respondents perceive land-based tourism is indeed a threat to wildlife and environment. 12% selected neither agree nor disagree, 13% agreed that there is no threat, and 1% strongly agreed that there is no

threat. These results suggest that this emergent area of outlier tourism threatens conservation interests. On this item, is it difficult to assess convergence or divergence. Environmental impacts from traditional expedition style tourism are understudied, and impacts from outlier tourism are even more so. This was evident through the lacking data found in the literature review and clarified far more within unstructured expert interviews. Survey results here exist largely independent of existing literature

Outlier Q5: Related to the description above, in your opinion, policies should be designed and implemented for land-based adventure tourism in Antarctica.



Outlier Q5: Results and Discussion

OQ5 takes OQ4 a step further, questioning if policies should be implemented for this emergent style of outlier tourism. Results show strong agreement for policies addressing land based tourism, where 43% of respondents strongly agreed, 44% agreed, or 87% actively concurred, 8% neither agreed nor disagreed, and a remaining 5% disagreed. This particular set of results shows the highest levels of agreement within the section and within the entire survey. These results, in isolation and in sum with the rest of the section, suggest that this is an area that might be considered priority for

policymaking and attention by the ATS and/or IAATO. Convergence is found between literature review and survey results on this matter.

5.3.4.2 Outlier Tourism: Concluding Remarks

Results from this section show a dominant trend of agreement among respondents that outlier tourism is both problematic with regard to conservation and in need of attention in policy-making. There is a strong indication that outlier tourism presents an area where policy is inadequate and the majority of respondents agree that IAATO should take action to rectify the weakness. This is an area of tourism that is doubly problematic for two main reasons. First, there is inadequate policy, under the current regime, to manage these emerging areas of tourism. Second, due to outlier tourism existing and operating outside IAATO, and that the very strong majority of information known about tourism is based on IAATO reports, there is inherently limited information about the true current state of affairs. Unlike the typical sea-based, or expedition style tourism to Antarctica, operated by IAATO members and thus requiring reporting, outlier tourism operations do not necessarily self-report and exist largely beyond the radar of IAATO and the ATS. Outlier tourism, including land-based tourism, adventure tourism, and private operations, is considered, among most respondents, to be both a potential threat to environment and wildlife and in need of attention by policy and regulation makers.

Outlier tourism is an emerging tourism model. A knowledge gap exists with regard to environmental impacts from Antarctic tourism, historically and currently. a greater knowledge gap also exists with regard to outlier tourism for the reasons described

above. there is little information available regarding outlier tourism and environmental impacts from those activities. As a result, it is more challenging to clearly identify convergence or divergence on some of these survey items, between literature review and survey responses. Where literature exists to support the ideas, convergence is found. Where literature is not available, survey results stand-alone.

It is important to note that there may be discrepancies among respondent interpretation on the term, outlier tourism. It encompasses types of tourism that fall outside the model that existing policy addresses, and it may also be interpreted to include tourism conducted by entities that are not members of IAATO. In this case, despite support for IAATO creating guidelines to address outlier tourism, there is an inherent limitation in its ability to enforce those guidelines on non-members. This is a broad policy weakness and an area where the ATCPs may need to have a stronger presence. Under the current architecture, there is no mechanism for IAATO to have any influence or power with regard to non-members.

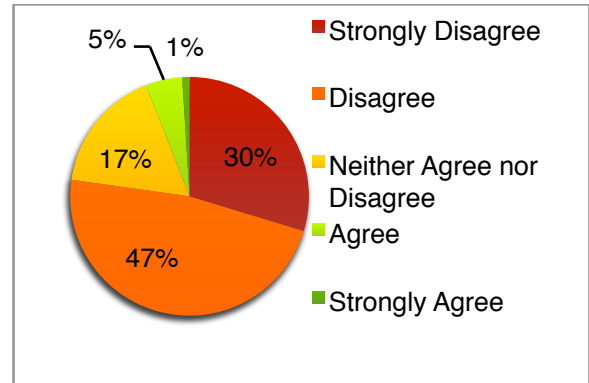
5.3.5 Section 5: Action

A series of statements were presented to assess respondents' opinions regarding possible action to work on areas of policy shortcomings. These policy ideas came from a combination of literature review and researcher creativity. Identifying the problems in the previous section is an important baseline to establish, but applicable solutions must accompany those problems in order to be truly productive. This section will be broken out into two subsections, first presenting three (3) general statements about working on

action items, and second, presenting eight (8) statements about specific action items to address shortcomings.

5.3.5.1 Action – General: Questions, Figures, and Discussion

General Action Q1:
The ATCPs and/or IAATO should not take action now regarding the potential of increasing numbers of private tour operators operating outside of the self-regulated IAATO.



General Action Q1: Results and Discussion

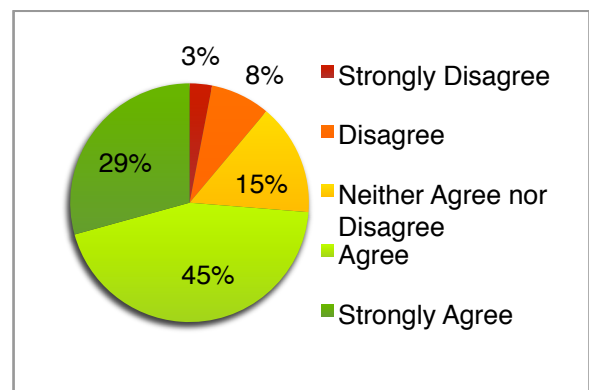
The initial question in this series presents a fundamental issue; private operations taking place outside the scope of IAATO. This question is framed as a false negative, and there is strong support among respondents that action should be taken by IAATO and/or the ATCPs on this issue. 30% strongly disagreed and 47% disagreed that action should *not* be taken, or 77% actively concurred. 17% neither agreed nor disagreed with the idea, and a remaining 6% agreed that action should not be taken. These results suggest that this is an area of policy inadequacy and that efforts should be made to rectify that weakness.

This question is complex in that it includes both ATCPs and IAATO in the same statement, leaving a complexity regarding how respondents may have chosen to interpret. Literature review revealed that private operations pose a problem because they exist outside both existing regulatory mechanisms. 77% concurrent agreement among

respondents indicates convergence with the perception of that overall problem, between literature and survey results. Literature findings showed support for IAATO and ATCP action, and survey results appear to reflect the same. The take away result here is that action is needed on this area of private operations. Specification regarding IAATO versus ATCP action is a point of complexity for this particular question, and within Antarctic policy making in general. The subsequent questions in this section should provide clarity on this complexity of Q1.

General Action Q2:

The ATCPs should adopt regulatory measures to prevent or control further expansion/growth of tourism activities, in regards to numbers of visitors and/or diversity in activities (i.e., land based, adventure, etc.) in Antarctica.

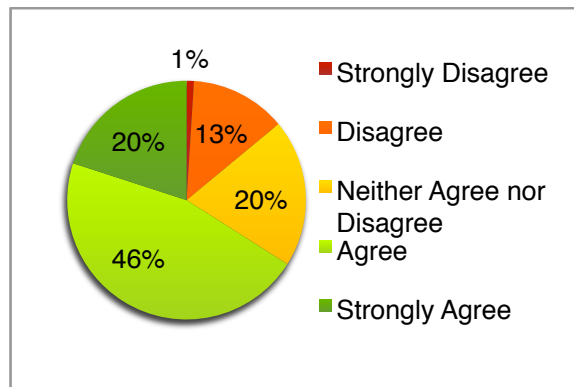


General Action Q2: Results and Discussion

This statement brings the ATCPs specifically into the picture for accountability or responsibility for creating measures for prevention or control of tourism growth. While IAATO has historically been charged with tourism management matters, it may be appropriate for the ATCPs to have a stronger role. According to literature review findings, ATCP inclusion is needed to increase legitimacy and legal standing of tourism regulation. In regard to regulating tourism growth, the strong majority of respondents agree that the ATCPs should take action by adopting measures, showing convergence with the literature. 29% strongly agreed, 45% agreed, or 74% actively concurred, and

15% neither agreed nor disagreed that this action should be taken. A remaining 11% selected a disagree response. This indicates that most respondents believe that responsibility resides, or needs to now, with the ATCPs.

General Action Q3: IAATO should adopt regulatory measures to prevent or control further expansion/growth of tourism activities, in regard to numbers of visitors and/or diversification of activities on Antarctica.



General Action Q3: Results and Discussion

This final statement in the general action section brings IAATO into focus for accountability or responsibility for adopting measures regarding prevention and control of tourism growth. The pattern of responses is similar to GQ2. Here, 20% strongly agree, 46% agree, so 66% actively concur, and 20% neither agree nor disagree that IAATO should adopt measures related to tourism growth. A remaining 14% selected a disagree response. This indicates a strong sense of duty for IAATO, though results for IAATO action reflect less strong agreement and higher disagreement as well and neither agree nor disagree, compared to the idea of ATCP action on the same issue. This may reflect a perception, among respondents, that the ATCPs need to have a presence, alongside IAATO, on these tourism matters. Results show that there is a sense of responsibility for IAATO, but it is possible to speculate also that there is a sense that if IAATO did not take action on this, someone else might have to (ATCPs or otherwise). Results here reflect a

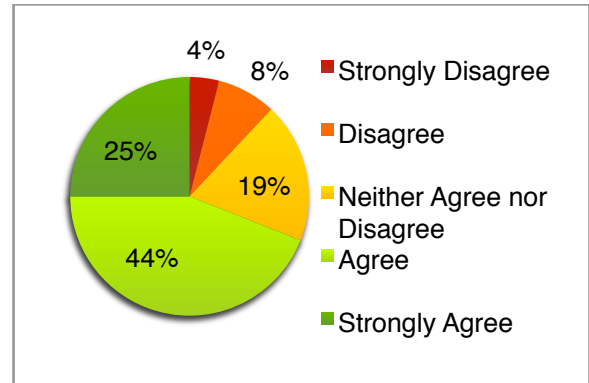
similar sentiment as those in Q2; that the ATCPs need to take on more responsibility, as found within literature review – similarly converging.

5.3.5.2 Action – General: Concluding Remarks

Responses to these initial statements about action reflect strong agreement that action should be taken, by ATCPs and/or IAATO, regarding growing tourism in general, and that occurring outside the scope of current regulation in particular. Survey responses show convergence with literature review findings. GQ1 and GQ2 both had agree response totals, in sum, near 75% of total respondents. GQ3 was slightly less at a sum of 66% of respondents in agreement. Higher agreement was found regarding ATCP action, compared to IAATO action, on adopting measures to control growth of tourism and activities. This is an important finding and indicates a perception that the Consultative Parties should have a greater role in tourism matters, particularly with regard to growth. This is an interesting result as historically, almost all tourism matters have been managed by IAATO, with minimal attention from the ATCPs. Results from literature review and the survey converge and indicate that perhaps it is time for the ATCPs to increase involvement in such matters, creating binding, legal measures, along side IAATO non-binding industry standards. It should be noted that creating too many barriers or bureaucratic red tape for regulation could be detrimental, but a strong union and partnership between IAATO and the ATCPs on these emergent issues could prove more productive than either group acting independently.

5.3.5.3 Action – Specific: Questions, Figures, and Discussion

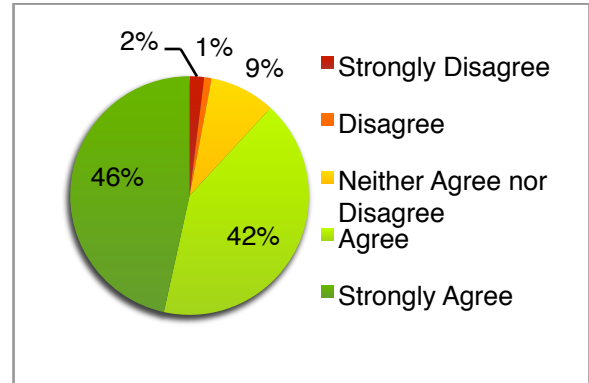
Specific Action Q1: There should be an obligatory or voluntary **payment**, from individual tourists or tourism operators, to support environmental conservation and management in Antarctica.



Specific Action Q1: Results and Discussion

The first specific action presented to respondents is that of some form of payment through tourism to support conservation and management. An issue discovered in literature review is that of challenges in enforcement with regulations, including funding to this end. Also discovered in the literature review was that in other locations around the globe, tourism contributes to conservation measures on a fiscal level. This question brings this idea of funding approach into the Antarctic context, where it does not currently exist. 25% of respondents strongly agreed, 44% agreed, or 69% actively concurred, and 19% neither agreed nor disagreed with this action item. 8% disagreed and 4% strongly disagreed with a form of payment. There is majority agreement among respondents but there is more divergence here than with other action items below. Interesting here is the small disagreement rate and albeit a higher (but still not very high) undecided vote. Perhaps the old cliché about nobody voting for higher taxes does not apply here (Hemmings, 2015).

Specific Action Q2: **Education** about Antarctic environment, wildlife, and appropriate human behavior should be made a required component for all travel, including private, independent charter, land-based, adventure, etc.

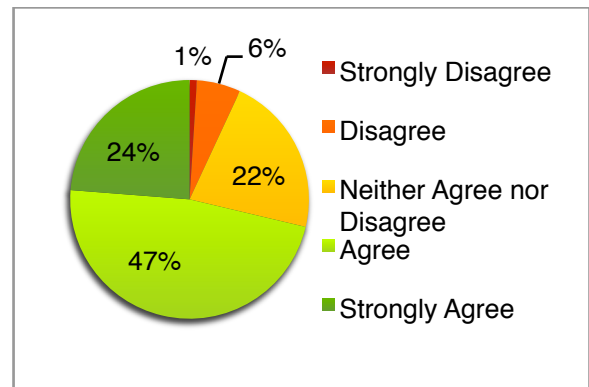


Specific Action Q2: Results and Discussion

This statement asks about education as a required component for travel; something generally found in ecotourism but not necessarily in traditional or other forms of tourism, including Antarctic outlier tourism. This item represents one of the strongest levels of agreement among respondents within the section, where 46% strongly agreed, 42% agreed, or 88% actively concurred, 9% neither agreed nor disagreed, and remaining 3% disagreed. This might be considered a priority item for action, or a realistic measure to implement, based on this sample population's perception of the idea.

Support for the idea is clear within survey results, but convergence or divergence from the literature review is less clear, simply because there is not a substantial body of work regarding this concept in this specific context. Literature review did produce support for education within tourism to produce positive conservation benefits, however. So, this could be applied to the Antarctic context and thus be interpreted as a form of convergence between literature and survey findings.

Specific Action Q3: There is no **environmental oversight** in Antarctica or Antarctic waters during tourism season to enforce environmental or other measures. Some suggest that these factors complicate both managing and regulating activities in Antarctica. A monitoring or oversight strategy should be initiated for tourism operations, to safeguard Antarctic environment and biodiversity, and ensure compliance with ATS/IAATO/Madrid Protocol/etc.

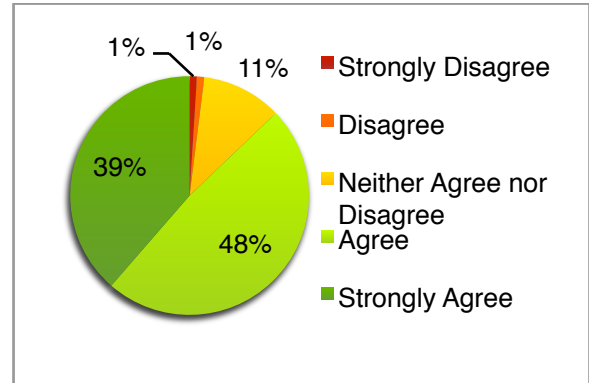


Specific Action Q3: Results and Discussion

This action item, engaging some sort of monitoring or oversight for tourism operations, resulted strong respondent support. 24% strongly agreed, 47% agreed, or 71% actively concurred, 22% neither agreed nor disagreed, and a remaining 7% selected a disagree response. There is a slightly higher rate of neither agree nor disagree here, as compared to most other items. This may be a result of the complicated nature of such a policy action or questions over what organization might lead the effort. The larger trend, however, is towards implementing some oversight where it does not currently exist.

Environmental oversight had considerable support within the literature review, and strong agreement among respondents, presenting clear convergence between the two sources of knowledge.

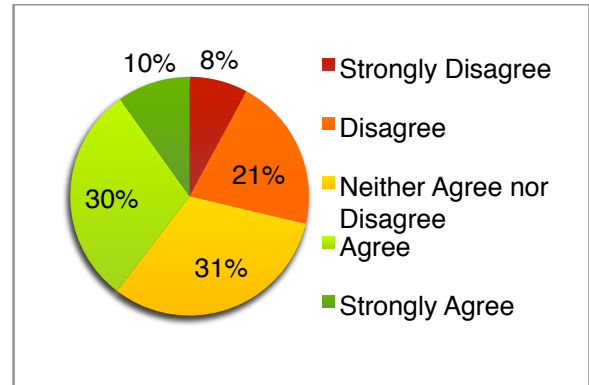
Specific Action Q4: Conservation of Antarctic biodiversity should be approached as a whole, not in fragmented parts, as some experts argue that it is now. The ATCPs should work, with IAATO and other groups, to create a **systematic network** to protect Antarctica and its biodiversity.



Specific Action Q4: Discussion

Literature review revealed that many experts perceive environmental and conservation-related policy as it exists as fragmented, having been created largely reactively and ad-hoc (Jabour, 2014, Lamers, 2009; Tin, Bastmeijer, O'Reilly, & Maher, 2011). One suggested approach to resolve this is to create a systematic network of protection. This idea received strong support among respondents, indicating convergence between literature review and survey findings, where 39% strongly agreed, 48% agreed, 11% neither agreed nor disagreed, and a remaining 2% selected a disagree response. This suggests, in the perception of this sample population, that a systematic network is a desirable idea for implementation and a potential solution to an existing policy weakness. It is important to note that this is not a policy gap, but a policy weakness. Annex V of the Madrid Protocol calls for parties to “seek to identify, within a systemic environmental-geographical framework, and to include in the series of Antarctic Specially Protected Areas.” That said, a regulatory framework does exist, but the perception is that execution of this call has not been satisfactory and/or complete to meet the needs of the problem.

Specific Action Q5: A noted challenge in Antarctic governance is the inability to create or enforce universal Antarctic-specific law (implementation is managed within each State). One scholar has suggested that an option to manage growth and risk could be to introduce **sponsoring states** for tourism operators. Importantly, that sponsoring state could be held strictly liable for the actions of the tourism operator. In your opinion, this is a worthwhile and viable policy initiative.



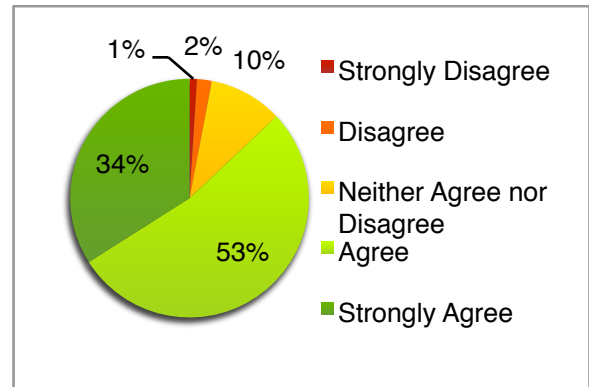
Specific Action Q5: Results and Discussion

This action item received among the highest levels of divergence among respondents within the section. The concept of a sponsoring state, placing the state in responsibility for tourism operator actions and creating a genuine and substantial link between states and operators, did not receive the strong agreement across respondents. Here, 10% strongly agreed, 30% agreed, or 40% actively concurred, and 31% neither agreed nor disagreed. 8% strongly disagreed and 21% disagreed with the idea of sponsoring states. This wider divergence in responses suggests that this idea is not well received across all stakeholder groups. It would place significant responsibility on states where currently that is not the case. It would be a significant change in dynamics and according to these results, not a popular idea across the board. Or, the divergence may be a result of the complexity of the question and were unsure how to answer.

Convergence or divergence is not clear in this case, because the idea of sponsoring states came up only one time within the literature review. It was a creative

idea presented in one paper by one scholar, which was presented to the survey respondents. Perhaps the lack of support or attention within literature can be interpreted as a form of convergence with the lacking support among survey responses.

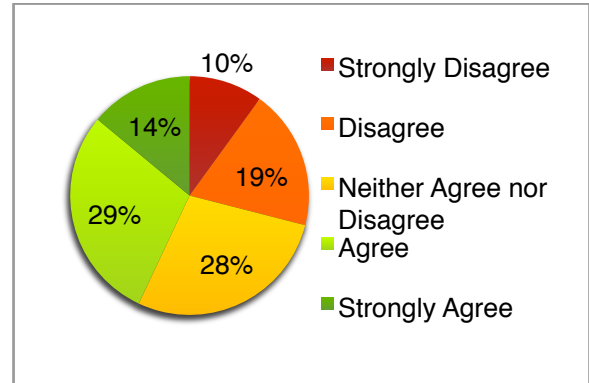
Specific Action Q6: Some argue that there is a need for **better data collection** and reporting on tourism in general, and in particular, land-based, adventure style tourism and non-commercial operations. Action should be taken to require and acquire better data collection and reporting in these areas.



Specific Action Q6: Results and Discussion

The need for better data collection and reporting is evident with regard to the inherent limitation of knowledge about tourism numbers and trends in that, the only data available are that from IAATO. Anything occurring outside IAATO boundaries remains unknown, unreported, and unaccounted for. This problem was evident within the literature review, as well as being evident simply by virtue of the current system structure. Respondents show strong support for action to require better data collection and reporting, where 34% strongly agreed, 53% agreed, or 85% actively concurred, and 10% neither agreed nor disagreed. A remaining 3% selected a disagree response. This item reflects one of the highest levels of agreement among respondents in this section, and convergence with literature review findings. Additionally, perhaps the reason that this item and education both received such high agreement is that neither is in any way threatening.

Specific Action Q7: Historically, rules and regulations for Antarctic management have been decided by way of **voting** among the ATCPs, with changes enacted only by a consensus vote. Some suggest that perhaps the consensus method should be re-examined, largely due to resultant inaction on key issues. Consideration should be given to alternatives to consensus- driven decision making among the ATCPs.

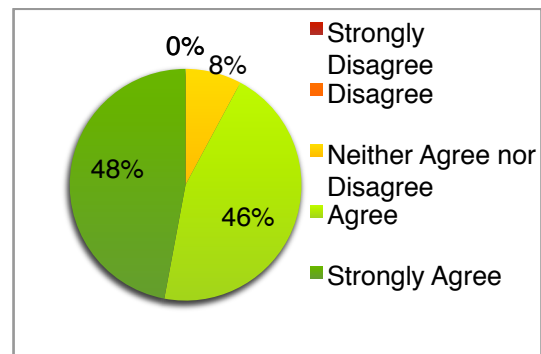


Specific Action Q7: Results and Discussion

This action item had the most divergent responses in the section. All Antarctic matters managed by the ATS and thus ATCM's are decided by consensus. This has proven effective historically, but in more recent years has created roadblocks and inaction. It has been suggested that the necessity of consensus voting should be re-examined for alternative methods of decision making. This concept did not have a strong presence in the literature review, but was noted in at least one publication. Survey responses to this were very mixed, where 14% strongly agreed, 29% agreed, 28% neither agreed nor disagreed, 19% disagreed, and 10% strongly disagreed. Interesting and/or ironically, in order to make this kind of change, it would require a consensus decision. Based on this sample population of respondents and the wide divergence in responses, it seems unlikely that there would a consensus on this item. Similar to the idea of sponsoring states, convergence could be identified with the lacking support within literature review, coupled with low support and/or mixed reviews among survey

respondents. Outside of that viewpoint, neither convergence nor divergence is clear, as the literature review did not provide substantial research or data on the idea.

Specific Action Q8: There is little information on cumulative impacts of tourism on Antarctica. **Targeted research** on cumulative impacts from tourism visitation should be initiated. (Part 2: Who should conduct such research?)



Specific Action Q8: Discussion

This action item shows the greatest cumulative agreement from respondents in the section, indicating very clear support for the idea. There is little research on cumulative impacts from tourism, and this has been noted as an area of knowledge and policy weakness. That said, convergence is doubly found; there is lacking research data available within the literature review, and there is strong support for the research need within literature. These results were also reflected in the survey results. The idea of initiating such research received a sum of 94% total in agreement, 48% of which strongly agreed. 8% selected neither agree nor disagree and no responded selected a disagree response. This may have the most clear potential policy implications, based on the strong support among this sample group of stakeholders, as well as a strong presence within literature. Here again this is an area of policy weakness, not a policy gap. There do exist obligations to address cumulative impacts in Annex I of the Madrid Protocol, so a failure of implementation seems to be the issue, rather than a

need to create policy where it is does not exist. This question was followed up with a free response option, asking respondents to identify who should conduct such research. The results from that follow up question are presented in Table 5.3, below.

Table 5.3: Specific Action Q8 Part 2: Who should conduct such research?

Academia	11
ATCPs	18
CCAMLR	1
Collaboration	35
COMNAP	1
Government	6
IAATO	17
Independent research organization	13
Non-industry	3
Pew	1
SCAR	11
Scientists	9
Tourism Experts	2

Specific Action Q8 Follow-up: Results and Discussion

A total of 87 respondents opted to fill in a response to answer this question. Those responses were tallied based on common terms or organizations. Of all responses, 35 mentioned multiple groups working together. For the purpose of the table 5.3 above, all responses indicating shared efforts or collaboration among 2 or more parties were labeled “collaboration”. Not surprisingly, many respondents identified IAATO and the ATCPs to conduct such research, but a collaborative effort was the most frequently identified, overall. A fairly wide diversity of opinions was presented in this free answer, which could indicate a wide range of opinions about

who should be charged with, or responsible for, this sort of research. It crosses boundaries of academia, industry, and policy, and results could have significant implications. There was very strong support for the action item in general, but less clarity regarding who should lead the charge. This is the sort of challenge permeating policy making throughout Antarctic tourism matters; agreement about a problem and the need for resolution, but diverging opinions and lacking clarity with regard to who or what organization should be responsible.

Further, perhaps part of the issue is that respondents were variously thinking about different parts of the issue - who would be best engaged technically to conduct the work; who might be responsible in a legal sense for conducting the work (perhaps causers of the impact, or the states that have taken on the legal obligations of the Protocol), who might have this work delegated to them by the ATCPs (potentially SCAR, the CEP, IAATO) and so on (Hemmings, 2015).

5.3.5.4 Action – Specific: Concluding Remarks

Overall, some specific action items showed greater support than others among respondents, visualized in sum in Table 5.4, below. The three action items receiving the greatest agreement among respondents were SQ2, SQ4, and SQ6. SQ2, requiring education for all travel to Antarctica, received a total of 88% in agreement with the idea, and 46% of those strongly agree. These results indicate that this is an area with realistic policy implications, if this sample population is a fair representation of the Antarctic community's perspective on the importance of education. This also reflects

the perceived value of ecotourism-style characteristics, of which education is of utmost importance, towards tourism and conservation. This illustrates convergence with literature review finding regarding education, tourism, and conservation outcomes. SQ4, creation of a systematic network for environmental protection, received a sum of 87% of respondents in agreed, 39% of which were in strong agreement. Here again, these results may indicate legitimate policy implications based on strong support across this sampling of stakeholder groups. Strong support was also found within the literature review, with many calls for action on a systematic network. SQ6, regarding the need for better data collection and reporting, also had high agreement among respondents; with a total of 87% in agreement regarding this item. Inadequate reporting and data is a significant policy weakness, evidenced within literature review and evidenced here among this sample of stakeholders – an area of clear convergence between the two knowledge sources.

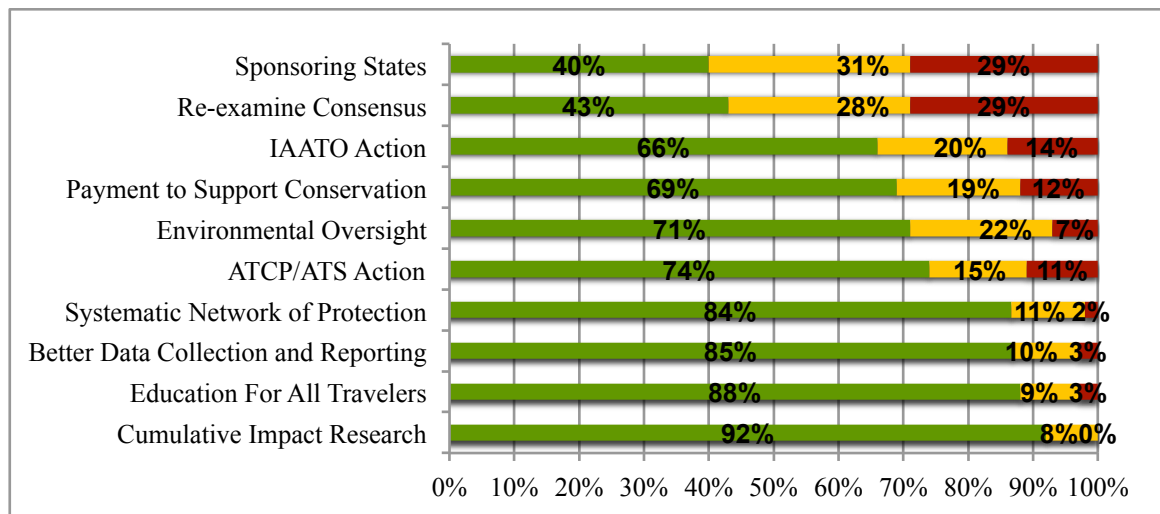
Strong support showed for environmental oversight (SQ3), as well, at 71% total in agreement and 24% of those strongly. Literature review findings also supported the need for environmental oversight. 22% of respondents selected neither agree nor disagree, however. The concept of sponsoring states (Q5) for tourism operators received a mixed response, one of the most mixed responses in the set, indicating a low likelihood of becoming a reality with regard to policy implications. It was not well-represented or supported within literature, either. SQ7, offering the idea of seeking alternatives to consensus voting among ATCPs, received very mixed reviews as well. As the decision to eliminate consensus voting would require a

consensus vote to come into action, it is clear that this is highly unlikely to occur.

Neither of these action items had a significant presence within the literature review, so convergence nor divergence is evident.

Overall, three specific policy action ideas each received nearly 85% or higher agreement among respondents. Coupled with the general action item results, the trend is that there is a perceived need among respondents for ATCPs and/or IAATO to take action. Agreement that a problem exists is of limited value without some solutions to help repair the problem. The strong agreement among these particular action items could be interpreted to indicate areas that are of higher value, more realistic, or potentially implementable, and might be considered for further research or exploration among the Antarctic community. Other characteristics making policy options realistic (or not) are cost, feasibility, and administrative arrangements – important to bear in mind with regard to real –world implications.

Table 5.4: Action – Specific Summary Results



Viewing all action results in sum, in Table 5.4 above, helps to clarify relationships among the different items and results discussed in the preceding pages. This presentation clearly shows the divergence of opinions regarding sponsoring states and consensus re-examination. Also clear in this table is the stronger levels of agreement regarding ATCP/ATS action, in comparison to IAATO action. This is further evidence for the converging convictions among literature review and survey results that there is a need for more involvement from the ATS regulatory, legally binding system for tourism policy. Looking at all action items in sum, convergence between literature review and survey results was found with most presented ideas. Exceptions to this exist only where action items were seen very infrequently (or never) within literature and research, such as with sponsoring states and re-examining the consensus requirement.

5.3.6 Respondent Deconstruction

Some of the data acquired through this survey were evaluated one step further, beyond the results in the preceding pages. It might be expected, in a survey with this design, that most respondents would sort into the middle groups - i.e. there would be fewer who strongly disagreed or strongly agreed with the question than adopted a middle ground. If there were an even distribution, one would expect 20% in each of the 5 option selections. There are other reasons why one would not actually expect this, considering the nature of this work, strong opinions, values, and emotional connections, and others. Nonetheless, a question where the strongly agree or strongly disagree selections went above 20%, thus warrants further evaluation.

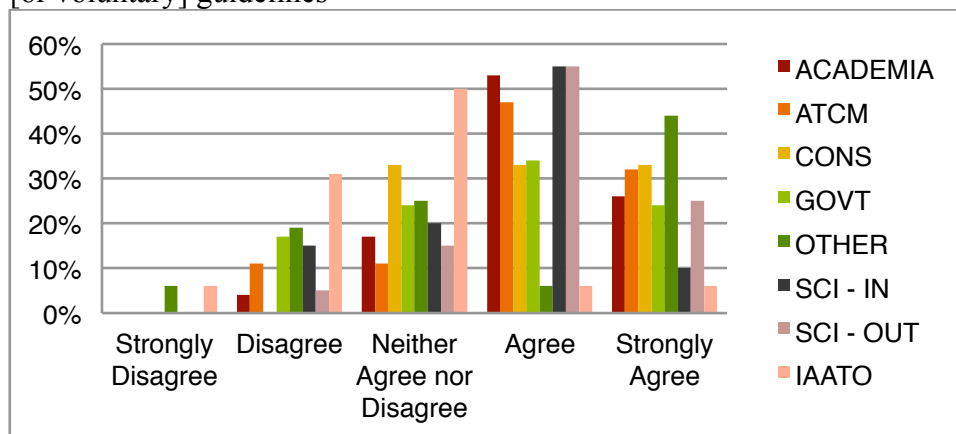
In these cases, respondent deconstruction was conducted to examine the profile of respondents. Results are broken down, or deconstructed, by self-identified stakeholder group, in order to visualize significant differences of opinion among groups, if it exists. It is possible that in some cases, the phrasing of the question had a particular effect (unintended bias and thus limitation). On the other hand, it may reflect the constituencies that the respondents self-identify, and perhaps objectively identify, with (Hemmings, 2015). Questions that fall into the established boundary above are presented below along with the respondent deconstruction results below each one. Discussion of all deconstruction results is presented in Section 5.3.5.2, below. Table 5.4 provides a key to the acronyms and shortened stakeholder terminology used within the figures. A discussion of the results follows.

Table 5.5: Respondent Deconstruction Key

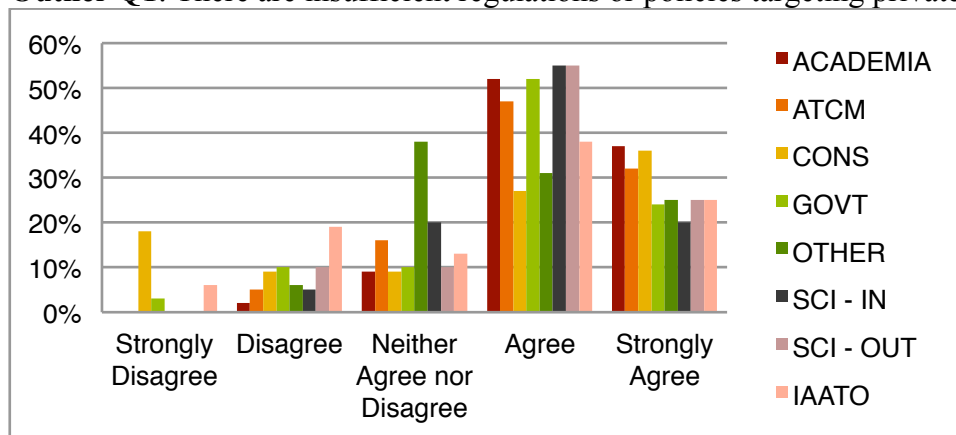
Academia	Academia including researchers, faculty, and others
ATCM	Antarctic Treaty Consultative Meeting attendee
CONS	Conservation Groups
GOVT	Government representatives
OTHER	Those who did not self-identify with options presented
SCI-IN	Science/Research stationed in Antarctica
SCI-OUT	Science/Research stationed outside Antarctica
IAATO	International Association of Antarctic Tour Operators, members or staff

5.3.6.1 Respondent Deconstruction Figures

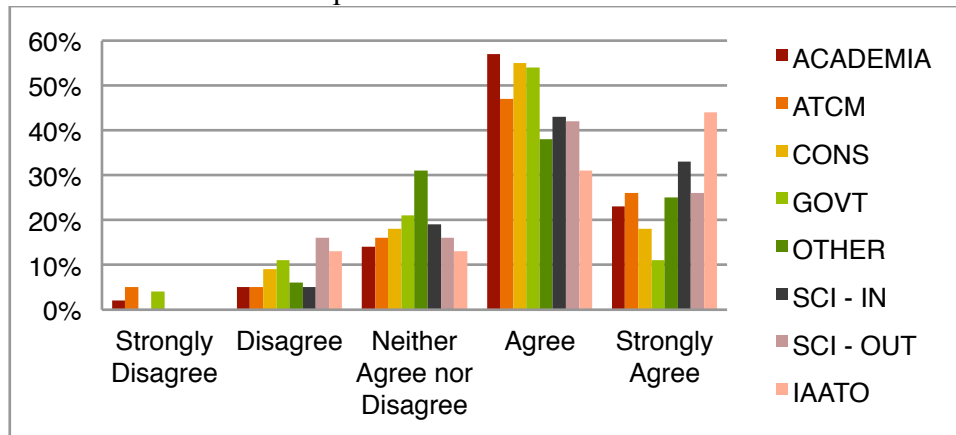
Perceptions Q3: Growth is outpacing both legally binding obligations and hortatory [or voluntary] guidelines



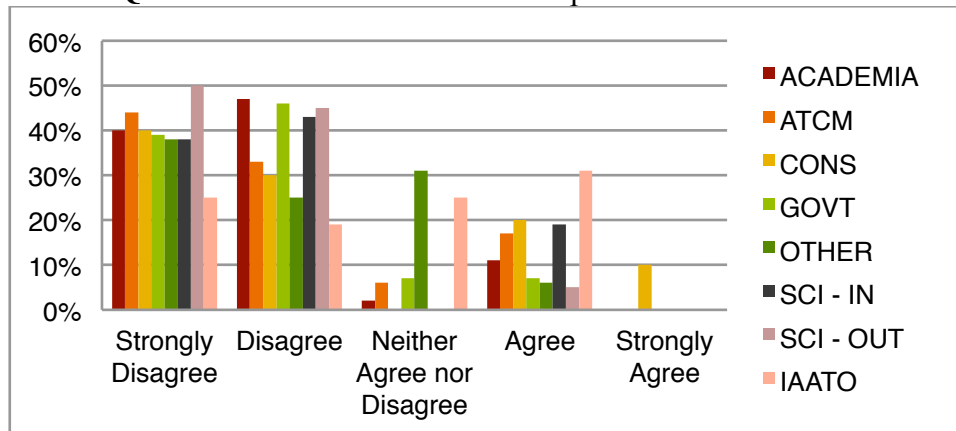
Outlier Q1: There are insufficient regulations or policies targeting private operators.



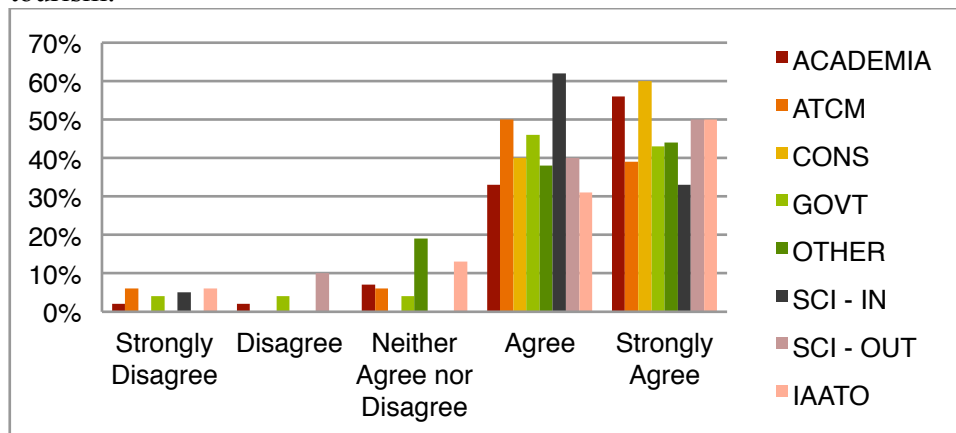
Outlier Q3: IAATO should create measures or guidelines to address private yacht and/or non-commercial operators.



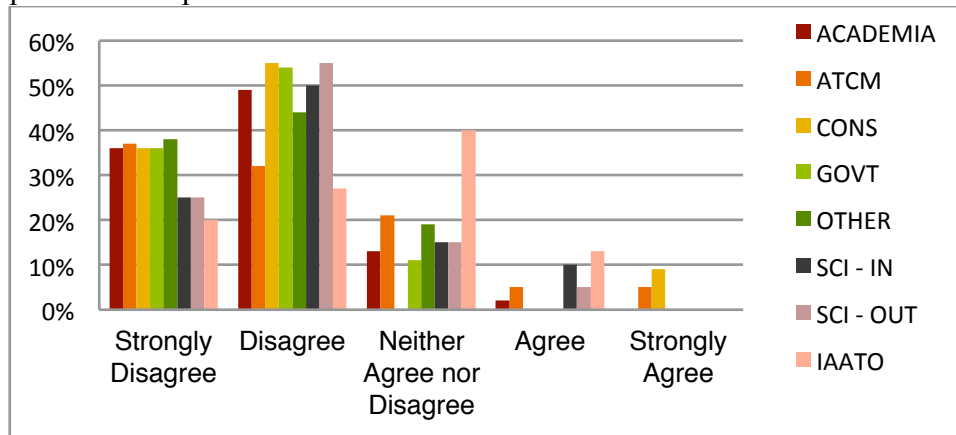
Outlier Q4: Land based/adventure tourism poses no threat to Antarctic environment.



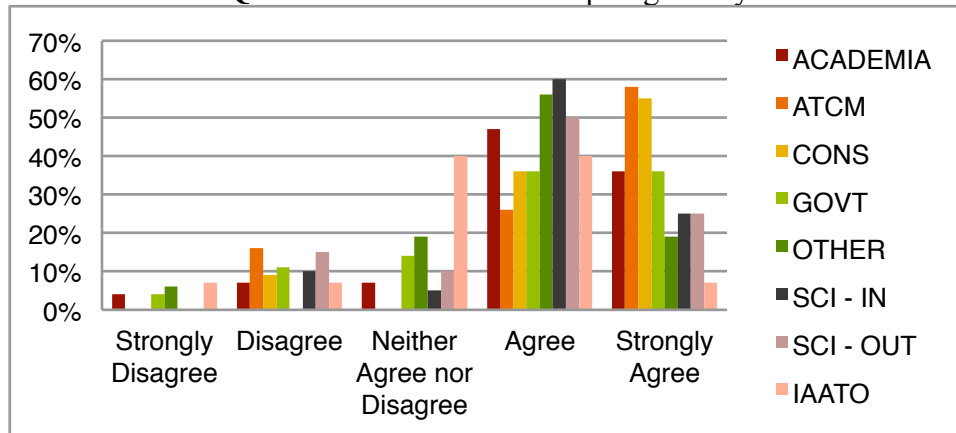
Outlier Q5: Policies should be designed and implemented for land-based adventure tourism.



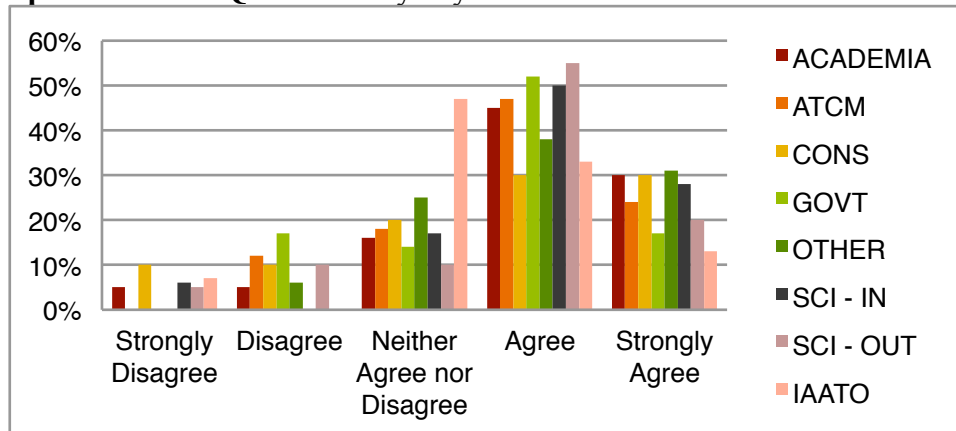
General Action Q1: The ATCPs and/or IAATO should not take action now regarding private tour operators.



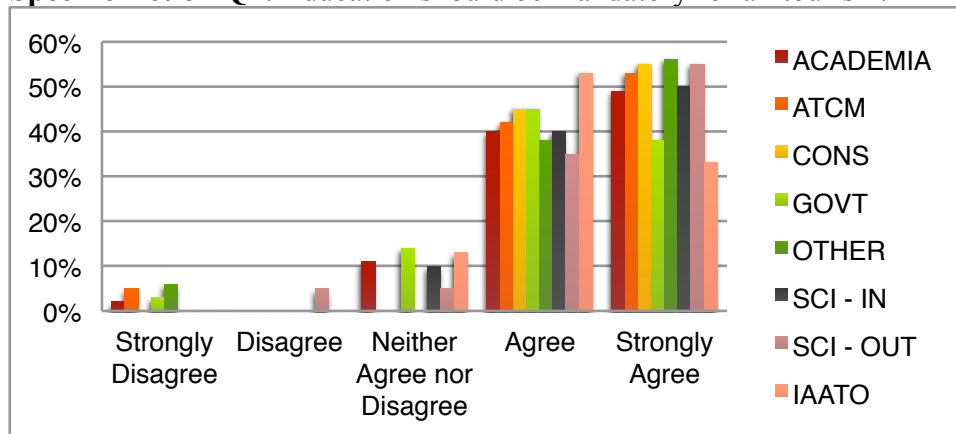
General Action Q2: The ATCPs should adopt regulatory measures.



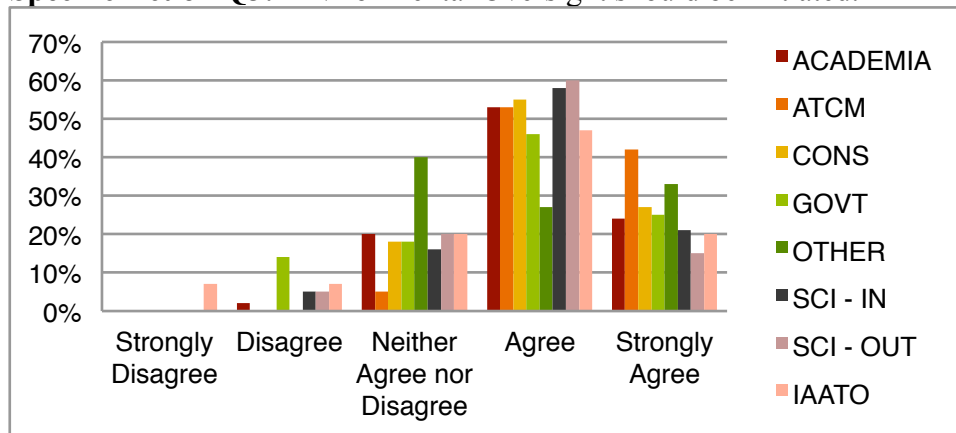
Specific Action Q1: Voluntary Payment should be established.



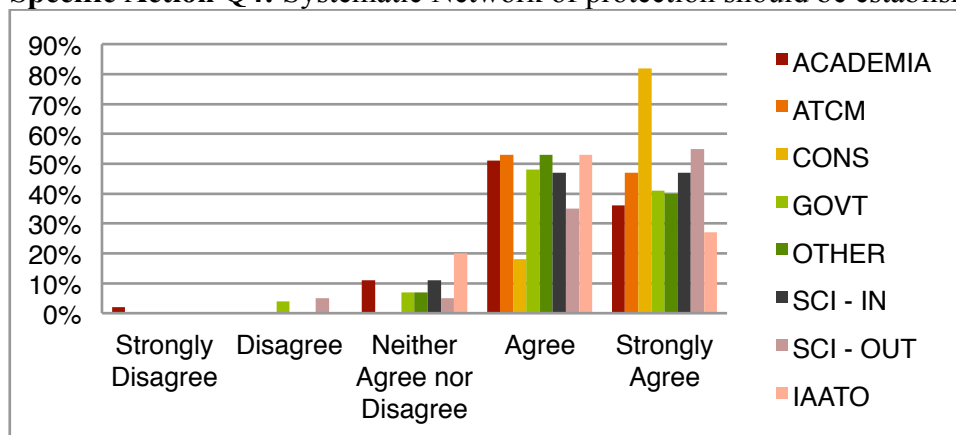
Specific Action Q2: Education should be mandatory for all tourism.



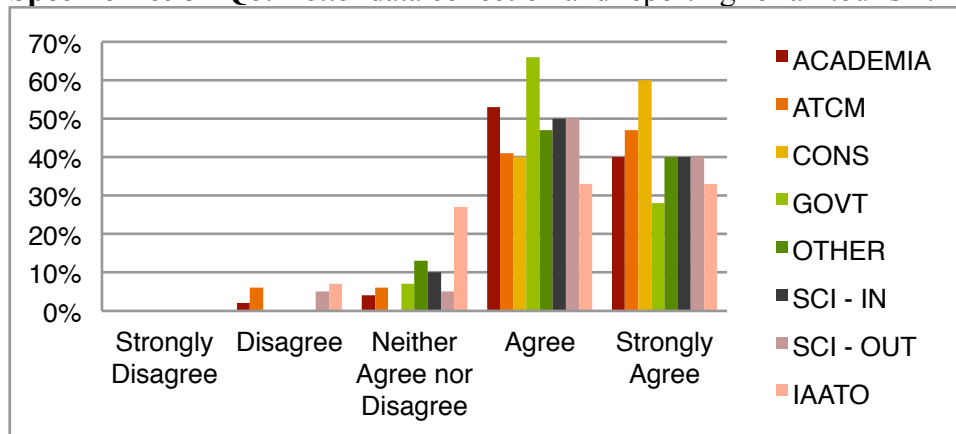
Specific Action Q3: Environmental Oversight should be initiated.



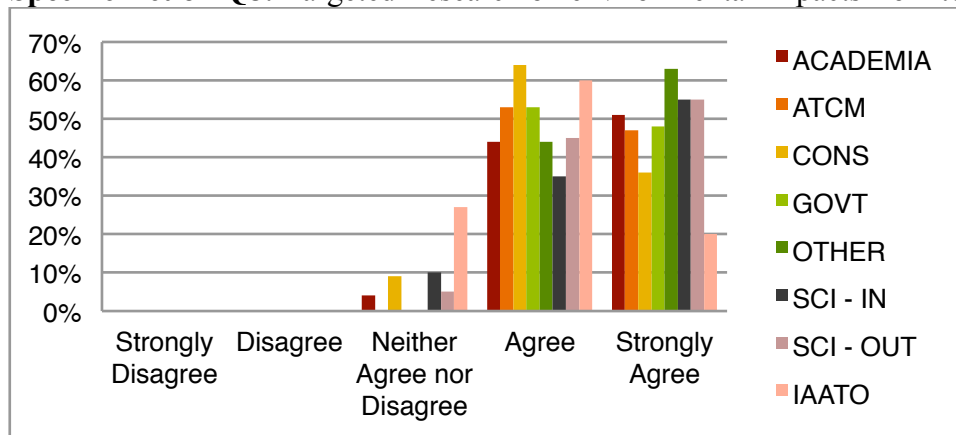
Specific Action Q4: Systematic Network of protection should be established.



Specific Action Q6: Better data collection and reporting for all tourism.



Specific Action Q8: Targeted Research on environmental impacts from tourism.



5.3.6.2 Respondent Deconstruction: Discussion

Many of these deconstruction results reflect clear visual trends where all stakeholder groups share common response rates, and thus each individual breakdown was not coupled with a unique discussion. However, some of these breakdowns show stakeholder group response that stands out as different from the others and are discussed below.

From the perceptions section, in PQ3, regarding tourism growth outpacing current regulation, it can be seen that the IAATO-identified respondents show a larger

portion that selected disagree than any other stakeholder group, and the largest portion of the neither agree nor disagree. The conservation group is also somewhat higher than the others. This indicates that some of the industry population sample does not share the opinion that tourism growth is outpacing existing guidelines, while most other groups indicated that it is. This is not an entirely surprising result, as this sample represents the industry, currently operating under existing guidelines. It appears that among industry respondents, some feel that the existing standards and regulations are sufficient, even in the face of industry growth and expansion.

In the outlier tourism section, OQ4, regarding whether land and adventure based tourism poses a threat to environment and wildlife, shows a similar trend; with the IAATO-identified respondents showing greater agreement that land based tourism does not pose a threat to environment and wildlife. The majority of stakeholder groups agree that there is a threat, but the industry sample carries the largest divergence from the trend.

In the general action section, GQ1, regarding ATCPs and/or IAATO taking action on private operators, again shows the IAATO-identified group carrying the largest divergence on the issue. Here, however, the stakeholder group is evident in the neither agree nor disagree category. GQ2, focused on ATCPs adopting measures to control growth, has a similar result. All other stakeholder groups largely agreed with this idea, while IAATO-identified respondents show a noticeable divergence, again selected neither agree nor disagree.

In the specific action section, SQ1, regarding a form of payment from industry towards conservation, again shows IAATO with a noticeable representation of neither agree nor disagree, a divergence from the other groups. Nearly all groups had some respondents select that choice, and there was more variation in responses overall, but IAATO has by far the largest percentage compared to the rest. SAQ3, regarding establishing a form of environmental oversight, showed some variation with a large percentage of the Other-identified stakeholder group selecting neither agree nor disagree, and the majority falling to agree, as opposed to strongly agree. SAQ4, proposing a systematic network of protection, has support by all groups, but clearly strongest support among the conservation group, which is not a surprising finding.

Finally, the respondent deconstruction illustrates visually the powerful agreement among respondents on the aforementioned three specific action items; SQ2 –education, SQ4 - systematic network of protection, and SQ6 – better data collection and reporting. These figures show clear agreement among all stakeholder groups on these issues, with nearly all color bars filling in the agreement side of the figure. This presents another format of presenting the results on those items.

5.4 Linking Findings with Research Questions

This study provides a glimpse into the perspectives and opinions about current environmental policy, areas of weakness or gaps, and potential ideas for future policy to rectify those, from a sample of individuals closest to the area(s) of study. A wide net was cast to gather a sample population of individuals from various stakeholder

groups, and countries. Antarctica is a global commons governed by international consortium, so a range of stakeholder groups – some with direct involvement in policy matters (ACTPs), some with feet on the ice, and others - on these issues is most beneficial. Future surveys or other research are needed to determine the universality of these findings in sum or those of particular stakeholder groups. While recognizing the limitations of this study, there are findings and insights produced here that are unique and bring a distinctive contribution to the field.

5.4.1 Main Research Questions

1. Is tourism growth outpacing current policy and regulation in relation to the Antarctic environment?
2. Can (eco)tourism be a tool for conservation, particularly with regard to growing interest in access to Antarctic resources?
3. Where are the critical policy gaps and weaknesses, under the governance system provided by the Antarctic Treaty System, and the International Association of Tourism Operators, requiring attention, and how might these most effectively be resolved?

5.4.2 Discussion

Preliminarily, the survey sought to determine if tourism growth is outpacing the current policy and regulation regime with regard to conservation, as evidenced within literature review. The dominant trend was agreement or strong agreement that growth is outpacing policy, and there are areas of policy or regulatory shortcomings. The majority of respondents answered that they agreed with the relevant statements, showing that among this sample population, the perception is that there are indeed areas where policy work is needed. Stronger agreement was found when asked about

gaps, as opposed to weaknesses. The shared perspective from the majority of this respondent population is that growth in tourism is outpacing existing standards and regulations, though by reviewing respondent deconstruction, a deviation emerges from this perspective among the IAATO-identified population. This indicates that, in the eyes of the majority of respondents to this survey, there are areas in need of more attention and work with regard to environmental policy as it currently exists. Synthesizing findings from all three knowledge sources presents clear convergence among results.

The responses to questions related to main research question 2 also show a dominant trend of agreement or strong agreement. Among the sample population of respondents, there was majority agreement that tourism, short and long term, can be a tool for environmental conservation, contributing positively to protection of environment and wildlife. Tourism as it exists now appears to be perceived as something that is, or can be, a contributor towards this important purpose. There was not unanimous agreement about this, and certainly not all tourism is 100% benign. Ecotourism helps bridge this gap, in that its characteristics lend themselves towards conservation efforts. Most reported travel to the Antarctic arguably falls under the umbrella of ecotourism. With continued efforts as they exist today, and more work towards comprehensive policies, these results indicate that (eco)tourism to Antarctica can be part of conservation efforts, working hand in hand with those goals today and into the future. Further, there was strong agreement trend among respondents that the tourism industry can be sustained and successful while coexisting with policies that

are designed with conservation as a priority. Here again, convergence is found between literature review and survey findings.

The 3rd main research question is the most complex to evaluate. Determining what area(s) is/are most critical to attend to is challenging, as respondents were given a series of unique statements ideas, but not asked to prioritize problems or solutions. However, one method to prioritize problems and their solutions is by way of utilizing the response rate. Meaning, those propositions with the strongest results - agree or strongly agree responses- could be considered most potentially viable in the eyes of this sample population, and thus priority areas to evaluate in further studies, and with regard to policy implications.

Based on the perceptions of respondents, the area most critical to attend to is, creating regulation for outlier tourism. Results indicate that these are areas of policy weakness and that IAATO and/or the ATCPs should design and adopt measures. Most respondents view land-based adventure tourism as posing a (potential) threat to conservation, and there is nearly 90% agreement that policies should be designed and implemented for this and private/non-commercial operations. This indicates an area suited for further research, certainly, and perhaps considered a priority or critical area for attention among ATCPs, IAATO, and other relevant parties.

As for specific action items, results show greatest agreement with initiating targeted research on cumulative impacts from tourism (SAQ8), followed closely by requiring an education component (SAQ2) for all Antarctic travel. Creation of a systematic network of protection (SAQ4) and the need for better data collection and

report for all tourism, and particularly outlier tourism (SAQ6), also top the list of priority action items, based on highest agreement criteria, outlined above.

5.5 Conclusion

Antarctica is a unique place geographically, environmentally, and politically. There is a solid foundation of policy and guidelines for human behavior, including tourism, between the ATS, IAATO, and some additional mechanisms. However, the growth of tourism in both numbers and diversity of activities raises questions about the adequacy of environmental policy as related to tourism. Tourism, and ecotourism in particular, have the potential to be powerful contributors towards conservation efforts. Antarctica has been designated as a place for peace and science, for the common good of mankind, since the adoption of the Antarctic Treaty in 1959. With no permanent human population, Antarctica is one of the last true wildernesses on Earth, a place still largely valued for its beauty and unique wildlife and ecosystems. Growing interest in the region, for tourism and other purposes, may pose threats to conservation and condition of this special place.

There are areas of policy weakness and gaps within the current management regime. The purpose of this research was to identify these areas of policy shortcomings and develop potential, applicable solutions. A sustainable tourism industry can coexist alongside policies that keep conservation as a priority, and protection and wildlife and environment must remain an international priority as interest and human presence on the continent continue to grow.

These results of this study give a glimpse of stakeholder perspectives on these issues of policy weakness and gaps, and some potential policy actions. While this study represents only a sample population, it is a sample population of the community that makes, enforces, and works under the Antarctic policy and regulations. This work serves as a sample and a starting point from which to explore future policy needs and implications, to conserve Antarctic environment and wildlife, for all.

Questions from this survey that received strongest agreement among the stakeholder groups are best served with further, more comprehensive research in order to identify universality among viewpoints. That being said, according to research results, outlier tourism is an area of serious policy weakness and in need of attention from IAATO and the ATCPs. These areas are unregulated, unreported, and exist outside the scope of the governing bodies. Impacts are unknown due to lacking data and reporting. These are also areas with growing global interest. Coupled with this is a need for better reporting and data collection on tourism in general and outlier tourism in particular. Education should be a required component of all travel to Antarctica, whether labeled ecotourism or not. A systematic network of protection is needed, as current protection measures are fragmented and becoming (if not already) inadequate. In particular, while the Environmental Protocol, stipulating Antarctic environmental protection appears insufficient for effective conservation today.

There are challenges to progress in policy making. There are many more parties to the Antarctic Treaty today than in the past. This creates greater geopolitical complexity. As decisions are all made by consensus, this also creates a more

challenging scenario in which to achieve consensus on matters. IAATO has done great work over the lifetime of Antarctic tourism thus far, but is under major pressure to keep up with growing numbers and dynamics. It seems that now is the time for the ATCPs to work alongside IAATO, to create binding measures and agreements towards repairing the policy inadequacies that have emerged in recent time. The culture of Antarctic conservation and policy has historically been a proactive, keeping in mind the actions taken in 1959 and 1991. This culture needs to carry on today, for the sake of Antarctica, its wildlife, and its continued existence for the benefit of mankind.

Chapter 6

SUMMARY AND CONCLUSIONS - TOWARDS MORE EFFECTIVE TOURISM GOVERNANCE

6.1 The Problem of Antarctic Tourism Regulation

As evidenced in the preceding chapters, the growing and expanding Antarctic tourism industry is outpacing the policies and regulations to manage it. This creates questions and concerns about environmental conservation, human safety, and continuing to preserve Antarctica for science and peaceful purposes only, in the interests of all mankind, as stated in the 1959 Antarctic Treaty. There are challenges to the current structure and comprehensiveness of environmental policy as related to Antarctica, environmental conservation, and tourism. The growth in tourism, in both tourist numbers and diversifying activities, is outgrowing the current environmental policy regime to regulate the industry and support conservation. The problem is that the environmental policies in place today are becoming inadequate to manage the growing tourism interest and diversifying human presence in the Antarctic, while preserving the environment and wildlife. The current governance structure has gaps and weaknesses with regard to growth in typical tourism models, as well as emerging forms of tourism.

Antarctica is governed mainly by the ATS. Additional guidelines specific for tourism are provided through IAATO. The Antarctic Treaty is acknowledged as a successful model of complex, cooperative regulation of one of the planet's largest global commons (Chown, et al., 2012), and "on the whole it has produced a peaceful, stable, effective and widely accepted regime for cooperation on a range of scientific, environmental, and related issues (Saul & Stephens, 2015)". IAATO has successfully resolved many of the emerging problems related to tourism since its 1991 inception. IAATO has imposed a wide range of operational procedures and environmental standards upon its member tourism companies and functions as a main point of contact for the ATS. The ATS and IAATO have been successfully managing Antarctic tourism matters over the last several decades, though increasingly, governance and management have not kept pace with the rapidly expanding tourism industry. Although policy-makers may recognize these challenges, failure to respond in a timely way may have significant negative consequences (Chown, et al., 2012).

Antarctica has evolved significantly over the last several decades. In 1959, when the ATS was signed, only twelve countries were signatories. Today, 29 states are ATCPs and 50 states total attend the ATCM, along with interest groups and other stakeholders, many of who have influence on discussions and efforts at ATCMs. Antarctica has gone from political and geographic isolation to become a desired destination for tourism and other interests. Changing interests in and access to Antarctica have brought a host of issues to the surface that were not factors, or even on the diplomatic radar screen, in 1959 (Dodds, 2010). This includes, but is not limited

to, tourism. Antarctic governance has, and continues to become, increasingly complex and multilayered as states, non-governmental organizations, international actors, and media participate and shape Antarctic governance and political relations (Dodds, 2010; Hemmings & Gilbert, 2015). This is testing the capacity and ability of the ATS to secure regional governance in this model, and also its power to maintain legitimacy beyond the member states (Dodds, 2010).

There is growing international interest and activity with new forms of tourism such as adventure and land-based tourism, as well as scientific research and resource exploitation. Considering the growing range of interests and perspectives on tourism issues, determining what is desirable and undesirable among stakeholders is an important first step towards a strategic, comprehensive approach to Antarctic tourism regulation. With the wide range of stakeholders involved in Antarctic matters today, there is value in exploring their various viewpoints.

The objectives of this research were to: (1) identify the major weaknesses or gaps in current environmental policy, as related to tourism in Antarctica and (2) identify priority areas and potential options for action. The second objective had two parts, suggesting action that may address existing gaps and weaknesses, and identifying priority areas for research for more intractable problems (i.e. problems where there is not necessarily a clear or a priori solution). Focus was kept on ATS and IAATO, as these are the primary sources of relevant regulation. The objectives were met through literature review, unstructured expert interviews, and a survey distributed to an international community of Antarctic stakeholders. The intent of this research

was to cast a wide net, in order to acquire and evaluate the viewpoints and opinions from a wide range of stakeholders on the policy shortcomings in Antarctic environmental and tourism policy.

This study represents only a sample population of stakeholders, but provides a glimpse into the perspectives of these groups. Other studies on similar matters have sought to determine opinions on environmental and tourism issues, but none have reached out to a wide range of stakeholders in this way.

6.2 Summary of Key Research Findings

The literature review underscored that Antarctica is unique in every way; geographically, environmentally, and politically, to name a few. It has a rich history of exploration, science, and adventure. It has a very unique governance history and structure, unlike anything else on earth. The ATS, the first governance measure, was signed in 1959, to safeguard Antarctica for peace and science, and for the common good of mankind. It was rooted from very inception in the precautionary approach, in that it was safeguarded against potential risk well before there were any substantial identifiable threats. The ATS may represent some of the earliest evidence of this model of risk management.

Antarctica has evolved substantially in the last 100 years. A major shift occurred in the 1950s and 60s with the emergence of an Antarctic scientific community and critical Antarctic Treaty. Another shift was evident during the 1990s, following the collapse of the Soviet Union. The fleet of small passenger ships capable

of operating in polar waters grew significantly when Russian research vessels became available on the free market, largely contributing to the modern expedition tourism market. Another shift appears to be underway today. There is expanding interest in tourism from new markets, growing presence in mainstream media, emergent forms of tourism appearing on the map, and growing interest in Antarctic resources. These patterns, coupled with growing wealth in developing economies and increasing access, point to continued growth and thus an increasingly pressing need for adequate governance and management. External conditions, contributing to environmental risk, human safety risk, and management of all aspects, are changing and evolving. As the complex adaptive system model suggests, adaptive capacity is needed to manage the conditions and regulate human activity in the best interest of Antarctica.

There are a number of areas of specific policy shortcomings that were revealed through the literature view and confirmed through survey results. These include issues related to both the ATS and IAATO, and areas outside these two regulatory bodies. With regard to the ATS, policy inadequacies were evident in areas including permanent tourism structures on the Antarctic continent, adventure/sport tourism, climate change, cumulative impacts of tourism, and tourism interference with scientific activities. With regard to IAATO, policy inadequacies were evident regarding the organization's voluntary nature - membership is non-mandatory and guidelines are not legally binding. Most commercial tour operators are IAATO members and do follow guidelines (IAATO, 2014). However, there are private tour operators, one-off operations, and others who are not members and thus operations do

not fall under IAATO's regulation. Fundamentally, operators are under no obligation to follow industry standards or policy (Liggett, 2015). With regard to emergent and outlier forms of tourism including independent operators, one-off expeditions, adventure tourism, and non-ship based tourism, policy is particularly weak or even lacking entirely from both the ATS and IAATO.

These areas of outlier tourism present a complex problem, in that not only is there little or no regulation for such operations, but there are concurrent lacking data due to non-regulation and/or non-IAATO membership. The only data available about tourism, numbers, impacts, activities, or anything else are derived from tour operator's reports to IAATO. Tourism and other non-governmental activities that are not authorized or occur outside IAATO's scope may not be reported at all, creating a major knowledge gap. Expeditions that do not identify as tourism (Secretariat, 2014) fall into a tourism-data collection loophole entirely. Managing and creating policy to address underreported tourism presents a significant challenge, evidenced in both literature review and survey results.

There have been calls among polar experts for many years for a strategic and comprehensive approach to tourism regulation (Lamers, Liggett & Amelung, 2012; India, 2015). Since the 1990s, experts have predicted growth and expansion, and they have been proven correct. There has been discussion, but little firm action on the issues within the ATCMs for many years as well. Reflecting on reports and information papers from past ATCM, it is evident that awareness of the problems exists, but action continues to be scarce. Challenges abound; Antarctic law is

implemented within each State's own government; tourism is inherently multi-national in nature, registration of ships is sometimes in non-ATS states, liability is unclear, enforcement of safety and conservation standards lacks, and more (Hemmings & Gilbert, 2015; India, 2015). Perhaps one of the greatest difficulties to overcome is that there is no other international environment management or governance precedent to follow that mirrors Antarctica's characteristics. Antarctic governance is like nothing else on Earth, systematically, operationally, and geopolitically. This unique nature has been seen as something of a success story historically, but regulation and policy needs to develop and adapt alongside tourism expansion. The rapid growth and expansion of Antarctic tourism requires structural, institutional, and legislative change if Antarctic tourism regulation is to remain successful (Liggett, et al, 2011).

6.2.1 Survey Findings

The structure of this study was such that findings from the literature review drove the design of the subsequent survey, with guidance from unstructured expert interviews. Findings, synthesized and evaluated in sum, are the source of the recommendations and considerations for future research summarized in section 6.4. The literature review revealed areas of policy shortcomings, and those research findings received added validity through convergence and confirmation that the sample population of experts, policy makers, and other stakeholders responding to the survey also perceived the same problems and potential solutions. Important to note is that there is potential bias due to respondent distribution. Many stakeholder groups

were represented, but not in equal numbers. Additionally, tour operator respondents that are IAATO members numbered higher than non-members. Overall, most operators are members, and outlier tourism is still a small percentage of overall tourism. That said, avoiding this bias is nearly impossible. These are important areas of study at this early stage, and as the industry continues to evolve and expand, further studies should better capture these growing elements more equitably.

The instrument for this study was only available online as a Qualtrics survey, though information about the study and how to access the survey was distributed over a series of media. Because the Antarctic community is spread around the world, surveys were emailed to direct correspondents and those individuals were permitted to forward the survey to appropriate individuals within their networks. There was great help in utilizing networking and the support of colleagues involved with the topic, considering the significant global spread of the community. Tables 5.1 and 5.2, in section 5.3.1, reflect the diversity in professional and geographic representation among survey respondents. The survey questions fell in five sections, Background, Perceptions of current policy inadequacy, Tourism as a tool for conservation, Outlier tourism, and Action.

With regard to questions regarding policy shortcomings (Section 5.3.2), the survey revealed a dominant trend of agreement that there are indeed both weaknesses and gaps in current environmental policy related to tourism for Antarctica, and that both the ATCPs and IAATO should act address these areas. Where, specifically, responsibility for action should fall was less clear than the need for action. A familiar

political pattern was reflected where the problem was widely agreed upon but responsibility for ownership was less so. This challenge is not necessarily unique to Antarctic governance, but the multinational nature of tourism and consensus requirement for decision making contribute unique characteristics to the Antarctica situation.

With regard to tourism as a tool for conservation (Section 5.3.3), the survey revealed a strong agreement trend for support for the concept, regarding both short and long-term conservation. Tourism does not automatically produce positive conservation benefits, but with appropriate measures and ecotourism style characteristics guiding the experience, conservation can be a realized outcome. Based on responses, the perspective is that a sustainable tourism industry can coexist with conservation priorities in tact, and ideally, can work together symbiotically.

With regard to the issues surrounding outlier tourism (Section 5.3.4), the survey revealed a strong trend of agreement that this is a significant problem and in need of attention within Antarctic governance. This emerged as a major concern within the literature review and expert interviews as well. Outlier tourism is considered, among most respondents, to be both a threat to environment and wildlife and in need of attention regulatory attention. Policy is perceived as inadequate, or lacking entirely. Some outlier tourism exists outside of IAATO's current structure, making policy efforts considerably more challenging. This is a broad policy weakness and an area where the ATCPs may need to have a stronger presence. Under the current

architecture, there is no mechanism for IAATO to have any influence or power with regard to non-members, and guidelines are not legally binding.

With regard to general action items (Section 5.3.5.1), the survey revealed strong agreement that action should be taken, by ATCPs and/or IAATO, regarding growing tourism in general, and outlier tourism in particular. Results revealed greater agreement for ATCP action, compared to IAATO action, on adopting measures to control growth of tourism and activities. This likely reflects the view that enforceable, legally binding policies are needed alongside IAATO's industry (non-binding) standards. This could also indicate a perception that the Consultative Parties should have a greater role in tourism matters that they presently do, particularly with regard to growth and outlier tourism.

With regard to specific action (Section 5.3.5.3), the survey revealed strongest agreement for the following three action items: requiring education for all travel to Antarctica (88% agreement), creation of a systematic network for environmental protection (87% agreement), and addressing the need for better data collection and reporting (87% agreement). More mixed reviews were revealed on items including sponsoring states and alternatives to consensus-based decision making among the ATCPs. A systematic network of protection is not a new idea, but it is one that has not yet been operationalized. The items with most clear, strong agreement among respondents help inform recommendations in section 6.4.

6.3 Addressing the Problem

As evidenced in the previous chapters, trends point towards continued growth in tourism to Antarctica, and in diversification of activities taking place. One recent study suggests a conservative projection of growth to 120,000– 160,000 visitors to Antarctica annually by 2060 (Woehler, Ainley, & Jabour, 2014). Considering historical growth in Antarctic tourism, growth to double the previous peak over the next 50 years seems a reasonable forecast. Increased numbers of vessels traveling to the area is also likely, particularly large vessels (Woehler, Ainley, & Jabour, 2014). The ban on the use of heavy fuel oils by vessels in the Antarctic, and continued work towards a Polar Code, may reduce the number of very large (more than 500 passengers) vessels, but this remains to be seen until a Polar Code is completed and implemented.

Increased numbers of tourist flights, to more areas, and over greater periods of time each year are expected (Woehler, Ainley, & Jabour, 2014). It is anticipated that land-based tourism will also develop, leading to (still debated) permanent tourism infrastructure, with concurrent increased pollution risk and damage to ecosystems and wildlife (Bastmeijer, Lamers, & Harcha, 2008). Along with this is increasing diversification of human activities, increasing the potential for disease and introduction of non-native species due to greater numbers of tourists and their gear from all over the planet (Curry et al, 2002; Woehler, Ainley, & Jabour, 2014). The current and projected growth in Antarctic tourism, and the shortcomings of current regulation and governance, necessitate greater attention and operationalized solutions

among policy makers.

This study sought to identify the perspectives of those closest to the issues in regard to environmental policy gaps and weaknesses, priority areas of work, and perspectives on what might be done to resolve the shortcomings. Determining where there is agreement or disagreement on these issues among stakeholder groups is critical as Antarctica is governed by de-facto consortium and formal consensus decision-making by states. ATCPs do make final decisions, but outside interest groups such as IAATO and ASOC also have influence on matters. Further, tourism operators, scientists, and others arguably have more direct interaction with the very issues being explored, and may possess a critical level of understanding not necessarily shared by Consultative Party representation.

There appears to be little doubt among respondents, and within the body of literature on this topic, that the problems are real and in need of resolution. There has been discussion among the Consultative Parties at the annual ATCMs for years regarding tourism matters and the need for regulation beyond what IAATO can provide. The problem is not in identifying where there are issues of policy inadequacy; the problem is in rectifying those issues within the challenging Antarctic governance structure. The system seems plagued with indecision, lacking implementation, mixed views among Consultative Parties on the importance of environmental concerns, challenges of the multi-national nature of tourism, unclear lines of responsibility, and even mixed views simply on definitions of terms such as tourism or adventure tourism. All of these issues seem to impede actual, measurable,

enforceable results with regard to environmental and tourism policy. When reviewing ATCM documents and reports, discussions (and plans for discussions) are abundant, but action, adoption, and operationalization are scarce. Still today, at the time of writing, there are only two legally binding measures in the ATS that apply to tourism, one of which is a 2004 measure that has yet to be fully adopted.

There does appear to be more attention from some CPs, and certainly from conservation groups and IAATO, towards tourism regulation. This is evident particularly with regard to the emergent and outlier forms of tourism that were the focus of this study. In particular, land-based tourism and adventure tourism had notable attention at the 2014 ATCM. The most recently publically available information about Antarctic Governance is the final report of the 2014 ATCM. Within that report is Item 11: Tourism and Non-governmental Activities in the Antarctic Treaty Area. Further, the ATCM Multi-Year Strategic Work Plan: Summary of the ATCM discussions and decisions on land-based and adventure tourism, was introduced at the 2014 ATCM. The specific attention to these tourism models is clearly needed and timely, and provides validation to the focus of and need for the research undertaken in this study. Importantly, it was noted by the UK that the work plan would “only be effective in managing all Antarctic tourism and non-governmental activities if implemented and brought into force internationally” (Secretariat, 2014:59). Even in the most recent ATCM final report, it is clear that implementation, or lack thereof, continues to plague progress.

This study and subsequent analogous studies will hopefully help bridge gaps

within policy making and move the regulatory system into a more robust and operationalized state. Results from this study provide some specific action ideas, identifying most pressing issues in needed of near-term attention, in the view of survey respondents. Some action items presented are new and others have been on the diplomatic table for some time. The concept of a systematic network for environmental protection, for instance, has been in play since the adoption of the Madrid Protocol.

On a much larger scale, however, there are major hurdles to overcome, to get from here to there. There are systematic challenges in Antarctic governance and in tourism regulation that appear to be at the source of stunted progress. Tourism is multi-national in nature, obscuring clarity on responsibility for compliance, safety, reporting, and the rest. The architecture of Antarctic law is such that parties implement measures within their own governments and based on their own interpretation, creating differing viewpoints about priorities and needs. Finding consensus on decisions appears difficult, resulting in ideas and actions remaining in a discussion phase or non-adoptive status, sometimes indefinitely. Even after consensus and agreement are reached, implementation and adoption are sometimes stalled for years. Recommendation XVIII-1 (1994), Guidance for those Organizing and Conducting Tourism and Non-governmental Activities in the Antarctic, was adopted at the 1994 Kyoto ATCM (IAATO, 2015), but is still not in force internationally due to missing approval from Ecuador, whose signature is needed for the measure to enter into effect (Secretariat, 2014). Measure 4 (2004), Insurance and Contingency Planning for

Tourism and Non-governmental Activities in the Antarctic Treaty Area, has yet to reach full approval due to incomplete signatures.

The challenge of achieving consensus is a concerning item. With now 29 ATCPs, and likely more to come, there are many cultural differences and differing viewpoints on tourism matters. Disparity remains among the viewpoints of the ATCP governments about tourism, based largely on the fact that some benefit directly (ex. parties with gateway ports) while others do not (Jabour, 2014). The idea of moving away from a consensus based decision-making approach has been suggested by some experts. That idea was presented within the survey, but received very mixed responses. Because a consensus decision would be necessary to eliminate the consensus requirement, it appears to be an unrealistic concept.

Tourism should not be viewed solely as a problem or threat in need of regulation to avoid consequence. Beyond evaluating tourism regulation, this study also endeavored to examine if and how tourism can be a tool for conservation. According to research findings, tourism can be a tool for short and long-term conservation in Antarctica. Long-term conservation is also the fundamental purpose and goal of Antarctic environmental and tourism policy. These concepts can go hand-in-hand, and should not be seen as opposing interests within policy making. Tourism should be viewed and used as a tool for conservation, though of course appropriate regulation is necessary to ensure that outcome. Positive conservation outcomes are achieved through appropriate conservation and environmental policies, but also through tourism engagement and education; through ecotourism style travel, as described in section

Chapter 2. As noted in section 2.4.2.1, “The main positive impact of polar tourism, if well done, is its educational value. Arctic and Antarctic visitors are fascinated by the sheer beauty, wilderness and natural phenomena of the polar environment. This can be used to make them not only ambassadors for the protection of the visited regions, but also supporters of conservation activities and organizations worldwide” (Snyder, 2007:16). Lindblad’s vision, and IAATO’s vision to this day, is to create Antarctic ambassadors through tourism, for the continued protection of the continent and surrounding waters.

Tourism has contributed to conservation interests around the world, financially, politically, and socially. Antarctica is arguably the most unique place on earth, in all regards. One thing that is shared with other spectacular natural areas on Earth, though, is the tourism industry and the strong presence of ecotourism-style travel. While no precedent exists to help guide Antarctic governance, precedents do exist with regard to successful tourism policy, control, and utilization for positive conservation benefit. This is perhaps one area Antarctic governance can take cues based on successful models in place elsewhere. Further, utilization of the tragedy of the commons and precautionary principle theories can help guide decision-making in this complex international environmental governance framework.

6.4 Recommendations

As previously indicated, findings from the literature review drove the design of the subsequent survey, with guidance from unstructured expert interviews. Findings,

evaluated in sum, are the source of the recommendations and considerations for future research summarized in the following section. The theoretical framework, outlined in chapter 1, also provides a lens through which to view the problem and findings, contributing to the recommendations. These recommendations are made bearing in mind the limitations of the study, outlined in Section 3.3.2. The results provide a glimpse into perspectives of stakeholder groups, and a framework from which further research can be conducted to get a more comprehensive outlook on these important problems.

6.4.1 Precautionary Approach

As previously indicated, Antarctic governance has a unique history rooted in a culture of proactive conservation and use of the precautionary principle. Maintaining this culture today is important, lest policymaking becomes (or remains) reactionary, fixing problems instead of preventing them. The precautionary approach (or principle) has three main components, as described in Chapter 1 – decision-making, monitoring, and risk assessment. These elements contribute to the overall goal of taking action to avoid environmental degradation in absence of complete scientific information about impacts. This is exceptionally relevant to Antarctic tourism, where data on environmental impacts from tourism is limited and no long-term impact studies are yet being undertaken. Studies are also recommended, but until knowledge is gained, the precautionary approach is recommended to reduce potential risk.

Development of a strategic vision or plan for tourism in Antarctica is a

recommended step, keeping in line with the precautionary principle (Liggett, et al 2011; Lamers, Liggett, & Amelung, 2012; Woehler, Ainley, & Jabour, 2014).

Specific actions under this model might include preventative reductions to the permitted number of sites visited each season, the number of visitors ashore at a given time and cumulatively over a season, and the ratio of tourists to guides ashore. At all wildlife sites, site specific and species-specific guidelines for visitors could be adopted, implemented, and enforced.

6.4.1.1. Decision Making

Environmental impact assessments are already established within Annex I of the Madrid Protocol, and help to address the decision-making component of the precautionary approach, but are a difficult model for tourism activities to work within (see Section 4.4.2). Better data are needed for tourism impacts, and the EIA requirement needs to be better implemented (Woehler, Ainley, & Jabour, 2014). There needs to be a way to improve the industry's ability to work within the system, or alter the system in a way to better incorporate the industry. This may require a separate vision and policy for the environmental impact assessment, designed for the tourism industry. The current model was designed with the NAPs in mind, which are long term and stationary. Tourism is quite the opposite, short term and visiting different sites over the course of a given trip. A starting point for tourism oriented impact assessments would be pre and post-season evaluation of heavily visited sites, such as those around the Antarctic Peninsula.

6.4.1.2 Monitoring Programs

Environmental impact monitoring is further suggested, under the precautionary approach, and with a model where tourism can be assessed objectively and independently (Liggett et al, 2011; Woehler, Ainley, & Jabour, 2014). The idea of monitoring programs help to address the issue of lacking available data on cumulative impacts of tourism and immediate impacts of largely unstudied outlier tourism. Again, the Madrid Protocol requires an EIA, but there are challenges to this for the tourism industry. Monitoring and data collection programs are suggested in order to identify environmental impacts so that decisions can be informed with valid, reliable data (Lamers, Liggett, & Amelung, 2012; Woehler, Ainley, & Jabour, 2014).

Further, there is no “border control” or otherwise on site to enforce or even monitor environmental or other measures. With the exception of a New Zealand system of tourism observers on certain voyages, there are no State observers onboard tourist ships to ensure compliance. On board monitoring has been suggested (Liggett, et al, 2011), and would be useful for ship-based tourism, which most Antarctic tourism is. Additionally, there are no universal mechanisms to deal with noncompliance - a challenge of the multinational nature of tourism. Together these factors contribute to complicating management and regulation of Antarctic activities (Jabour, 2014), and make the case for initiating a robust monitoring strategy.

An independent impact-monitoring and observation program would guarantee unbiased, neutral checks and balances with regard to Antarctic tourism (Liggett, et al, 2011; Lamers, Liggett, & Amelung, 2012). Policies have limited effectiveness without

enforcement. Monitoring tourism operations and thus collecting relevant would contribute to policy effectiveness as well as provide important information about environmental impacts, operational challenges, and other unknown information. Unregulated and unreported tourism is of utmost importance for data collection and monitoring. An additional comment on this is regarding funding. Tourism and environmental monitoring will require human support on and off of Antarctica. Some survey respondents suggested a tourism tax to produce funds to this end.

6.4.1.3 Risk Assessment

Risk assessment is the third and final component of the precautionary approach. With regard to potential environmental degradation, there is very little, if anything, in place to assess possible risk from tourism impacts. There are no long-term studies and tourism impacts overall are understudied and not well understood (Liggett, 2015). Environmental impact assessments contribute to risk assessment as well as decision making, but the disconnect between the assessment requirement in the Madrid Protocol and the tourism industry creates a situation where it is of little practical value towards this end. The suggestions above, such as tourism-oriented impact assessments and an independent impact-monitoring and observation program would contribute to this third component. Assessing potential environmental risk, in the absence of complete knowledge, and contributing to more complete knowledge, is a critical component. Taking action towards conservation interests without all three precautionary elements being specifically met is certainly recommended and likely

necessary. All three work in tandem but can also be applied in isolation as necessary information is gathered and policies are made.

6.4.2 Data Collection and Research

This item received strong agreement among survey respondents. Data collection regarding tourism and cumulative impacts of tourism especially is lacking. Long-term impacts of tourism development are not well understood (Lamers, Liggett, & Amelung, 2012). It is necessary to have appropriate, valid information in order to make the best, most effective policy decisions. A central vision for data collection is suggested, taking into account what is available, what is needed, and the best means of acquiring needed data. The same approach is suggested for tourism research. Given the wide range of interest and growth in Antarctic tourism and challenges in finding consensus in recent years, identifying a shared vision should inform dialogue on Antarctic tourism research, regulation, and policy measures (Lamers, Liggett, & Amelung, 2012). Tourism research has been undertaken mainly by individual projects, all over the world, and for short periods of time (this one included). A centralized, common vision from which to work from and contribute towards might provide a more complete picture and contribute to decision-making.

Long term studies are challenging, but not impossible, as long as there is funding and willing researchers. Funding sources might include ATS members, IAATO members, or other parties closest to tourism impacts.

6.4.3 Utilizing Tourism as a Tool for Conservation

Research results revealed strong agreement that tourism can be a tool for conservation, given appropriate characteristics mirroring ecotourism. Beyond recognizing that this is a valid relationship, tourism to Antarctica can and should be utilized as such. Requiring education (below) can help to that end. The Environmental Protocol presents an obligation to protect Antarctica's intrinsic aesthetic and wilderness values (Bastmeijer & Lamers, 2012). Tourism not only must remain consistent with this, but can be utilized towards meeting that obligation. Education, guiding, and interpretation can be powerful tools for changing minds and attitudes among travelers and creating lasting conservation benefits, as evidenced in Chapter 2. Travelers to Antarctica should come back with a sense of responsibility to the environment that they have experienced; as Antarctic ambassadors. This was Lindblad's vision decades ago, and remains IAATO's vision today (IAATO, 2014).

6.4.3.1 Education for All Travelers to Antarctica

Education is a critical component of the travel experience in order to enable tourism to be a tool for conservation, as results of this study indicate it can be. Ecotourism is a term with no widely agreed upon definition, but with a set of characteristics defining it. Education is one of those characteristics, along with small groups, and environmental focus, and others. Most known tourism to Antarctic already reflects this, but not all. A recommendation is to incorporate an education component in all travel, whether advertised or identified as ecotourism or not. Education should

include appropriate behavior when around wildlife, while on the water, the importance of Antarctic ecosystems, and important conservation matters. Education should also communicate the global importance of Antarctica. Travelers should understand how the region affects and is influenced by daily lives and human behavior. Antarctic success stories, such as signs of ozone recovery, stimulate confidence in the value of behavior modification (SCAR, 2014). This should help bridge gaps between tourism and conservation and benefit both sides.

A further recommendation is consideration of development of certification scheme for guides, to include items such as best practices for educating travelers, key messages, guiding ethics, codes of conduct, and appropriate behavior for different activities. Liggett, et al also suggest an independent accreditation or certification scheme for Antarctic tourism operators, as well as training for tour operations staff (2011). Certainly overcomplicating the industry is not the goal, but setting a high standard for guides and thus education for travelers could be a beneficial addition to the industry.

6.4.4. Increased Inclusion of ATCPs on Tourism Matters

IAATO has been, and remains, a successful self-governing organization. It is under increasing pressure, however, with tourism growth and expansion. Emergent outlier tourism is at times completely outside of IAATO's scope and thus the organization has no control or influence. It is for the ATCPs to take on more responsibly in these areas, in the form of creation of binding, legal measures within

the ATS framework for tourism, concurrent with IAATO, to improve inclusivity of outlier tourism, outlier operators, and other non-governmental activity. IAATO membership is voluntary and guidelines are nonbinding. It appears that greater inclusion of the ATCPs and binding measures to ensure greater numbers of tourism operators, particularly those who are not IAATO members, follow important guidelines and operate appropriately while in Antarctica is overdue. This is for the sake of the environment, wildlife, and human safety. This should be done carefully, however, to avoid overcomplicating governance or creating a complex bureaucratic system that is difficult or confusing to work within. Perception of rapidly developed or overly restrictive regulation may have an opposite effect entirely. A clear problem with this recommendation is, of course, the macro-level issues of matters getting stalled in ATCM, described above. This will continue to plague the ATCPs and regulatory progress, but binding and enforceable regulation is nonetheless recommended and clearly needed.

6.5 Future Research

The analysis of policy inadequacies and potential solutions within this study are by no means complete. Covering the full range of identified problems is beyond the scope of this work. The research approach followed in this study could be followed up by a larger scale assessment. Because the findings of this study provide only a glimpse into the opinions and perspectives of a range of stakeholders, a logical progression would be to undertake a similar but far larger survey to acquire a greater

number of responses and thus get a far fuller image of the perspectives of those closest to the issues. The perspectives of the ATCPs are, of course, important for policy making, as are those of IAATO members, conservation groups, experts, members of the scientific community, and others close to the issues. Limitations of this study included a language barrier, access to stakeholders, and time. Eliminating these barriers could produce a study better capturing stakeholders groups' perspectives, by acquiring many more respondents than the sample population reviewed here.

Remaining Inadequacies

A substantial list of tourism weaknesses and gaps were amassed through the literature review and were described in Chapter 3. Addressing all of these issues was beyond the scope of this study, but evaluating the rest of the identified inadequacies is an important area for future research.

Cumulative Tourism Impacts

This area is a recommendation (above) and an area for future research. Research is needed in regard to cumulative tourism impacts, and this need will only become more pressing (Chown et al, 2012; Lamers, Liggett, & Amelung, 2012). This issue was echoed within both literature review and in survey responses. Data about cumulative and long-term impacts are lacking and critical for understanding policy priorities and needs, and appropriate measures to take. Particularly with regard to environmental management and monitoring, sound policy decisions regarding

Antarctic tourism necessitate valid and comprehensive information about the actual impacts, operational challenges, safety and risks, growing numbers and activities, and other relevant information. Further, Antarctic tourism research does not have a common agenda from which to execute. Research on the topic(s) has been undertaken mainly through small scale, individual projects (including this one), with brief timelines, not connected by any common agenda or framework. Coupled with this is a suggestion for a qualitative assessment of the current status and anticipated future pathway of Antarctic tourism (Liggett, et al, 2011).

Climate Change

While climate change was only a cursory topic within this document, it demands mention within the context of this work, and certainly demands further research within the topics of environmental policy and tourism (as well as any others). Some scholars argue that addressing global scale threats, with impacts realized most significantly in the Antarctica, is one of, if not the, greatest challenge (Farreny et al, 2011, Hanifah et al, 2012). Climate change is the prime example. There is a lack of data on global impacts of Antarctic tourism in terms of energy consumption and carbon dioxide emissions. Research into options for emissions reductions or for incorporating CO₂ emissions into environmental impact assessments would be valuable (Farreny, et al., 2011). The Antarctic tourism industry's carbon footprint is a significant issue, particularly with regard to utilizing tourism as a tool for conservation. Tackling these sorts of issues will require not only further research, but

also greater engagement with other international environmental policy instruments and organization (Chown et al, 2012).

Tourism for Conservation

Further research is suggested to firmly establish that ecotourism style travel can be a tool for short and long-term conservation, as well as an inventory of qualities necessary to ensure that outcome. Ecotourism style travel, with experiences close to nature and wildlife, has great potential to reawaken the human connection with the natural world, and shift the viewpoint more holistically. It can contribute to an awareness of intrinsic value of nature and wildlife, inspire long-term support for protection and conservation, and leave a lasting impression on people – positive effects of which can extend still further (Curtin & Kragh, 2014). This form of tourism is a powerful tool to engage people with nature, develop a conservation ethic through understanding the importance and value of nature, and creating lasting experiences that can instill new values and ways of thinking about the human-nature relationship. Experiencing the environment and wildlife first hand, if appropriately guided by tour operators, can instill an emotional connection to nature and greater environmental awareness. This benefits the human spirit, society, and nature conservation (Curtin & Kragh, 2014).

Positive conservation outcomes from tourism activities have been documented, reflected in Chapter 2, but future research should examine the range of outcomes and the relationship to site and trip characteristics in more depth (Powell et al, 2012). The

impact of an Antarctic tourism experience has the potential to be, and should always be, positive, educational, and lasting. Identifying best practices or necessary elements to guarantee this outcome most often for travelers would have lasting and far-reaching impacts for the industry and Antarctic conservation interests. Future research should further examine the outcomes and the relationship to site and trip characteristics in more depth, as the impact of an Antarctic tourism experience seems to be powerful, rich, and complex (Powell, et al, 2012). Further, as tourism trips and activities continue to diversify, differences in expectations and experiences between passenger groups of different trips and different operators will also diversify, creating an important area for research and policy (Lamers & Gelter, 2012).

6.6 Final Reflections

There are substantial issues in need of resolution with regard to Antarctic tourism and governance. While there is growing attention among the ATCPs, there are much greater challenges to governance, beyond the (perhaps) obvious action of expanding and creating policy to capture the growth and expansion of the tourism industry. These greater challenges, which seem to plague progress and have remained consistent for some time, are related largely to the architecture of Antarctic Law and the multinational nature of tourism operations. This structure has raised concerns and debates among policy makers, scholars, and interest groups about the challenges for long-term regulation and management (Lamers, Liggett, & Amelung, 2012). These systematic challenges are perhaps the most difficult to overcome, as well as the source

of stalling on specific policy action. The trouble is not with agreement among States on whether or not management is needed, but how to go about operationalizing it (India, 2015).

Narrowing the focus, there are identifiable shortcomings in environmental policy related to tourism. There is little apparent doubt on this matter, evidenced within all three modes of research contributing to this dissertation. Generally, there appears to be a strong sense of and commitment to conservation among stakeholder groups, as well recognition for the need for better regulation on the matters addressed in this study. The 2014 ATCM report presented specific concern and discussion among parties about land-based and adventure tourism, as well as gaps and loopholes in policy, a new and valuable development. The need for better control and ATCP action due to steady increase in marathon and other sport activities was a specific discussion item. Engagement in these discussions is critical, but finding consensus and operationalizing those commitments and recognitions is the greatest challenge to overcome.

Antarctic governance has a unique history rooted in a culture of proactive conservation interest and the precautionary principle, with regard in particular to the nature and timing of the Antarctic Treaty and early establishment of IAATO. It is one of, if not the only remaining wilderness on Earth with that quality. Antarctic governance also has a unique history rooted in international cooperation and peace, even in the face of geopolitical challenges. While complexities today create a scenario that is nearly unrecognizable compared to the early days of Antarctic governance, it is

critical that comprehensive, proactive and operational Antarctic tourism policy, anchored in the precautionary principle, is established and implemented (India, 2015).

There is a clear need for distinct, defined rules and guidelines concerning tourism, and for Parties to break out of the present reactive and circular discussions on these matters (Secretariat, 2014). It is time to move away from discussion and directly towards action. Perhaps it is time to get more creative with decision-making, such as establishment of tourism committee, given some legislative power to make decisions. Interest levels on environmental and tourism issues vary among the Parties (Secretariat, 2014), and perhaps some would rather focus their attention elsewhere and leave tourism to others. It might be beneficial to break apart some of the management needs, considering the systemic challenges outlined above. Similarly, perhaps a different leadership model would serve these purposes well, where parties most invested in the tourism issues lead the way to actual results, negotiating where and why there is resistance, and working through it more directly in order to achieve agreement and consensus among parties.

Further, the annual ATCM model may be approaching a point of inadequacy. Certainly the annual meetings are critical for governance and management, but they may not be sufficient for the amount of work needed. Antarctic interests, tourism and otherwise, are expanding and evolving. Simply put, there is more work to do than ever before. ATCM discussions sometimes center on when to plan discussions about topics at the following year's ATCM (Secretariat, 2014). The amount of time allotted to tourism and environmental matters within the ATCMs seems insufficient, both

actual time and planned time. A debate occurred between Consultative Parties at the 2014 ATCM about that very issue; trying to plan time to engage in discussion of Item 11 and the Strategic plan at the following ATCM. Meetings are annual and take place over a few days. With the growing, expanding interest in Antarctic for tourism and much more, it is distinctly possible that there is not enough time in the day(s) to manage all Antarctic matters. Special working groups are sometimes developed for specific tasks, but these groups also meet during the ATCM. This entire process may need to be re-examined moving forward, allowing more time or finding ways to utilize time more efficiently.

It appears that there is still time to create policies and regulations to manage the growing tourism industry while keeping conservation as top priority. It is not too late to be proactive instead of reactive, a unique characteristic of Antarctic environmental management, compared to the rest of the world. There is no identifiable tipping point as there is too great a knowledge gap to produce such a prediction. However, there is not yet any certain, irreversible environmental degradation due to tourism, either. Obviously there is a need for research and knowledge acquisition about impacts. The outlook for the future is still a positive one, but work needs to be done. Clear norms and regulations are needed across the board, which can be implemented internationally. Implementation of previously agreed upon measures is needed, followed by moving forward on today's pressing issues. Clarification in existing regulations, such as definitions of unclear terms, is needed and can realistically be completed in a short time. Clarification on terms should have

a positive trickle down effect on relevant policymaking and reduce time wasted discussing what means what. Policy loopholes need to be closed.

Continued or increased inclusion of international organizational bodies such as the International Maritime Organization (IMO) will help create a more robust governance structure, aiding implementation and international compliance. This may help with the challenges of tourism outside the scope of IAATO and with states that are not ATS signatories, better encompassing the international community. As discussed earlier in Chapter 3, there is no way, currently, to create or enforce universal Antarctic-specific law. It is widely viewed that regime change is both overdue and inevitable (Bastmeijer & Roura, 2004; Bastmeijer, Lamers, & Harcha, 2008; Chown, et al., 2012; Jabour, 2014, Hemmings, 2015). The Parties should work side by side with IAATO, to properly manage tourism using IAATO's experience and success coupled with the legal, enforceable framework of the ATS. It is well beyond time to move from discussion to action.

Identifying some fixes for immediate threats is a (somewhat) manageable task to which this study was designed to contribute. Identifying how to resolve the more fundamental, structural governance problems is a different animal entirely, and far beyond the boundaries and capacity of this research effort. It is my greatest hope that this research can contribute in some way to the betterment of Antarctic tourism governance and long-term conservation of one of the Earth's most amazing places.

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Appendix A

LIST OF ACRONYMS

ASMA: Antarctic Specially Managed Areas

ASOC: Antarctic and Southern Ocean Coalition

ASPAs: Antarctic Specially Protected Areas

ATCM: Antarctic Treaty Consultative Meeting

ATCP: Antarctic Treaty Consultative Party

ATS: Antarctic Treaty System

BAS: British Antarctic Survey

CAS: Complex Adaptive System

CEP: Committee for Environmental Protection

CCAMLR: Convention for the Conservation of Marine Living Resources

CRAMRA: Convention for the Regulation of Antarctic Mineral Resource Activity

COMNAP: Council of Managers of National Antarctic Programs

IAATO: International Association of Antarctica Tour Operators

IGY: International Geophysical Year (1957–1958)

ICRW: International Convention for the Regulation of Whaling

IMO: International Marine Organization

MARPOL: International Convention for the Prevention of Pollution from Ships

MEPC: Marine Environment Protection Committee

NAP: National Antarctic Program

NGO: Non-Governmental Organization

NSF: National Science Foundation (U.S.)

SCAR: Scientific Committee on Antarctic Research

SOLAS: The Safety of Life at Sea Convention

TIES: The International Ecotourism Society

WTO: World Tourism Organization

Appendix B

SURVEY QUESTIONS

Q1. Please identify your primary role with regard to Antarctica. Check the response that is the best fit, or type your own in the space provided. Use the space below your selected response to identify relevant specifics, such as which conservation or expert group you primarily work with/for. These specifics are for internal use only and will be kept confidential. Options: Academia, ATCM expert group, conservation group, other NGO, political involvement/association, science/research stationed in Antarctica, science/research stationed elsewhere, tour ops/industry - IAATO member, tour ops/industry - NOT IAATO member, traveler with no other connection to industry, other.

Q2. Please provide your name (First Last). ***FOR INTERNAL USE ONLY***

Q3. Please identify the country for which you work or otherwise represent Antarctica. ***FOR INTERNAL USE ONLY***

Q4. There are weaknesses in existing environmental policy as related to Antarctic tourism. (Add any additional commentary in space provided in final selection choice, if you wish).

Q5. There are gaps in existing environmental policy as related to Antarctic tourism.

Q6. Tourism can be a tool for short-term environmental conservation in Antarctica. Meaning, the tourism industry can contribute positively to environmental and wildlife conservation, in ways such as appropriate behavior while in Antarctica. Short term may be defined as: the tourism experience, plus 1-5 years following.

Q7. A sustainable tourism industry cannot coexist with policies that keep Antarctica's environment and wildlife conservation as an international priority.

Q8. Tourism can be a tool for long-term environmental conservation in Antarctica.

Meaning, the tourism industry can contribute positively to environmental and wildlife conservation, through education, funding, ambassadorship, etc.

Long-term may be defined as: beyond the boundaries of the tourism experience and 5+ years. Ambassadorship may be defined as: the concept of lasting commitment to environmental conservation resulting from the tourism experience and enhanced appreciation of conservation values and needs.

Q9. There is growth in Antarctic tourism, as far as numbers of people, diversification of activities, etc. This growth is outpacing both legally binding obligations and hortatory [or voluntary] guidelines adopted under the ATS for protection of environment and wildlife.

Q10. The growth described above is outpacing industry voluntary standards and guidelines adopted through IAATO for protection of environment and wildlife.

Q11. There are insufficient regulations or policies targeting private operators (such as private yachts or non-commercial operators) in Antarctica.

Q12. IAATO should not create measures or guidelines specifically designed to address tourism outside of the common "Lindblad" (ship-based with excursions on land typically by zodiac) tourism model, such as non-ship based adventure tourism (ex: air supported, marathons).

Q13. IAATO should create measures or guidelines specifically designed to address private yacht and/or non-commercial operators in Antarctica.

Q14. IAATO handles and manages nearly all tourism matters for Antarctica, while working cooperatively with the ATCPs and other organizations. The ATCPs should have a stronger or more direct role in tourism matters overall.

Q15. Currently, Antarctica may be used for a wide range of tourism and other non-governmental activities, as long as they are conducted in accordance with the Environmental Protocol. This is sufficient for effective environmental and/or wildlife conservation.

Q16. There has been growth in land based tourism, including adventure style tourism like marathons, mountain climbing, and other activities requiring substantial equipment, support, and time spent on the continent. For the purposes of this study, land based adventure tourism is that where tourists are on land for 36 hours or more. In your opinion, this type of tourism and related infrastructure poses no threat to Antarctic wildlife and/or environment.

Q17. Related to the description above, in your opinion, policies should be designed and implemented for land-based adventure tourism in Antarctica.

Q18. There should be an obligatory or voluntary payment, from individual tourists or tourism operators, to support environmental conservation and management in Antarctica.

Q19. Education about Antarctic environment, wildlife, and appropriate human behavior should be made a required component for all travel, including private, independent charter, land-based, adventure, etc.

Q20. The ATCPs and/or IAATO should not take action now regarding the potential of increasing numbers of private tour operators operating outside of the self-regulated IAATO.

Q21. The ATCPs should adopt regulatory measures to prevent or control further expansion/growth of tourism activities, in regards to numbers of visitors and/or diversity in activities (i.e., land based, adventure, etc.) in Antarctica.

Q22. IAATO should adopt regulatory measures to prevent or control further expansion/growth of tourism activities, in regard to numbers of visitors and/or diversification of activities on Antarctica.

Q23. There is little information on cumulative impacts of tourism to Antarctica. Targeted research on cumulative impacts from tourism visitation should be initiated.

Q24. Who should conduct such research?

Q25. There is no environmental oversight in Antarctica or Antarctic waters during tourism season to enforce environmental or other measures. With the exception of a New Zealand system of tourism observers on voyages to sub-Antarctic islands and the Ross Sea, there are no State observers on land or sea in Antarctica to appraise compliance and there are no universal mechanisms to deal with breaches. Some suggest that these factors complicate both managing and regulating activities in Antarctica. A monitoring or oversight strategy should be initiated for tourism operations, to safeguard Antarctic environment and biodiversity, and ensure compliance with ATS/IAATO/Madrid Protocol/etc.

Q26. Policies should be designed and implemented for land-based adventure tourism in Antarctica (those keeping tourists on land for 36+ hours).

Q27. Conservation of Antarctic biodiversity should be approached as a whole, not in fragmented parts, as some experts argue that it is now. The ATCPs should work, with IAATO and other groups, to create a systematic network to protect Antarctica and its biodiversity.

Q28. A noted challenge in Antarctic governance is the inability to create or enforce universal Antarctic-specific law (implementation is managed within each State). One scholar has suggested that an option to manage growth and risk could be to introduce ‘sponsoring states’ for tourism operators. This would mean that Antarctic Treaty party states that have ‘a genuine and substantial link’ with a tourism operator could sponsor an operator. Importantly, that sponsoring state could be held strictly liable for the actions of the tourism operator. In your opinion, this is a worthwhile and viable policy initiative.

Q29. Some argue that there is a need for better data collection and reporting on tourism in general, and in particular, land-based, adventure style tourism and non-commercial operations. Action should be taken to require and acquire better data collection and reporting in these areas.

Q30. Historically, rules and regulations for Antarctic management have been decided by way of voting among the ATCPs, with changes enacted only by a consensus vote. Some suggest that perhaps the consensus method should be re-examined, largely due to resultant inaction on key issues. Consideration should be given to alternatives to consensus- driven decision making among the ATCPs.

Q31. Any additional comments, suggestions, or otherwise?

Appendix C
APPROVAL LETTER



RESEARCH OFFICE

210 Hüllihen Hall
University of Delaware
Newark, Delaware 19716-1551
Ph: 302/831-2136
Fax: 302/831-2828

DATE: March 16, 2015

TO: Susan Lewis
FROM: University of Delaware IRB

STUDY TITLE: [719972-1] Antarctic Tourism: Environmental Policy Gaps, Needs, & Implications for the Future

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: March 16, 2015

REVIEW CATEGORY: Exemption category # (2)

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office. Please remember to notify us if you make any substantial changes to the project.

If you have any questions, please contact Nicole Farnese-McFarlane at (302) 831-1119 or nicolefm@udel.edu. Please include your study title and reference number in all correspondence with this office.