The Arctic Council
An Agent of Change?

Tom Barry

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Dissertation submitted in partial fulfilment of a
Philosophiae Doctor degree in Environment and Natural Resources

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Arctic governance and effectiveness of international organisations
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Abstract

The geo-political importance of the Arctic is growing while at the same time the onset of climate change has resulted in increasing environmental and social pressures both on Arctic states and the governance architecture through which Arctic issues are addressed. The Arctic Council is the primary intergovernmental forum promoting cooperation, coordination and interaction among Arctic States, Indigenous communities and peoples. This thesis looks at how this body is evolving in response to these pressures. It explores the drivers and barriers to its institutional effectiveness; and through the lens of biodiversity considers how these may hinder or be conducive to its ability to have an impact upon the issues it was formed to address i.e. environmental protection and sustainable development. It does so through considering Actions needed to ensure the sustainable conservation and management of the Arctic's biodiversity; identifying barriers to the effectiveness of the Council in achieving its goals; and identifying mechanisms through which it seeks to achieve its objectives.

Útdráttur

Landfræðilegt og pólitískt mikilvægi norðurslóða fer vaxandi á sama tíma og loftslagsbreytingar hafa í för með sér aukið umhverfis- og samfélagslegt álag bæði á ríki norðurslóða og stjórnkerfið þar sem málefni norðurslóða eru tekin fyrir. Norðurskautsráðið er megin stjórnvettvangur Norðurskautsríkja og samtaka frumbyggja og er markmið þess að stuðla að samvinnu, samhæfingu og samskiptum. Þessi ritgerð skoðar þróun Norðurskautsráðsins með tilliti til hvernig það bregst við ofangreindum áskorunum. Drifkraftar og hindranirnar á virkni stofnana ráðsins eru kannaðar og í gegnum linsu líffræðilegrar fjölbreytni er skoðað hvernig þessir þættir geta hindrað eða stuðlað að framgangi þeirra mála sem ráðið var stofnað til að takast á við, þ.e.a.s. umhverfisvernd og sjálfbær þróun. Þetta er gert með því að skoða aðgerðir sem nauðsynlegar eru til að tryggja sjálfbæra verndun lífríkis og stjórnun líffræðilegs fjölbreytileika norðurslóða; að greina hindranir fyrir árangri ráðsins við að ná markmiðum sínum; og greina aðferðir sem ráðið leitast við nota til að ná markmiðum sínum.

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See annex 1 for supporting papers the doctoral student participated in to inform this thesis.

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1 Introduction

1.1 Research focus and structure

The Arctic Council is an intergovernmental forum established in 1996 which promotes cooperation, coordination and interaction among Arctic States, Indigenous communities, and peoples on issues of common importance (Arctic Council 1996). The rising geo-political importance of the Arctic and the onset of climate change has resulted in the Council becoming a focus of increasing interest from both inside and beyond the Arctic. This has resulted in new demands placed on the Council, attracted an increasing number of participants and instigated a period of transformation as Arctic states work to find a way to balance conflicting demands for improving the effectiveness of the Council and taking care of national interests (Barry et al 2020). The failure of the Foreign Ministers of the Arctic States for the first time in the history of the Council to agree upon a Declaration at the 2019 Arctic Council Ministerial underlines the challenges being faced. This thesis considers if during this time of change the Council is having an impact upon the issues it was formed to address i.e. environmental protection and sustainable development. It focuses on understanding: how, the Council operates; if it is effective in securing its goals; and the mechanisms through which it tries to achieve its objectives. In order to do so it focuses on one aspect of its work, biodiversity and asks if the Council's activities have made a difference to the conservation of Arctic biodiversity and if so how? To provide answers the thesis:

- Reviews the recommendations made by the Arctic Council on actions needed to ensure the sustainable conservation and management of the Arctic's biodiversity and describes their path from science to policy (Paper I).

- Explores changes in the extent and nature of Arctic protected areas as one of the key tools used to maintain and conserve Arctic biodiversity and the functioning land and seascapes upon which Arctic species depend (Paper II);

- Analyses how the Council operates and through the lens of biodiversity identifies drivers and barriers to its institutional effectiveness; providing an understanding of the norms and rules which constitute the Council, and which are central its problem-solving abilities (Paper III); and

- Considers how the Council reports on and evaluates progress towards implementation of recommendations it makes regarding biodiversity, identifies where activities have had impacts and uncovers mechanisms through which they were successful, to provide insight into how the Arctic Council can be an agent of change (Paper IV).

This introductory chapter provides a general background to the issues discussed in more detail in subsequent chapters, section 1.2 provides an overview of the Arctic Council and its biodiversity Working Group, the Conservation of Arctic Flora and Fauna (CAFF); section 1.3 considers the Arctic Council and effectiveness: and section 1.4 outlines the methods and research questions particular to each paper.

1.2 The Arctic Council and biodiversity

Established in 1996 the Arctic council focuses on environmental protection and sustainable development and has evolved into a forum with both regional and global implications. It is a consensus forum comprised of eight member states (Canada, the Kingdom of Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States); six indigenous organizations known as Permanent Participants (Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, and the Saami Council) and thirty-eight Observer States and organisations (Arctic Council 2019). It has no ability to enforce a member state or organization to implement any of its guidelines, advice or recommendations, which remain the responsibility of member States and organizations (Arctic Council 2013). The Permanent Participants sit at the same table as the member States and can intervene and speak according to the same procedures applied to member States. The Arctic States are obliged to consult them on all the Council's negotiations and decisions but ultimately it is the Arctic States who are the final decision makers (Arctic Council, 2013).

The Council has six Working Groups where the majority of its work is conducted, each dealing with different thematic areas. These include the Arctic Contaminants Action Program (ACAP), Arctic Monitoring and

Assessment Programme (AMAP), CAFF, Emergency Prevention, Preparedness and Response (EPPR), Protection of the Arctic Marine Environment (PAME) and the Sustainable Development Working Group (SDWG). While aspects of biodiversity are touched upon across several Working Groups, CAFF is the primary instrument through which the Council addresses biodiversity (Barry et al 2020) and has a mandate to "address the conservation of Arctic biodiversity, and to communicate its findings to the governments and residents of the Arctic, helping to promote practices which ensure the sustainability of the Arctic's living resources" (CAFF 1996). CAFF does so through monitoring what's happening to Arctic biodiversity, assessing changes detected, developing policy recommendations and management advice which are designed to contribute towards informed decision making (CAFF 1996). Through reporting to the Arctic States and Permanent Participants and via a framework of agreements with global conventions and initiatives relevant for Arctic biodiversity CAFF informs on activities related to Arctic biodiversity and provides policy and advice. In 2013 CAFF released the first Arctic Biodiversity Assessment (Meltofte 2013) which provided a circumpolar overview of status and trends in Arctic biodiversity, identifying key conservation issues, relationships and actions needed to ensure conservation and sustainable management of the Arctic's biodiversity and ecosystems.

Each of the Council's Working Groups have strategic documents defining overarching goals. However, only two specify in detail actions needed to achieve these goals i.e. the Actions for Arctic Biodiversity 2013-2021: implementing the recommendations of the Arctic Biodiversity Assessment (Actions for Biodiversity) (CAFF 2015) and the Arctic Marine Strategic Plan 2015-2025 (PAME 2015), thereby providing a reporting mechanism and a potential framework to facilitate evaluation of the effectiveness of the Council. In the Actions for Biodiversity, for each Arctic Biodiversity Assessment recommendation a series of actions were defined that need to be accomplished in order for a recommendation to have an impact upon the issue it was designed to address. The current Actions for Biodiversity is scheduled to be completed in 2021, with a final report, including a new Actions for Biodiversity, to be delivered to the foreign ministers of the Arctic states in 2021. The Actions for Biodiversity provides the framework within which this thesis explores how the Council addresses biodiversity. See Paper III for a more detailed description of how the Council and CAFF are structured and operate; Paper IV for more detail on the Action Plan for Biodiversity; and Annex I for papers providing an overview on the status and trends of Arctic biodiversity.

1.3 The Arctic Council and effectiveness

Evaluating the effectiveness of international organizations and conventions is challenging and there is a diverse literature focused on defining how this might be achieved (e.g. Levy 1996; Oberthür and Stokke 2011; Johns, Thorn and VanNijnatten 2018) and a broad range of approaches that might be taken e.g. problem-solving, legal, economic, normative and political (Young and Levy 1999; Smieszk 2019). Common to all these approaches are the obstacles posed in defining how to measure effectiveness and establish causality; as well as their tendency to focus on entities with a regulatory role. Considering the impacts of the Council's work is further complicated by its consensual nature; lack of binding obligations placed upon its members; and a lack of information on how states implement or follow-up on Council outcomes. This means that while the Council has had impacts at the global scale detecting impacts at national or local levels is difficult. As a result, attention given to the Council's effectiveness both by the Council itself and by researchers has largely focused on the structure of the Council and how this might be improved (Barry et al 2020).

A need to find ways to improve efficiency have surfaced intermittently within the Council. However, it was not until recently when Ministerial Declarations instructed Senior Arctic Officals[1] (SAOs) to develop an overall strategic plan for the Council (Arctic Council 2017) and to provide guidance on how to improve its efficiency and effectiveness (Arctic Council 2019a) that the issue began to receive more attention. In response a strategic planning workshop was held in 2018 and in 2020 a strategic retreat (Smieszek and Oddsdóttir 2020) explored the role and mandate of Ministerial meetings, Senior Arctic Officials[1] (SAOs) and Permanent Participants. These initiatives reflect an understanding of the need for a more cohesive strategy for the Council but have thus far failed to deliver guidance on ways to either develop an Arctic Council strategy or on how improve its effectiveness (Barry et al 2020). Although independently of such processes, Arctic Council subsidiary bodies have begun to design strategies and action plans which contain reporting and evaluation components i.e. Actions for Biodiversity and the Arctic Marine Strategic Plan (AMSP). While environmental cooperation has received some

[1]. Ministries for Foreign Affairs of the Arctic States who are tasked with acting upon the interests of the Ministers, which includes providing guidance and direction to the Council's subsidiary bodies. The Arctic Council Secretariat provides administrative support to the SAOs.

attention, consideration of the Council's work on biodiversity is with a few exceptions absent from the literature (e.g. Barry 2019; Koivurova 2019; Smieszek 2019; 2019a). A notable exception being the efforts of the World Wildlife Fund (WWF) to measure progress on implementation of Arctic Council recommendations through scorecards which assign grades on progress being made on implementation (WWF 2017; 2019). While the scorecards shed light on the need for the Council to be able to assess the effectiveness of its actions, they do not establish causality by identifying clear linkages between a State's actions and a Council recommendation.

Multilateral Environmental Agreements (MEA) are the tools normally used by States to address regional and global environmental challenges and promote sustainable development (Johnsen et al 2010). In the absence of a clear framework through which to consider the effectiveness of the Council, they provide a starting point as they contain core concepts of relevance when considering the Council's effectiveness. While the Council is not an MEA it reflects many of their concerns e.g. through efforts to ensure synergies; create more effective governance; and setting priorities leading to the development of legally binding agreements (Barry et al 2020). The Working Group on Environmental Auditing (WGEA), under the International Organization of Supreme Audit Institutions (INTOSAI) provides guidance specific to auditing biodiversity which provide a useful way to quantify progress towards implementation (WGEA 2010). These approaches inform this thesis through a focus on changes in behaviour related to the outputs and infrastructure being created as the Council evolves i.e. outcomes or actions taken by actors e.g. States relevant to the issue in question.

1.4 Summary of methods and results

The thesis can be divided into two phases. Phase 1 focused on understanding status and trends in Arctic biodiversity; challenges being faced; and how biodiversity issues are addressed by the Arctic Council. Phase 2 focused on development of a framework to provide insight into how the Council can be an agent of change and inform discussions on its future. Methods used to inform both phases included interviews with bureaucrats and experts with a long history of engagement in the Council both as State, Indigenous and Observer representatives; meetings to evaluate the status of implementation of biodiversity actions in the Arctic Council; participation in numerous Arctic Council meetings between 2008-2019; and a review of Arctic Council meeting documents from 1996-2020. The authors role as a participant in the

work of the Arctic Council and CAFF facilitated access to people and understanding as to how the organisation operates and the challenges it faces.

In order to inform Phase 1 the thesis began with participation by the author in the design, management and evaluation of programmes to monitor Arctic biodiversity and ecosystems (e.g. Barry and Christensen 2019); a series of circumpolar assessments based upon these monitoring programmes focused on reporting on status and trends in Arctic biodiversity and ecosystems (e.g. CAFF 2013; 2017; Christensen et al 2020; Jenkins et al 2020; Taylor et al 2020); considering how the resultant information is managed (Barry et al 2016; Barry 2019); efforts to communicate the findings and outcomes of these activities to policy and decision makers in the Arctic (CAFF 2014; CAFF 2018); and an assessment of the extent and nature of area protection afforded Arctic ecosystems and biodiversity, as one of the primary tools available to conservation (Barry et al 2017). For Paper I based on information submitted by the Arctic Council Member States a database was developed containing information on the extent and nature of Arctic Protected areas and areas recognized under international conventions (ABDS 2017).

Based upon these foundations Phase 2 focused on development of a framework to provide insight into how the Council can be an agent of change and inform discussions on its future. This entailed considering Actions needed to ensure the sustainable conservation and management of the Arctic's biodiversity (Paper II and III); 2) identifying barriers to the effectiveness of the Council (Paper III); and 4) mechanisms through which the Arctic Council seeks to achieve its objectives (Paper IV). To provide the baseline to inform Papers III and IV a database was created detailing actions taken by the Arctic Council in response to Arctic Biodiversity Assessment recommendations (CAFF 2015). This baseline was informed by a series of workshops to evaluate the status of implementation of biodiversity actions in the Arctic Council and delivered to the Foreign Ministers of the Arctic States in 2017 and 2019 in the form of reports on progress towards implementation of the Arctic Biodiversity Assessment recommendations (Barry 2017; 2019). See Annex 1 for a full list of the papers developed through these activities.

1.4.1 Paper I[2]

Barry, T. and Price, C. J., (2015) 'Arctic biodiversity: from science to policy'. Environ Stud Sci, 5: 283.

Received: 2 March 2015 / Accepted May 5 / Available online: 19 May 2015

This paper focuses on the Arctic Biodiversity Assessment released by the Arctic Council in 2013 (Meltofte 2013), a report containing the best available science informed by traditional knowledge on the status and trends of Arctic biodiversity and accompanying policy recommendations for biodiversity conservation. The Arctic Biodiversity Assessment comprises three components: the, 1) Science assessment which explored the potentially dramatic consequences of climate change and other factors that adversely affect species and their habitats in the Arctic; 2) Summary for policy makers which identified nine key findings and seventeen policy recommendations which provide a guide for actions needed in response to the findings of the Arctic Biodiversity Assessment and 3) the Actions for Biodiversity 2013-2021: implementing the recommendations of Arctic Biodiversity Assessment (CAFF 2015), an eight year implementation plan which identifies a suite of actions for each recommendation which need to be undertaken in order for an Arctic Biodiversity Assessment recommendation to have an impact on the issues it was designed to address.

This paper published shortly after the Actions for Biodiversity 2013-2021 was approved by the Arctic Council outlines key research themes for this thesis i.e. how science findings translated into policy recommendations; and how are these acted upon. To do so it provides an overview of the Arctic Biodiversity Assessment nine key findings and seventeen recommendations. Through a consideration of Arctic Biodiversity Assessment recommendation no.8 on the need to reduce pressure on Arctic migratory species illustrates how scientific findings led to a policy recommendation and subsequently informed policy actions.

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[2]. The role of the doctoral student (Tom Barry) in this paper was to carry out research activities and analysis relating to the Arctic Biodiversity Assessment and its policy recommendations and the writing of the paper. Courtney Price was responsible for contributing to writing, review and analysis during the process.

Arctic Biodiversity Assessment Key finding no.3 states that many Arctic migratory species are threatened by overharvest and habitat alteration outside the Arctic and key finding no.9 highlighted that the challenges facing Arctic biodiversity are interconnected, requiring comprehensive solutions and international cooperation. These findings informed Arctic Biodiversity Assessment recommendation no.8, which recommended the reduction of stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes. The Council's response was the creation of the Arctic Migratory Birds Initiative (AMBI) designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations.

The path from completing the Arctic Biodiversity Assessment to the development of policy recommendations and the first efforts towards implementation illustrates the role the Arctic Council can play in promoting and facilitating conservation actions for Arctic biodiversity. It also emphasizes the urgency needed to take action to sustain the Arctic´s biodiversity and highlights that doing so requires speeding and scaling up of actions to implement the Arctic Biodiversity Assessment recommendations and commitments under international agreements relevant to the Arctic. This paper provides a first indication of how Arctic Biodiversity Assessment recommendations are being acted upon, but it will not be until the Actions for Biodiversity 2013-2021 is completed that a more comprehensive understanding can be reached on how effective this process has been and what impacts it may have had.

1.4.2 Paper II[3]

Barry, T., Helgasson, H., Guðmundsdóttir, S. (2017) 'Arctic protected areas in 2017: status and trends'. Biodiversity, 18:4, 186-195

Received: 3 October 2017 / Accepted 6 October 2017 / Available online: 20 November 2017

[3]. The role of the doctoral student (Tom Barry) in this paper was to carry out all data collection, research activities and analysis relating to the developing the Arctic protected areas indicator; Hólmgrímur Helgason was responsible for data curation and analysis; and Soffía Guðmundsdóttir was responsible for review and guidance during the writing process.

The Arctic States have recognised that the Arctic environment needs to be protected as a basis for sustainable development, prosperity, lifestyles and human well-being. The findings and recommendations of the Arctic Biodiversity Assessment underscore this need with Key Finding no.1 stating while biodiversity was being degraded, decisive action could help sustain the Arctic's vast, relatively undisturbed ecosystems of tundra, mountains, fresh water and seas and the valuable services they provide. Arctic Biodiversity Assessment recommendation no.5 highlights the goals which need to be attained in order to advance the protection of large areas of ecologically important Arctic marine, terrestrial and freshwater habitats. This paper considers one of the key tools used in efforts to maintain and conserve Arctic biodiversity and the functioning landscapes upon which species depend i.e. protected areas. In the Arctic these areas are also important for global biodiversity conservation as the majority of Arctic species use the region seasonally, with Arctic habitats providing resources for the maintenance of many bird and mammal species that migrate to areas around the world. The importance of this role is increasing due to climate-driven ecological change, industrial development and resource exploitation.

The Actions for Biodiversity subsequently identified a suite of tasks to be undertaken in order for progress to be made in achieving these goals. To provide an understanding of the framework within which these actions might occur the main questions addressed by this paper are:

- What is the current extent and coverage of protected areas in the Arctic and how have these changed since the beginning of the twentieth century?

- What is the coverage of areas in the Arctic recognised under global international conventions and how have these changed since the beginning of the twentieth century?

This analysis found that the extent of protected areas in the Arctic has almost doubled since 1980 but that while progress has been made in extending protection, it has not been even across ecosystems. Currently, in 2016, 20.2% of the Arctic's terrestrial area and 4.7% of the Arctic's marine areas were protected. With protected area coverage of the Arctic's terrestrial ecosystems exceeding Aichi Biodiversity Target 11 which aims for at least 17% of terrestrial and inland water to be protected by 2020. The protected area

coverage of marine areas currently falls short of the Aichi Target goal for 10% of coastal and marine areas to be protected by 2020. An increasing focus on areas recognised under global international conventions can be seen in how the total area covered by sites recognised by the Ramsar Convention on Wetlands almost doubled, while the total area designated as World Heritage Sites increased by about 50% in the same time period.

While this paper is an important step towards understanding the nature and extent of protected areas in the Arctic further work is required to analyse how well the Arctic's framework of protected areas meet the test of being an ecologically connected and representative network and support resilience of Arctic ecosystems and biodiversity. Are existing networks of protected areas sufficient to ensure conservation or are we faced with a situation where what is desirable to protect today is changed or lost as ecosystems change, species shift ranges and previously inaccessible regions become accessible?

1.4.3 Paper III[4]

Barry, T., Daviðsdóttir, B., Einarsson, N., Young, O.Y. (2020) 'The Arctic Council: an agent of change?'. Global Environmental Change, Volume 63, 102099.

Received: 15 January 2020 / Accepted 25 April 2020 / Available online: 3 June 2020

The rising geo-political importance of the Arctic and the onset of climate change has resulted in the Council becoming a focus of increasing interest from both inside and beyond the Arctic. This has resulted in new demands placed on the Council, attracted an increasing number of participants and instigated a period of transformation as Arctic states work to find a way to balance conflicting demands for improving the effectiveness of the Council and taking care of national interests. This paper considers if during this time of change the Council is having an impact upon the issues it was formed to address i.e. environmental protection and sustainable development. In order

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to do so the paper looks at how the Council operates and through the lens of biodiversity identifies drivers and barriers to the Council's institutional effectiveness; providing an understanding of the norms and rules which constitute the Council, and which are central to its problem-solving abilities. In order to do so it asks the following questions:

- Who are the main players in the Council and what are the limitations they face?
- What are the norms and rules of how the Council operates and how are they evolving?
- What does it cost and how does it operate; and
- Where does the Council fit within the Arctic governance architecture?

This paper illustrates how the Council is changing and how its operations are evolving in response to the increasing attention paid to all things Arctic. The paper's findings identify the challenges to ensuring effective outcomes from the Council's activities and highlights that without clear strategies many of the Council's efforts can appear ad-hoc and without due recourse to forward planning. Answering the above questions provide steps towards an understanding of how the Council can be more effective and why it can fail to influence progress towards implementation of its recommendations for policymakers.

This paper also discusses the barriers to the institutional effectiveness of the Council and how these are reflected in the ad-hoc nature of new components being established within its structure, sometimes with unclear or overlapping mandates, which lead to wasted resources and a lack of clarity on who is doing what. Similarly, the lack of an overall strategy hinders the Council's ability to address broader issues such as climate change and sustainable development; and the absence of obligated reporting lends itself to a lack of transparency as to how or if States act on any outcomes from the Council. This means that while the Council has had impacts at the global scale detecting impacts at national or local levels is difficult. Identifying such barriers to its institutional effectiveness provides a framework within which to better understand how the Council can influence change. However, when clear and detailed plans are in place such as the Action plan for Arctic biodiversity 2013-21 to guide the work of the Council on biodiversity then glimpses can be seen of its potential to act as an agent of change. While this paper contributes towards understanding how the Council can be an agent of

change further research is needed to better understand the mechanisms through which the Council strives to influence change.

1.4.4 Paper IV[5]

Barry, T.; Daviðsdóttir, B.; Einarsson, N.; Young, O.R. (2020) 'How Does the Arctic Council Support Conservation of Arctic Biodiversity?'. Sustainability, 12, 5042.

Received: 7 May 2020 / Accepted 16 June 2020 / Available online: 20 June 2020

This paper deals with how the Arctic Council is undergoing changes in how it operates, while, at the same time, the Arctic is facing growing ecological challenges. At this critical juncture, identifying where the Council's activities have had impacts on biodiversity and uncovering the mechanisms through which they were successful may provide an insight into how the Arctic Council can be an agent of change during these ecological crises and inform discussions on its future. To provide answers this paper looks at how the Council reports on and evaluates progress towards the implementation of recommendations it makes regarding biodiversity. It also identifies where activities have had impacts and uncovers mechanisms through which they were successful, to provide insight into how the Arctic Council can be an agent of change. It looks at the creation and implementation of the first circumpolar assessment of the Arctic's biodiversity, the Arctic Biodiversity Assessment), and asks if it has made a difference to the conservation of Arctic biodiversity and if so, how was this achieved? Attempting to answer this question entailed considering the process to develop the Arctic Biodiversity Assessment and using its subsequent implementation plan as a framework to analyse how the Council is following up on these recommendations.

This paper illustrates how the Actions for Biodiversity provide a means to evaluate and guide the Council's work on biodiversity and help focus the

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Council's efforts to influence change. The findings of this paper demonstrate how the Actions for Biodiversity has resulted in a more coordinated approach by the Council on how it follows up on its biodiversity recommendations. While the absence of obligated reporting makes it difficult to pinpoint where the Arctic Biodiversity Assessment has had a direct impact, the examples provided, e.g., the role played by CAFFs Circumpolar Biodiversity Monitoring Programme (CBMP) in filling knowledge gaps and raising awareness, illustrate how the implementation of Council recommendations in tandem with the influence mechanisms described in this paper can play an important role in conserving Arctic biodiversity i.e. knowledge building, facilitating dialogue, enhancing capacity, making data accessible, supporting regional and global frameworks and providing advice to decision makers. However, it is important to keep in mind that, as multiple causal factors are often involved in shaping outcomes, it can be difficult to trace the role a Council activity might have played in ensuring a specific outcome.

While the Actions for Biodiversity has been effective in focusing attention on the importance of implementation and follow-up reporting, it is also clear that, when it comes to taking the jump from knowledge to action, the tools or willingness to translate this into action at the national level are often missing. The Council can also suffer from a lack of forward planning, in that attention can be focused on a product itself, without enough thought given to structure and planning to ensure follow ups on its findings in order to facilitate clear reporting and an evaluation of responses. A more thorough understanding of how the Council's activities have been used and acted upon in global, national, and more local contexts will require more comprehensive reporting within the Council by member states and organisations.

2 Summary and discussion

The outcomes of the first phase of the thesis: illustrate that the Arctic is experiencing cumulative and accelerating change with its ecosystems and species coming under increasing pressure from within and outside the Arctic by contaminants, over-exploitation of species, anthropogenic disturbance, resource extraction, landscape alteration, habitat loss and fragmentation (CAFF 2013a; 2017; Christensen et al, 2020); emphasize how these threats are further intensified by climate change which presents by far the most serious threat to Arctic biodiversity (CAFF 2013); and demonstrate that the challenges being faced are interconnected, requiring comprehensive solutions and international cooperation (CAFF 2013). Subsequently the assessment of the extent of area protection afforded Arctic biodiversity (Barry et al 2017) as one of the most important tools available to conservation found, that while progress has been made in extending protection, it has not been even across ecosystems and in the face of climate change questions whether existing networks of protected areas are sufficient to ensure conservation whether we are faced with a situation where what is desirable to protect today is changed or lost as ecosystems change, species shift ranges and previously inaccessible regions become accessible? Based upon this foundation and understanding the second phase focused on providing insight into how the Council can be an agent of change in helping address the many challenges faced when trying to sustainably manage the Arctic's Biodiversity and ecosystems. The findings of the thesis are summarised and discussed under the following sections:

- Actions needed to ensure the sustainable conservation and management of the Arctic's biodiversity;
- Barriers to the effectiveness of the Council in achieving its goals; and
- Mechanisms through which the Arctic Council seeks to achieve its objectives.

The findings of this thesis contribute to a growing body of work focused on the Arctic Council, its structure (e.g. Haavisto 2001; Koivurova 2019), effectiveness (e.g. Smieszk, 2019) and where it fits into the Arctic governance architecture (e.g. Young 2019). It does so by shedding light on

how the Council works to influence change; providing examples of where it does so with regards to biodiversity (Barry et al 2020a); and illustrating how the Council interacts with other governance structures relevant to the Arctic e.g. the United Nations Convention on Biological Diversity (Prip 2016; Barry et al 2020).

2.1 Actions to ensure the sustainable conservation and management of the Arctic's biodiversity

In 2013 the Arctic Biodiversity Assessment (Meltofte 2013) was released and provided for the first time a circumpolar synthesis of the best available science informed by traditional knowledge on the status and trends of Arctic biodiversity. Based upon this baseline the Arctic States and Permanent Participants agreed that decisive action could help sustain the Arctic's ecosystems and the services they provide and negotiated a suite of seventeen policy recommendations for biodiversity conservation designed in response to the key findings of the Arctic Biodiversity Assessment (CAFF, 2013). In order for these recommendations to have an impact requires clear guidance on how the Council and its members should act upon its findings and therefore upon their approval the foreign ministers of the Arctic states, encouraged Arctic states to follow-up on the recommendations and instructed the Senior Arctic Officials of the Arctic Council to develop a plan to support and implement its recommendations and deliver a progress report to the next ministerial meeting (Arctic Council 2013a). Subsequently in 2015 the Arctic Council approved a comprehensive plan, the Actions for Biodiversity which outlined actions needed to be undertaken if these recommendations were to impact on the problems they were designed to address (CAFF 2015).

The Arctic Biodiversity Assessment recommendations have since guided and informed the actions taken by the Council in relation to biodiversity (Barry et al 2019a). While the Council as a whole does not yet have a strategic plan, for the first time it now had a clear overarching framework to guide and inform its actions on biodiversity, and to align these actions within broader global biodiversity frameworks, e.g., the upcoming Post-2020 global biodiversity framework (Barry & Price 2015; Barry et al 2020a). The Actions for Biodiversity also provides for the first time a reporting mechanism and a potential framework to facilitate evaluation of the effectiveness of the Council's biodiversity activities. Furthermore, its structure provides a means of tracing the path between a Council recommendation and an effective

response, thus increasing the visibility of Council effectiveness, and better connecting disparate actions into an overall strategic direction (Barry et al 2020). Prior to the approval of the Actions for Biodiversity much of the Council's work when it came to biodiversity was characterised by its fragmented nature and lack of overall cohesion and subsequent inability to provide clear overall direction and guidance (Barry et al 2020a).

This eight-year action plan is coming to an end in 2021 and work is underway to report on its outcomes with a new Action Plan origianlly scheduled for delivery at the 2021 Arctic Council Minsiterial meeting. However development of the new Actions Plan has been delayed because of the impacts of the COVID-19 pandemic, which has impacted the ability to organize workshops and facilitate discussions needed to complete the Plan in time for the 2021 Ministerial; and .to facilitate alignment with the post-2020 UN Global Biodiversity Framework, which is currently under development and has also been delayed due to the COVID-19 pandemic. In the meantime the lifespan of the current plan has been extended until 2023 and will continue as the guiding framework for CAFF and the Arctic Council on biodiversity activities. A report providing an overview of implementation of the current Action Plan, and of possible ways forward, is being prepared as a deliverable for the 2021 Ministerial.

The ability of the Council to agree upon a new action plan with enough detail and direction to continue to effectively guide the Council's work on biodiversity will say much on the commitment of Arctic states to using the Council as a means to address the many challenging issues facing the Arctic´s biodiversity and ecosystems. Also, while the Arctic Biodiversity Assessment recommendations were an essential first step in developing a foundation to support informed decision making, the assessment upon which they are based was released almost a decade ago. In light of the rapid rate and cumulative nature of change in the Arctic they need to be revisited to evaluate whether in light of new changes and knowledge over the intervening eight years to consider if they should continue to form the framework within which the Council considers its actions on biodiversity (Barry et al 2020a). Do the issues they highlight remain valid or have some been overtaken by the changes occurring in the Arctic with new issues emerging which need to be taken into account?

2.2 Barriers to the effectiveness of the Council in achieving its goals

In order to determine if the Council is able to deliver on the promises found in the Actions for Biodiversity the thesis looks at how the Council operates and through the lens of biodiversity identified drivers and barriers to its institutional effectiveness; providing an understanding of the norms and rules which constitute the Council and which are central its problem-solving abilities (Barry et al 2020; 2020a). When considering the institutional effectiveness of the Arctic Council it is clear that the Council has changed significantly since its formation. How it is structured and operates is evolving in response to the increasing international and national attention paid to all things Arctic and the resulting increased focus by Arctic States in pursuing geopolitical agendas in the region. Factors which help enable this change include the willingness of member states, Permanent Participants and Observers to commit resources to support its activities; its ability to often facilitate consensus; and the passionate commitment of individuals engaged in the Council's work (Barry et al 2020).

However, challenges to ensuring effective outcomes from the Council's activities remain as illustrated by its recent inability to reach consensus on climate change which led for the first time in its history to failure to agree upon a Declaration at the 2019 Arctic Council Ministerial (Barry et al 2020a). Central to these barriers to its effectiveness are that as a consensus-based body it has no means or resources to compel implementation of any decisions or recommendations it makes. In the absence of agreement across all Arctic states to act on a specific issue the Council can only recommend or advise on best practices or guidelines on the issue in question and leave it to the discretion of individual members as to the extent they might make changes to how they act in response. There is also the danger when trying to agree upon an issue that the least offensive outcome is chosen rather than the most effective (Barry et al 2020). However, the Council has displayed an ability to facilitate consensus among its members e.g. as can be seen through its facilitation of three legal agreements on the Arctic (Arctic Council 2013b; 2013c; 2017a). Additionally, the absence of an underlying legal agreement means it may be more flexible regarding changes to what it does and how it is structured than may be the case with formal agreements and their clearly defined roles and restrictions (Barry et al 2020).

A significant barrier to effectiveness is posed by how the Council and its activities are funded on a voluntary basis by individual Arctic states where all

states do not necessarily contribute to every activity, or to supporting subsidiary bodies. This depends upon where their interests lie. It has no programming budget with activities being supported by a mixture of direct funding provided to a subsidiary body and in-kind support e.g. funding provided towards the salary and running costs of Working Group secretariats. Such a voluntary structure means that the ability to implement workplans can be limited and unbalanced depending upon the prevailing interests of states or other funding sources (Barry et al 2020). This can pose an obstacle to the Council's effectiveness leading to inequalities in influence, as countries willing to provide the most resources are able to push their priorities simply by funding them, even if the funded projects may not be priorities of the Arctic Council as a whole; lower priority projects undertaken simply because they receive funding; time and resources spent on finding resources for projects; and projects being halted or delayed because of a lack of funding.

The lack of a programming budget and insufficient operational budgets for Working Group Secretariats places financial constraints upon their ability to fulfil their mandates and complete tasks in accordance with agreed upon timelines (Barry et al 2020). This in turn impacts upon the Council's ability to better harness knowledge and capacity to inform timely and effective decisions in the face of the cumulative and accelerating change affecting the Arctic. The future ability of the Council to evolve into an organization with the ability to more effectively address challenges in the Arctic will to an extent be reflected in the willingness of Arctic States to devise a sustainable funding framework for its activities (Barry et al 2020; 2020a).

In the absence of a sustainable funding framework and in the face of the increasing complexity of the Council's activities considerations on how to improve its effectiveness have largely focused on how the Council is structured and how this might be modified to increase administrative effectiveness (e.g. Haavisto 2001; Norwegian Arctic Council Chairmanship 2008). This has led to the establishment of the Arctic Council Secretariat to increase administrative effectiveness and the creation of Task Forces and Expert Groups to place emphasis on specific issues outside the framework of the Working Groups e.g. the Expert Group in operation in support of implementation of the framework for action on Black Carbon and Methane. The Working Groups are required to support the work of such bodies without any additional resources to facilitate this support. Therefore, existing capacity and resources are often stretched to accommodate these new requirements to the detriment of the tasks Working Groups are mandated to address. The Ad-hoc nature of new components being established, sometimes

with unclear or overlapping mandates e.g. as between PAME and the Task Force on Arctic Marine Cooperation, can also lead to wasted resources and a lack of clarity on who is doing what (Barry et al 2020). These may also reflect uncertainty among Arctic States as to the ability of the current institutional structure to fulfil their needs; and a desire to exert more direct control on specific issues rather than through existing subsidiary bodies with established rules and processes which guide how priorities are acted upon.

Perhaps one of the most challenging structural and procedural issues at present for the Arctic States is how to accommodate the desires of Observers[6] for greater involvement while retaining control. Its ability to do so will have consequences in terms of access to resources and knowledge; including how States and bodies outside the Council respond to and act upon the products of the Council. To manage this challenge, the Council has developed guidelines for Observer engagement (Arctic Council 2016) and is trying to find ways to ensure more effective engagement and access to resources both monetary and scientific that Observers can contribute (Barry et al 2020; 2020a).

In addition to the challenges posed by structure and funding, the Arctic Council currently has no overall strategy to guide its activities or help ascertain if its goals are being achieved and evaluate any impact its activities

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[6]. Thirteen Non-arctic States have been approved as Observers to the Arctic Council (France, Germany, Italy, Japan, The Netherlands, China, Poland, India, Republic of Korea, Singapore, Spain, Switzerland, UK).
Thirteen Intergovernmental and Inter-Parliamentary Organizations have been approved as Observers (International Council for the Exploration of the Sea, International Federation of Red Cross and Red Crescent Societies, International Maritime Organization, International Union for the Conservation of Nature, Nordic Council of Ministers, Nordic Environment Finance Corporation, North Atlantic Marine Mammal Commission, OSPAR Commission, Standing Committee of the Parliamentarians of the Arctic Region, United Nations Development Programme, United Nations Environment Programme, World Meteorological Organization, West Nordic Council).
Twelve Non-governmental Organizations are approved as Observers (Advisory Committee on Protection of the Sea, Arctic Institute of North America, Association of World Reindeer Herders, Circumpolar Conservation Union, International Arctic Science Committee, International Arctic Social Sciences Association, International Union for Circumpolar Health, International Work Group for Indigenous Affairs, Northern Forum, Oceana, University of the Arctic, World Wide Fund for Nature, Arctic Programme) (Arctic Council 2020).

may have, hindering its ability to address broader issues such as Climate Change and sustainable development. Under the US Chairmanship (2015-2017) efforts were instigated to develop an overarching strategy and these efforts were continued by the Finnish Chairmanship (2017-2019). However, this process was not completed in time for the 2019 Ministerial meeting and it remains a task for the Icelandic Chairmanship (2019-2021) to complete. While the Council as a whole does not yet have a strategic plan, each of the Council's Working Groups have a strategic document (CAFF 2015; PAME 2015; EPPR 2016; ACAP 2016; SWDG 2017; AMAP 2019) defining overarching goals and objectives. Only two specify in detail actions needed to achieve these goals i.e. the Actions for Arctic Biodiversity 2013-2021: implementing the recommendations of the Arctic Biodiversity Assessment (CAFF 2015) and the Arctic Marine Strategic Plan 2015-2025 (PAME 2015), thereby providing a reporting mechanism and a potential framework to facilitate evaluation of the effectiveness of the Council. To the lack of a clear overarching strategy for the Council is added the concept of Chairmanship priorities which define priorities or themes for a state's Chairmanship. Over time these have become more substantive whereby States consult with other Member States and Permanent Participants producing detailed lists of priority initiatives or themes via which they plan to define their Chairmanships.

2.3 Mechanisms of influence

Through development of the Arctic Biodiversity Assessment and its implementation plan, the Council has created a means to more effectively guide its activities and decision-making concerning biodiversity. However, while it is relatively easy to map progress on developing outputs such as the Arctic Biodiversity Assessment (Barry 2017; 2019), Circumpolar Biodiversity Monitoring Programme (CBMP) (Barry et al 2020) and the Arctic Migratory Birds Initiative (AMBI) (Provencher et al 2017), detecting changes in behaviour in response is more challenging. Understanding how an organisation such as the Arctic Council which has no formal authority and limited resources can make a difference requires not just an understanding of barriers to its effectiveness but also identification of the mechanisms

Influence mechanisms:

knowledge building, facilitating dialogue, enhancing capacity, making data accessible, supporting regional and global frameworks and providing advice to decision maker (Barry et al 2020a)

through which it strives to be an agent of change. To uncover the Council's potential to act as an agent of change requires looking deeper to find those hidden, examples of how the Council's work has directly led to or influenced change (Barry et al 2020; 2020a).

Delivering policy recommendations and advice for management are key to how the Council draws attention to issues of concern. Through the identification of actions needed in response, e.g., as in the Actions for Biodiversity, the Council can nudge states and others towards necessary changes in behaviour. However, reporting on the Actions for Biodiversity in terms of whether tasks have been initiated only reflects those issues and actions that states are willing to address collectively within the context of the Council. It does not capture changes in behaviour by individual states, for example, in state policy or regulations in response to a recommendation. What the progress reports on implementation of the Arctic Biodiversity Assessment recommendations (Barry 2017; 2019) begin to highlight is how, despite its lack of formal authority and resources to directly engage in implementation, the Council can influence behaviour and movement towards the desired actions through knowledge building, facilitating dialogue, enhancing capacity, making data accessible, supporting regional and global frameworks, providing advice to decision makers; and creating a community of people in key organisations across the Arctic with a passion for the Arctic and who are well placed to influence decisions and nudge issues forward (Barry et al 2020a). Such mechanisms can be viewed as an exercise in "soft power" and are often overlooked by those who think in terms of formal authority or material resources but can be key in ensuring change occurs. However, they are not always effective and a consideration of how they are deployed by the Council can help tease out the conditions that are conducive to success in exercising such soft power (Barry et al 2020a).

Building knowledge through monitoring and assessment is a core activity of the Council where it has received widespread recognition as a credible and legitimate source on the challenges being faced in the Arctic (Prip 2016; Stokke 2013). This mechanism can sometimes trigger political action with a recent example of how cooperation between states engaged in the implementation of CAFF's Arctic Marine Biodiversity Monitoring Plan (Gill et al 2011) led to the identification of time and cost-effective possibilities for marine benthos monitoring. This resulted in a benthic biodiversity monitoring component being added to the existing annual monitoring process for commercial fish-stocks in several Arctic countries (Greenland, Iceland and Norway), thus improving the coverage of overall biodiversity monitoring

with relatively little extra cost (Barry 2017). This synergy might seem simple, but may not have occurred, without the Council's recognition of a gap in knowledge and subsequent investment by Arctic states to facilitate the gathering and exchange of knowledge (Barry et al 2020a).

Other important influence mechanisms are the efforts to facilitate and increase engagement with Arctic biodiversity among diverse stakeholders at different scales. This can be seen in how the Council is trying to accommodate the desires of observer states and organizations for greater involvement, while retaining Arctic state sovereignty. Its ability to do so will have consequences in terms of access to resources, knowledge, and how states and bodies outside the Council respond to and act upon its products (Barry et al 2020). Migratory species are an obvious issue in which to engage with non-Arctic states and CAFF's Arctic Migratory Birds Initiative (AMBI) has become a test case through which the Council is exploring a model for how to do so (Barry and Price 2015). Under AMBI, for the first time, the Council is recommending specific actions to be taken outside of the Arctic in order to help conserve Arctic species (CAFF 2019). This allows Arctic Council observer states to directly contribute to the Council's work within their own jurisdictions, thus fulfilling the Arctic Biodiversity Assessment recommendations as well as the requirement for observer states to engage with the Council at the Working Group level (Barry et al 2020a).

Facilitating engagement within the Council itself is also an important task and a perceived lack of cooperation across its subsidiary bodies is often cited in the literature on the Council (e.g., Prip 2016; Supreme Audit Institutions 2015). The reporting and evaluation component built into the Actions for Biodiversity is an example of how cooperation across Arctic Council subsidiary bodies can be encouraged, with all subsidiary bodies involved in the design of the plan and reporting on its implementation. Increasing engagement can also be seen in the growing number of cross-cutting initiatives between subsidiary bodies working on tasks identified in the Actions for Biodiversity. Enhancing the capacity of the Council is challenging to achieve, given the limited resources available. However, opportunities are provided for relevant stakeholders to join Council activities, learn how the system operates, and to take these skills back to inform their organizations (Barry et al 2020a).

2.4 Limitations and further research

The following challenges were encountered during this research with respect to the research methods and data used.

- The Actions for Biodiversity presents a framework to evaluate effectiveness of the Council's work on biodiversity and to track its outputs and outcomes. However, the absence of obligated reporting has led to a lack of transparency as to how or if States act on any outcomes from the Council which means that while the Council has had impacts at the global scale detecting impacts at national or local levels is difficult. Therefore, while it was possible to gather information comprehensively on those issues and actions that states address collectively within the context of the Council, it was more challenging to gather information on changes in behaviour by individual states, e.g. in state policy or regulations. To address this limitation this thesis by identifying the mechanisms through which the Council seeks to make an impact and discussions with scientists and bureaucrats from Arctic States uncovered several examples of impacts at the national and global levels.

- It is seven years since the Arctic Biodiversity Assessment recommendations, which form the framework for the Actions for Arctic Biodiversity, were negotiated and the Council has embarked upon development of a new Action Plan for 2021+. It is possible that some of the issues identified in the Arctic Biodiversity Assessment have been overtaken by the changes occurring in the Arctic; and new issues may have emerged which need to be taken into account and which might shed light on how the Council can/does influence change. To do so would require an update to the Arctic Biodiversity Assessment and negotiation between Arctic States. Therefore, this issue was not addressed within the context of this thesis. However, building upon this thesis and as part of the steps to develop a new Action Plan for 2021+, a review is currently underway of all key findings, advice and recommendations on biodiversity issued by the Council since 2013. The outcomes of this review will clarify if the Arctic Biodiversity Assessment recommendations and key findings remain valid or need revision.

- Multiple causal factors are often involved in shaping outcomes and it can be difficult to trace the role a Council activity might have played in ensuring a specific outcome. To address this limitation this thesis

identified examples of where the Council's activities have had impacts on biodiversity and uncovered mechanisms through which they were successful. This helped provide insights into how the Arctic Council can be an agent of change during current crises and to inform discussions on its future.

A more thorough understanding of how the Council's activities have been used and acted upon will require more comprehensive reporting within the Council by member states and organisations. With the above issues in mind the following are areas where further research is required to inform our understanding of the impacts of the Council's activities:

- Consider the Arctic Biodiversity Assessment recommendations to evaluate whether in light of new changes and knowledge over the intervening eight years they should continue to form the framework within which the Council considers its actions on biodiversity.

- Clarify where and how the Arctic Council fits with the other components comprising the architecture of Arctic governance.

- This thesis has focused on just one aspect of the Council's, work i.e. biodiversity, similar attention paid to other areas within its broad range of activities would help inform discussions on the future of the Council.

- Consider if when faced with the evolving political and environmental pressures in the Arctic can the Arctic Council continue to have an impact? Will the existing mechanisms of influence described in this thesis continue to function in the face of the many forces driving change in the Arctic and in its governance architecture?

2.5 Contribution to knowledge

As the Arctic Council approaches its 25th anniversary in 2021 and the Arctic faces growing ecological and social challenges its purpose and role in Arctic governance is increasingly under scrutiny (e.g., Young 2019). Therefore, as it reaches this milestone, identifying where the Council's activities have had impacts on biodiversity and uncovering the mechanisms through which they were successful provides insights into how the Arctic Council can be an agent of change during these crises and inform discussions on its future. Through illustrating how the Actions for Biodiversity can provide a robust means of reporting on the outcomes of its activities regarding biodiversity and

evaluating their effectiveness it provides an important contribution towards demonstrating the relevance of the Council, facilitating the setting of priorities for its work, and shedding light on potential roles the Council might play in the increasingly complex framework of Arctic governance. This entailed:

- Providing an overview of the recommendations made by the Arctic Council on actions needed to ensure the sustainable conservation and management of the Arctic's biodiversity and describing their path from science to policy;

- Defining how the Council reports on and evaluates progress towards implementation of recommendations it makes regarding biodiversity;

- Identifying drivers and barriers to its institutional effectiveness; providing an understanding of the norms and rules which constitute the Council, and which are central its problem-solving abilities;

- Identifying where activities have had impacts and uncovering the mechanisms through which they were successful; and

- Analysing the extent and nature of protected areas across the Arctic as one of the key tools available to conservation of Arctic biodiversity.

This thesis also contributes to the literature on the effectiveness of international organisations through 1) identifying mechanisms through which one organisation (the Arctic Council) strives to exert influence in the pursuit of its objectives; 2) uncovering examples of where this has and has not been successful; and 3) providing a framework for how such an organisations effectiveness could be considered.

The outcomes of this thesis led to the formulation of the following recommendations for future research and for the Council to consider:

- Revise the Arctic Biodiversity Assessment recommendations and key findings to evaluate whether in light of new changes and knowledge over the intervening eight years they should continue to form the framework within which the Council considers its actions on biodiversity.

- Allow for more comprehensive reporting within the Council to facilitate a better understanding of how the Council's activities have been used and acted upon in global, national, and local contexts.

- Agree upon an overall strategy for the Council which would help to focus and guide its work more effectively when addressing climate change and sustainable development.

- Establish a sustainable funding framework both for the organisation itself and to allow for implementation of agreed upon activities.

- Clarify where and how the Council relates to or fits with other emerging components of Arctic governance which at present remain unconnected e.g. the Agreement to prevent unregulated high seas fisheries in the Central Arctic Ocean.

- Consider how the development of an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (UNCLOS 2017) will impact on how the Council deals with Arctic biodiversity.

- Consider whether the Council in the face of increasing environmental and political pressures can continue to exert influence e.g. will the mechanisms described remain effective means to influence change.

2.6 Conclusions

The Arctic Council is undergoing changes in how it operates, while, at the same time, the Arctic is facing growing ecological and social challenges. At this critical juncture, identifying where the Council's activities have had impacts on biodiversity and uncovering the mechanisms through which they were successful may provide insight into how the Arctic Council can be an agent of change during these ecological crises and inform discussions on its future.

It is clear that the Actions for Biodiversity provide a means to evaluate and guide the Council's work on biodiversity and help focus the Council's efforts to influence change. It has resulted in a more coordinated approach by the Council on how it follows up on its biodiversity recommendations. While the absence of obligated reporting makes it difficult to pinpoint where the Arctic

Biodiversity Assessment has had a direct impact, the examples provided, e.g., the role played by the CBMP in filling knowledge gaps and raising awareness, illustrate how the implementation of Council recommendations in tandem with the influence mechanisms described above can play an important role in conserving Arctic biodiversity. While the Actions for Biodiversity have been effective in focusing attention on the importance of implementation and follow-up reporting, it is also clear that, when it comes to taking the jump from knowledge to action, the tools or willingness to translate this into action at the national level are often missing (Prip 2016, Barry et al 2020). The Council can also suffer from a lack of forward planning, in that attention can be focused on a product itself, without enough thought given to structure and planning to ensure follow ups on its findings (Barry et al 2020) in order to facilitate clear reporting and an evaluation of responses. A more thorough understanding of how the Council's activities have been used and acted upon in global, national, and more local contexts will require more comprehensive reporting within the Council by member states and organizations.

Despite these challenges it is clear that the Council has had positive impacts both at national and global scales through increasing common awareness and understanding of issues such as the challenges facing Arctic biodiversity; generating knowledge to support evidenced based decision making; addressing gaps in Arctic governance through facilitating creation of legal agreements; and providing a venue for communication in times of geopolitical tension. The mechanisms used to exercise the soft power described in this thesis—knowledge building, facilitating dialogue, enhancing capacity, making data accessible, supporting regional and global frameworks and providing advice to decision makers—play important roles in how the Council works to influence change. However, we must keep in mind that, as multiple causal factors are often involved in shaping outcomes, it can be difficult to trace the role a Council activity might have played in ensuring a specific outcome.

The Council's ability to continue to have positive impacts and to function as a forum for cooperation will be tested by how it responds to climate change and the extent to which Arctic States may allow security issues to be addressed. The development of an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine Biological diversity of areas Beyond National Jurisdiction (BBNJ) (UNCLOS 2017) may have significant impacts on how the Council deals with Arctic biodiversity. These impacts are already being reflected in the increased

emphasis placed on the need for improved coordination on ocean governance e.g. the Task Force on Arctic Marine Cooperation and the SAO Marine Mechanism currently underway which is intended to create a framework within which Arctic States, Permanent Participants, Working Groups and Observers can call attention to ocean-related matters they believe to be of particular relevance for the Arctic Council.

What role might the Council play in implementing the BBNJ once it has been completed? Without clear strategies many of the Council's efforts can appear ad hoc, reactive rather than responsive and without due recourse to forward planning. Although , when clear and detailed plans are in place to guide the work of the Council as in biodiversity e.g. the Action plan for Arctic biodiversity (CAFF 2015) and the AMBI work plans (Provencher et al. 2017; CAFF 2019) then glimpses can be seen of the potential of the Council to act as an agent of change. However, when faced with evolving political and environmental pressures can the Arctic Council continue to have an impact? Will the existing mechanisms of influence described in this thesis continue to function in the face of the many forces driving change in the Arctic and in its governance architecture?

Annex 1

Baak, J.E., Linnebjerg, J.F., Barry, T., Gavrilo, M.V., Mallory, M.L., Price, C., Provencher, J.F. (2020) Plastic ingestion by seabirds in the circumpolar Arctic: A review. Environmental Reviews.

Barry T et al, (2016) 'Spatial Information and Ecosystem-Based Management in the Marine Arctic in Geoinformatics for Marine and Coastal Management'. https://doi.org/10.1201/9781315181523.

Barry T., Grenoble. Arctic Biodiversity Assessment (2013) 'Chapter 20 Introduction; Linguistic diversity'. ISBN: 978-9935-431-22-6.

Christensen, T., Barry, T., Taylor, Jason J., Doyle, M., Aronsson, M., Braa, J., Burns, C., Coon, C., Coulson, S., Cuyler, C., Falk, K., Heiðmarsson, S., Kulmala, P., Lawler, K., MacNearney, D., Ravolainen, V., Smith, P.A., Soloviev, M., Schmidt, N.M. (2020) 'Developing a circumpolar programme for the monitoring of Arctic terrestrial biodiversity'. Ambio 49, 655–665. https://doi.org/10.1007/s13280-019-01311-w.

Canonico G., Buttigieg P.L., Montes, E., Muller-Karger, FE., Stepien, C., Wright, D., Benson, A., Helmuth, B., Costello, M., Sousa-Pinto, I., Saeedi, H., Newton, J., Appeltans, W., Bednaršek; N., Bodrossy, L., Best B.D., Brandt, A., Goodwin, K.D., Iken, K., Marques, A.C., Miloslavich, P., Ostrowski, M., Turner, W., Achterberg, E.P., Barry, T., Defeo. O., Bigatti, G., Henry, L.A., Ramiro-Sánchez, B., Durán, P., Morato, T., Roberts J.M., García-Alegre, A., Cuadrado, M.R., Murton, B. (2019) 'Global Observational Needs and Resources for Marine Biodiversity'. Journal Frontiers in marine science. Front. Mar. Sci., https://doi.org/10.3389/fmars.2019.00367.

Deinet, S., Zöckler, C., Jacoby, D., Tresize, E., Marconi, V., McRae, L., Svoboda, M., & Barry, T. (2015) 'The Arctic Species Trend Index: Migratory Birds Index'. Conservation of Arctic Flora and Fauna, Akureyri, Iceland. ISBN: 978-9935-431-44-8

Jenkins, L.K., Barry, T., Bosse, K.R., Currie, W.S., Christensen, T., Longan, S., Shuchman, R.A., Tanzer, D., Taylor, Jason J. (2020) 'Satellite-based decadal change assessments of pan-Arctic environments'. Ambio 49, 820–832 https://doi.org/10.1007/s13280-019-01249-z.

Linnebjerg, J.F., Julia, E.B., Barry, T., Gavrilo, M.V., Mallory, M.L., Price, C., Provencher, J.F. (2020) Review of plastic pollution policies of Arctic countries in relation to seabirds.

Meltofte, H. Barry, T., Berteaux, D., Bültmann, H., Christiansen, J.S.,, Cook, J.A., Dahlberg, A., Daniëls, F., Ehrich, D., Fjeldså, J., Friðriksson, F., Ganter, B., Gaston, Gillespie, L., Grenoble, L., Hoberg, E.P., Hodkinson, I.D., Huntington, H.P., Ims, R.A., Josefson, A.B., Kutz,S.J., Kuzmin, S.L., Laidre, K.L., Lassuy, D.R., Lewis, P.N., Lovejoy, C., Michel, C., Mokievsky, V., Mustonen, T., Payer, D.C., Poulin, M., Reid, D.G., Reist, J.D., Tessler D.F., and Wrona F.J.. (2013) 'Arctic Biodiversity Assessment: Chapter 1 - Arctic Biodiversity Synthesis and Recommendations'. Conservation of Arctic Flora and Fauna, Akureyri, Arctic Council

Meltofte H, Huntington H, Barry T. (2013) 'Arctic Biodiversity Assessment, Chapter 1 Introduction to the Arctic Biodiversity Assessment'. ISBN: 978-9935-431-22-6.

Smith, R., Barry, T., & Katerås, F. (2015) 'Thoughts on the Arctic Biodiversity Congress 2–4 December 2014, Trondheim, Norway'. Biodiversity, 16:1, 47-50, DOI: 10.1080/14888386.2015.1008574.

Barry, T., Christensen, T., Olsen, M., Price, C., Chapter 1: Introduction: State of the Arctic Marine Biodiversity Report (2017); ISBN 978-9935-431-63-9

Taylor, J.J., Lawler, J.P., Aronsson, M., Barry, T., Bjorkman, A,D., Christensen, T., Coulson, S.J., Cuyler, C., Ehrich, D., Falk, K., Franke, A., Fuglei, E., Gillespie, M. A., Heiðmarsson, S., Høye, T., Jenkins, L.K., Ravolainen, V., Smith, P. A., Wasowicz, P., Schmidt, N.M. (2020) 'Arctic terrestrial biodiversity status and trends: Arctic terrestrial biodiversity status and trends: A synopsis of science supporting the CBMP State of Arctic Terrestrial Biodiversity Report'. Ambio 49, 833–847 (2020). https://doi.org/10.1007/s13280-019-01303-w.

Reference list

ACAP (2016) ‘ACAP Strategy to Address Contamination of the Arctic Environment and its People’. Arctic Council Secretariat Available at: http://hdl.handle.net/11374/2111.

AMAP (2019) ‘Strategic Framework 2019+’. AMAP Secretariat.

ABDS (Arctic Biodiversity Data Service): 2017 protected areas dataset. Available at: http://geo.abds.is/geonetwork/srv/eng/catalog.search#/metadata/2e56ee1f-50a9-4983-88f4-edaa8588950d.

Arctic Council (1996) Ottawa Declaration. Available at: http://hdl.handle.net/11374/85.

Arctic Council (2013a) ‘Arctic Council Rules of Procedure’, pp. 1–16. Available at:http://hdl.handle.net/11374/940.

Arctic Council (2013a) ‘Kiruna Declaration. The Eight Ministerial Meeting of the Arctic Council’. Arctic Council Secretariat: Tromsø, Norway, 2013; pp. 1–
Arctic Council (2013a) ‘Arctic Council Rules of Procedure’. Available at: http:// hdl.handle.net/11374/940.

Arctic Council (2013b) ‘Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic’. Available at: http://hdl.handle.net/11374/529.

Arctic Council (2013c) ‘Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic’. Available at: http://hdl.handle.net/11374/529.

Arctic Council (2015) ‘Tromsø Declaration. The Ninth Ministerial Meeting of the Arctic Council’. Arctic Council Secretariat: Tromsø, Norway; pp. 1–10.

Arctic Council (2016) ‘Arctic Council Observer Manual for Subsidiary Bodies’. Arctic Council Secretariat: Tromsø, Norway; pp. 1–16.

Arctic Council (2017) ‘Fairbanks Ministerial Declaration 2017’. Retrieved on January 11, 2020 at: http://hdl.handle.net/11374/1910.

Arctic Council (2017a) ‘Agreement on Enhancing International Arctic Scientific Cooperation’. Available at: http://hdl.handle.net/11374/1916.

Arctic Council (2019) ‘Arctic Council: a backgrounder’. Available at: http://hdl.handle.net/11374/2076

Arctic Council (2019a) ‘Rovaniemi joint Ministerial statement 2019’. Available at: http://hdl.handle.net/11374/2342.

Barry, T. (2017) ‘Actions for Biodiversity 2013–2021: Implementing the Recommendations of the Arctic Biodiversity Assessment. Progress Report’. CAFF International Secretariat: Akureyri, Iceland; pp. 1–10. 21.

Barry, T., Helgasson, H., Guðmundsdóttir, S. (2017) ‘Arctic protected areas in 2017: status and trends’. Biodiversity, 18:4, 186-195, https://doi.org/10.1080/14888386.2017.1390496.

Barry, T. (2019) ‘Actions for Biodiversity 2013–2021: Implementing the Recommendations of the Arctic Biodiversity Assessment. Progress Report’. CAFF International Secretariat: Akureyri, Iceland; pp. 1–10.

Barry, T., Daviðsdóttir, B., Einarsson, N., Young, O.Y. (2020) ‘The Arctic Council: an agent of change?’. Global Environmental Change, Volume 63, 102099.

Barry, T.; Daviðsdóttir, B.; Einarsson, N.; Young, O.R. (2020a) ‘How Does the Arctic Council Support Conservation of Arctic Biodiversity? ’ Sustainability, 12, 5042.

Barry, T., Christensen, T., Guðmundsdóttir, S., Lárusson, K.F., Price, C., Mosbech, A. (2016) ‘Chapter 11: Spatial Information and Ecosystem-Based Management in the Marine Arctic in Geoinformatics for Marine and Coastal Management:’. Boca Raton: CRC Press.

Barry, T. and Christensen, C. (2019) ‘Circumpolar Biodiversity Monitoring Programme (CBMP) 2017–2019 Progress Report to the 2019 Arctic Council Ministerial’. CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–16.

Barry, T., Helgasson, H., and Larusson, K.F. (2019a) 'Arctic Biodiversity Data Service (ABDS) 2017–2019 Progress Report to the 2019 Arctic Council Ministerial'. CAFF International Secretariat: Akureyri, Iceland, 2019a; pp. 1–6.

Barry, T. and Price, C. J., (2015). 'Arctic biodiversity: from science to policy'. Environ Stud Sci (2015) 5: 283.

CAFF (1996) 'CAFF Framework document'. CAFF International Secretariat, Akureyri, Iceland.

Meltofte, H. (2013) 'Arctic Biodiversity Assessment. Status and trends in Arctic biodiversity'. CAFF International Secretariat, Akureyri.

CAFF (2013) 'Arctic biodiversity assessment: report for policy makers'. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-23-3.

CAFF (2014) 'Arctic Biodiversity Congress'. Available online: https://www.arcticbiodiversity.is/index.php/congress.

CAFF (2015) 'Actions for Arctic Biodiversity, 2013-2021: Implementing the recommendations of the Arctic Biodiversity Assessment'. CAFF International Secretariat, Akureyri, Iceland ISBN: 978-9935-431-41-7.

CAFF (2017) 'State of the Arctic Marine Biodiversity Report'. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-63-9.

CAFF (2018) 'Arctic Biodiversity Congress'. Available online: https://www.arcticbiodiversity.is/index.php/congress (accessed on 9 April 2020).

CAFF (2019) 'Arctic Migratory Birds Initiative (AMBI): Workplan 2019–2023'. CAFF Strategies Series No. 30; Conservation of Arctic Flora and Fauna: Akureyri, Iceland, 2019; pp. 1–56.

Christensen, T., Barry, T., Taylor, Jason J., Doyle, M., Aronsson, M., Braa, J., Burns, C., Coon, C., Coulson, S., Cuyler, C., Falk, K., Heiðmarsson, S., Kulmala, P., Lawler, K., MacNearney, D., Ravolainen, V., Smith, P.A., Soloviev, M., Schmidt, N.M. (2020) 'Developing a circumpolar programme for the monitoring of Arctic terrestrial biodiversity'. Ambio 49, 655–665. https://doi.org/10.1007/s13280-019-01311-w.

EPPR (2016) ‘EPPR Strategic Plan of Action for approval’. Available at: http://hdl.handle.net/11374/1262.

Gill M., Crane K., Hindrum R., Arneberg P., Bysveen I., Denisenko N.V.; Gofman V., Grant-Friedman A., Gudmundsson G., Hopcroft R.R. (2011) ‘Arctic Marine Biodiversity Monitoring Plan’. CAFF Monitoring Series Report No.3; CAFF International Secretariat: Akureyri, Iceland, 2011; pp. 1–138.

Haavisto, P (2001) ‘Review of the Arctic Council Structures - A consultant’s Study’. Retrieved on January 11, 2020 at: http://hdl.handle.net/11374/449.

Jenkins, L.K., Barry, T., Bosse, K.R., Currie, W.S., Christensen, T., Longan, S., Shuchman, R.A., Tanzer, D., Taylor, Jason J. (2020) ‘Satellite-based decadal change assessments of pan-Arctic environments’. Ambio 49, 820–832 https://doi.org/10.1007/s13280-019-01249-z

Johns, C., Thorn, A., VanNijnatten, D. (2018) ‘Environmental regime effectiveness and the North American Great Lakes Water Quality Agreement’. International Environmental Agreements: Politics, Law and Economics 18. Springer, Netherlands, p. 315–333. https://doi.org/10.1007/s10784-018-9385-1.

Johnsen, K.I., Alfthan, B., Hislop, L., Skaalvik, J.F. (2010) ‘Protecting Arctic Biodiversity. Protecting Arctic Biodiversity - Limitations and Strengths of Environmental Agreements’. United Nations Environment Programme, GRID-Arendal.

Koivurova, T. (2019) ‘The Limits and Possibilities of the Arctic Council in a Rapidly Changing Scene of Arctic Governance’. Cambridge University Press: Cambridge, UK, 2019; pp. 146–156.

Levy M. (1996) ‘Assessing the effectiveness of international environmental institutions’. Global Environmental Change 6 (Issue 4), 395–397. September 1996. https://doi.org/10.1016/S0959-3780(97)88961-3.

Meltofte, H. (2013) ‘Arctic Biodiversity Assessment. Status and trends in Arctic biodiversity’. CAFF International Secretariat, Akureyri.

Norwegian Chairmanship (2008) ‘Improving Effectiveness and Efficiency of the Arctic Council’. Norwegian Chairmanship Arctic Council. Available at: https://oaarchive.arctic-council.org/handle/11374/1668.

Oberthür, S. and Stokke, O.S. (2011) ‘Managing institutional complexity: Regime interplay and global environmental change’. Managing Institutional Complexity: Regime Interplay and Global Environmental Change 1–353.

PAME (2015) ‘Arctic Council Status on Implementation of the AMSA 2009 Report Recommendations April 2015’. PAME International Secretariat, Akureyri, Iceland.

Prip, C. (2016) ‘The Arctic Council and biodiversity-need for a stronger management framework?’. Nord. Miljörättslig Tidskr. Nordic Environ. Law J. 2016, 2, 1–19.

Provencher J, Yong D.L, Black A, Mikander N, Syroechkovskiy E, Braa A, Lanctot R, Ekker M, Gilchrist G, Crockford N (2017) ‘Arctic Migratory Birds Initiative Mid-Term Evaluation’. CAFF International Secretariat, Akureyri, Iceland.

SDWG (2017) ‘The Human Face of the Arctic: Strategic Framework 2017’. SDWG Secretariat Available at: http://hdl.handle.net/11374/1940.

Smieszek, G and Oddsdóttir E.E. (2020) ‘Arctic Council Strategic Facilitators Report, Tromso, Norway 29-30 January 2020’.

Smieszek, G. (2019) ‘Evaluating institutional effectiveness’. The Polar Journal 9 (1), 3–26. https://doi.org/10.1080/2154896X.2019.1618554.

Smieszek, G. (2019a) ‘Steady as She Goes? Structure Change Agents and the Evolution of the Arctic Council’. Yearb. Polar Law 2019a, 11, 39–80.

Smieszek, G and Oddsdottir, E.E. (2020) ‘Strategic Thinking Retreat Facilitators’ Report: Tromsø, Norway 29 –30 January 2020’. Arctic Council Secretariat: Tromsø, Norway, 2020; pp. 1–36.

Stokke, O.S. (2013) ‘Regime interplay in Arctic shipping governance: Explaining regional niche selection’. Int. Environ. 2013, 13, 65–85.

Supreme Audit Institutions of Denmark, Norway, The Russian Federation, Sweden and the USA (2015) ‘The Arctic Council: perspectives on a changing Arctic, the Council’s work, and key challenges. In: A Joint Memorandum of a Multilateral Audit on the Arctic States’ national authorities’ work with the Arctic Council’. Available at: http://hdl.handle.net/11374/1527.

Taylor, J.J., Lawler, J.P., Aronsson, M., Barry, T., Bjorkman, A,D., Christensen, T., Coulson, S.J., Cuyler, C., Ehrich, D., Falk, K., Franke, A., Fuglei, E., Gillespie, M. A., Heiðmarsson, S., Høye, T., Jenkins, L.K., Ravolainen, V., Smith, P. A., Wasowicz, P., Schmidt, N.M. (2020) 'Arctic terrestrial biodiversity status and trends: Arctic terrestrial biodiversity status and trends: A synopsis of science supporting the CBMP State of Arctic Terrestrial Biodiversity Report'. Ambio 49, 833–847 (2020). https://doi.org/10.1007/s13280-019-01303-w.

Young, O.R. and Levy, M.A. (1999) 'The effectiveness of international environmental regimes. In: Young, O.R. (Ed.), The effectiveness of international environmental regimes: Causal connections and behavioral mechanisms'. MIT Press, Cambridge, MA, pp.1–32.

Young, O.R. (2019) 'Is it a time for a reset in Arctic governance?'. Sustainability 2019, 11, 4497

UNCLOS (2017) 'Resolution adopted by the General Assembly on 24 December 2017. Retrieved on January 11, 2020 at: https://undocs.org/en/a/res/72/249.

WWF Arctic Programme (2017) 'WWF Arctic Council Conservation Scorecard'. WWF: Ottawa, ON, Canada, 2017; pp. 1–76.

WWF Arctic Programme (2019) 'WWF Arctic Council Conservation Scorecard 2019: Methodology'. WWF: Ottawa, ON, Canada, 2019; pp. 1–16.

WGEA (2010) 'Auditing the Implementation of Multilateral Environmental Agreements (MEAs): A Primer for Auditors'. INTOSAI Working Group on Environmental Auditing ISBN: 978-92-807-3126-2.

Paper I

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Arctic biodiversity: from science to policy

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Abstract In 2013, the Conservation of Arctic Flora and Fauna (CAFF) and the biodiversity working group of the Arctic Council released the Arctic Biodiversity Assessment (ABA), a report containing the best available science informed by traditional ecological knowledge on the status and trends of Arctic biodiversity and accompanying policy recommendations (ABA 2013a) for biodiversity conservation. This text provides a summary of the ABA recommendations and a discussion on their path from key scientific findings to policy and subsequent actions.

In 2013, the Conservation of Arctic Flora and Fauna (CAFF) and the biodiversity working group of the Arctic Council[1] released the *Arctic Biodiversity Assessment* (ABA 2013a, b), a report containing the best available science informed by traditional ecological knowledge on the status and trends of Arctic biodiversity and accompanying policy recommendations for biodiversity conservation (Fig. 1 ABA boundary).

The assessment explored the potentially dramatic consequences of climate change and other factors that adversely affect species and their habitats in the Arctic, providing critical information to policy makers. The ABA found [Box 1] that large tracts of the Arctic remain relatively undisturbed, providing a unique opportunity for proactive action that can minimize or even prevent future problems that would be costly, or impossible, to reverse.

Box 1: Key findings of the Arctic Biodiversity Assessment

1. Arctic biodiversity is being degraded, but decisive action taken now can help sustain vast, relatively undisturbed ecosystems of tundra, mountains, fresh water and seas and the valuable services they provide.
2. Climate change is by far the most serious threat to Arctic biodiversity and exacerbates all other threats.
3. Many Arctic migratory species are threatened by overharvest and habitat alteration outside the Arctic, especially birds along the East Asian flyway.
4. Disturbance and habitat degradation can diminish Arctic biodiversity and the opportunities for Arctic residents and visitors to enjoy the benefits of ecosystem services.
5. Pollution from both long-range transport and local sources threatens the health of Arctic species and ecosystems.
6. There are currently few invasive alien species in the Arctic, but more are expected with climate change and increased human activity.
7. Overharvest was historically the primary human impact on many Arctic species, but sound management has successfully addressed this problem in most, but not all, cases.
8. Current knowledge of many Arctic species, ecosystems and their stressors is fragmentary, making detection and assessment of trends and their implications difficult for many aspects of Arctic biodiversity.
9. The challenges facing Arctic biodiversity are interconnected, requiring comprehensive solutions and international cooperation.

The Arctic Council ministers agreed to implement the 17 recommendations articulated in the *Arctic Biodiversity Assessment*, *Report for Policy Makers* (Fig. 2 and Box 2). At the April 2015 Arctic Council Ministerial meeting, the Arctic states were presented with an 8-year implementation plan *Actions for Biodiversity 2013–2021,* (CAFF 2015), an action plan that has been informed by discussions with Arctic Council countries, indigenous organizations, observer organizations, and countries. *Actions for Biodiversity 2013–*

[1] The Arctic Council is a high-level intergovernmental forum promoting cooperation, coordination, and interaction among the Arctic states, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic.

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2021 will act as the key guide to Arctic Council biodiversity conservation in the coming years.

Box 2: ABA Recommendations

Climate change

1. Actively support international efforts addressing climate change, both reducing stressors and implementing adaptation measures, as an urgent matter.
2. Incorporate resilience and adaptation of biodiversity to climate change into plans for development in the Arctic.

Ecosystem-based management

3. Advance and advocate ecosystem-based management efforts in the Arctic as a framework for cooperation, planning and development.

Mainstreaming biodiversity

4. Require the incorporation of biodiversity objectives and provisions into all Arctic Council work and encourage the same for on-going and future international standards, agreements, plans, operations and/or other tools specific to development in the Arctic.

Identifying and safeguarding important areas for biodiversity

5. Advance the protection of large areas of ecologically important marine, terrestrial and freshwater habitats, taking into account ecological resilience in a changing climate.
6. Develop guidelines and implement appropriate spatial and temporal measures where necessary to reduce human disturbance to areas critical for sensitive life stages of Arctic species that are outside protected areas, for example along transportation corridors.
7. Develop and implement mechanisms that best safeguard Arctic biodiversity under changing environmental conditions, such as loss of sea ice, glaciers and permafrost.

Addressing individual stressors on biodiversity

8. Reduce stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes.
9. Reduce the threat of invasive alien/non-native species to the Arctic by developing and implementing common measures for early detection and reporting, identifying and blocking pathways of introduction, and sharing best practices and techniques for monitoring, eradication and control.
10. Promote the sustainable management of the Arctic's living resources and their habitat.
11. Reduce the threat of pollutants to Arctic biodiversity.

Improving knowledge and public awareness

12. Evaluate the range of services provided by Arctic biodiversity in order to determine the costs associated with biodiversity loss and the value of effective conservation in order to assess change and support improved decision making.
13. Increase and focus inventory, long-term monitoring and research efforts to address key gaps in scientific knowledge identified in this assessment to better facilitate the development and implementation of conservation and management strategies.
14. Recognize the value of traditional ecological knowledge and work to further integrate it into the assessment, planning and management of Arctic biodiversity.
15. Promote public training, education and community-based monitoring, where appropriate, as integral elements in conservation and management.
16. Research and monitor individual and cumulative effects of stressors and drivers of relevance to biodiversity, with a focus on stressors that are expected to have rapid and significant impacts and issues where knowledge is lacking.
17. Develop communication and outreach tools and methodologies to better convey the importance and value of Arctic biodiversity and the changes it is undergoing.

Although actions to implement the ABA recommendations are aimed primarily at the Arctic Council, its member states and Permanent Participants'[2] success in conserving Arctic biodiversity depend on actions by non-Arctic states, regional and local authorities, industry, and all who live, work, and travel in the Arctic. The ABA recommendations, therefore, also provide a guide for biodiversity conservation action for authorities and organizations beyond the Arctic Council.

Delving into the report, we can see how the scientific findings led to policy recommendations and subsequently to informed policy actions. For example, ABA key finding no. 3 states "Many Arctic migratory species are threatened by overharvest and habitat alteration outside the Arctic, especially birds along the East Asian flyway." (ABA Policy 2013c). Furthermore, an additional key finding states "The challenges facing Arctic biodiversity are interconnected, requiring comprehensive solutions and international cooperation." (ABA Policy 2013c). These findings informed ABA recommendation no. 8, which recommends to "Reduce stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways (Fig. 3) and other migration routes." The *Actions for Biodiversity 2013–2021* response is the creation of the Arctic Migratory Birds Initiative (AMBI).

The AMBI is designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations (Fig. 4). It seeks to reduce the key stressors of habitat loss and degradation (especially intertidal areas), unsustainable harvest, and marine by-catch along the migratory routes of selected priority species. Actions to reverse declining trends in bird populations have been identified along four flyways:

[2] Out of a total of 4 million inhabitants of the Arctic, approximately 500,000 belong to indigenous peoples. Indigenous peoples' organizations have been granted Permanent Participants status in the Arctic Council. The Permanent Participants have full consultation rights in connection with the Council's negotiations and decisions. The Permanent Participants represent a unique feature of the Arctic Council, and they make valuable contributions to its activities in all areas. The following organizations are Permanent Participants of the Arctic Council: Arctic Athabaskan Council, Aleut International Association, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, and the Saami Council.

Fig. 1 Boundaries of the geographic area covered by the Arctic Biodiversity Assessment

the East Asian-Australasian, African-Eurasian, America, and circumpolar flyways. As many of the priority species identified in the AMBI travel thousands of miles and stopover in many different countries, the success of this initiative requires on-the-ground action in cooperation with many different partner organizations and states on almost every continent. Furthermore, the engagement of non-Arctic states is of increasing importance at the Arctic Council and the AMBI is the first Arctic Council project to actively seek involvement from the recently expanded group of Arctic Council observer countries.[3] As such, the project acts as a test case for involvement of non-Arctic states in Arctic Council activities.

In the efforts to meet the goal of inclusivity and encourage the adoption of ABA recommendations beyond the Arctic Council, CAFF organized the first Arctic Biodiversity Congress in Trondheim, Norway, in December 2014. Over 450 Arctic scientists, policy makers, government officials, indigenous peoples, students, and industry and civil society representatives convened to discuss the challenges facing Arctic biodiversity and the most appropriate actions for conservation and sustainable use of the Arctic's living resources.

Fig. 2 Cover for Arctic Biodiversity Assessment, report for policy makers

[3] Arctic Council observer countries are the following: France, Germany, The Netherlands, Poland, Spain, the UK, the People's Republic of China, Italy, Japan, Republic of Korea, Singapore, and India.

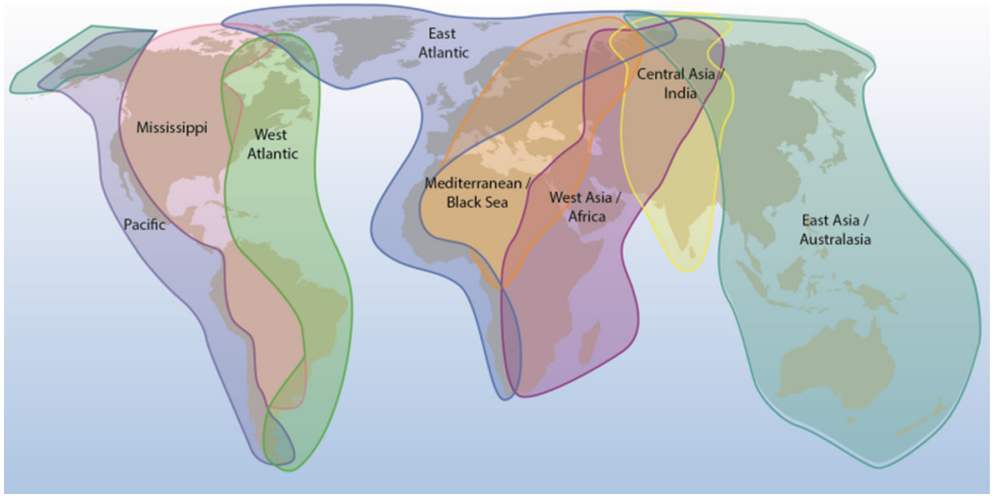

Fig. 3 Major flyways of Arctic birds. Bird migration links Arctic breeding areas to all other parts of the globe [from *Arctic Biodiversity Assessment*, "Chapter 4, Birds"]

The results informed the *Actions for Biodiversity 2013–2021*, ensuring that the action plan was meaningful and transferrable across geography, disciplines, and sectors.

The path from completing the ABA to the development of policy recommendations and the subsequent implementation illustrates the effective role the Arctic Council can play in

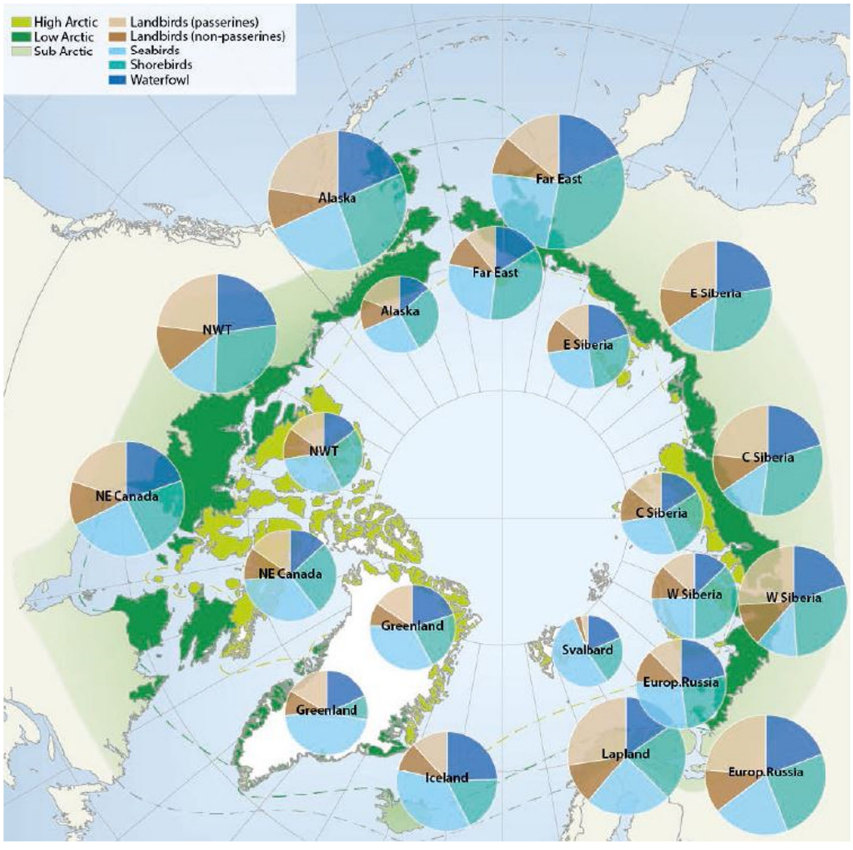

Fig. 4 Avian biodiversity in different regions of the Arctic. Charts on the *inner circle* show species numbers of different bird groups in the high Arctic, on the *outer circle* in the low Arctic. The size of the charts is scaled to the number of species in each region, which ranges from 32 (Svalbard) to 117 (low Arctic Alaska) [from *Arctic Biodiversity Assessment*, "Chapter 4, Birds"]

promoting and facilitating global conservation actions for Arctic biodiversity and ecosystems.

The Arctic Biodiversity Congress held on December 2014, the largest gathering of people in the history of the Arctic Council, brought together over 450 Arctic scientists, policy makers, government officials, industry and civil society representatives, and indigenous peoples to discuss the status, trends, and actions for conservation and sustainable use of Arctic biodiversity. The Congress helped to advise CAFF on the development of "Actions for Arctic Biodiversity: Implementation of the Arctic Biodiversity Assessment Recommendations 2013–2021."

A key finding of the ABA was that "Arctic biodiversity is being degraded, but decisive action taken now can help sustain vast, relatively undisturbed ecosystems of tundra, mountains, fresh water and seas and the valuable services they provide." (ABA 2013a). An overriding message from the Arctic Biodiversity Congress was that while there is an urgency to take some actions now, all actions must be sustained over the long term. There is an urgent need to speed up and scale up actions to implement the recommendations of the Arctic Biodiversity Assessment and the commitments under related international agreements relevant to the Arctic, such as the Aichi Biodiversity Targets developed by the United Nations Convention on Biological Diversity (Smith et al. 2015).

Further Information:

- www.caff.is; www.arcticbiodiversity.is; www.caff.is/ambi

References

CAFF (2013a) Arctic biodiversity assessment: report for policy makers. Conservation of Arctic Flora and Fauna, Akureyri

CAFF (2013b) Arctic biodiversity assessment. Status and trends in Arctic biodiversity. Conservation of Arctic Flora and Fauna, Akureyri

CAFF (2013c) Arctic biodiversity assessment synthesis. Conservation of Arctic Flora and Fauna, Akureyri

CAFF (2015) Actions for Arctic biodiversity: implementation of the Arctic Biodiversity Assessment recommendations 2013–2021

Smith R, Barry T, Kateras F (2015) Thoughts on the Arctic biodiversity congress. Biodiversity. 16 (1)

Paper II

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Arctic protected areas in 2017: status and trends

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Overview

Protected areas have long been viewed as a key element for maintaining and conserving Arctic biodiversity and the functioning landscapes upon which species depend. Protected areas in the Arctic are also important for global biodiversity conservation as the majority of Arctic species use the region seasonally, with Arctic habitats providing resources for the maintenance of many bird and mammal species that migrate to areas around the world. The importance of this role is increasing due to climate-driven ecological change, industrial development and resource exploitation.

Effective conservation planning both in an Arctic and global context requires baseline information as to the scope and extent of protected areas. This paper provides an overview of the status and trends of protected areas in the Arctic as determined via the *Arctic Protected Areas Indicator* developed by the Conservation of Arctic Flora and Fauna[1] (CAFF) and Protection of the Arctic Marine Environments[2] (PAME) working groups of the Arctic Council[3]. The data used represents the results of the 2017 update to the *Protected Areas Database* (Conservation of Arctic Flora and Fauna [CAFF] 2017) submitted by each of the Arctic Council member states[4]. This report uses the International Union for the Conservation of Nature (IUCN) definition for protected areas (see Box 1), which includes a wide range of management categories – from strict nature reserve to protection with sustainable use. Consequently, the level of protection and governance of these areas varies throughout the circumpolar region and its countries.

Introduction

The Arctic Council has recognised that 'the Arctic environment needs to be protected as a basis for sustainable development, prosperity, lifestyles and human well-being' (Arctic Council 2013). An important step toward achieving this being to 'advance the protection of large areas of ecologically important Arctic marine, terrestrial and freshwater habitats… building upon existing and on-going domestic and international processes and implementing appropriate measures for their conservation' (CAFF 2013).

The Arctic Council has a history of addressing such issues and over the last few years has: released the first Arctic Biodiversity Assessment (CAFF 2013); completed a process of identifying ecologically and culturally sensitive marine areas with regards to shipping (AMAP/CAFF/SDWG 2013); and released the Framework for a pan-Arctic Network of Marine Protected Areas (Protection of the Arctic Marine Environment [PAME] 2015) which recognises humans and their activities as an as an integral part of the ecosystem. The framework defines the network as:

> An ecologically connected, representative and effectively-managed network of protected and specially managed areas that protects and promotes the resilience of the biological diversity, ecological processes and cultural heritage of the Arctic marine environment, and the social and economic benefits they provide to present and future generations. (PAME 2015)

The *Arctic Protected Areas Indicator* is part of the process that responds to actions identified in both the Framework

Protected areas targets

Aichi Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
Aichi Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape (Convention on Biological Diversity [CBD] 2016).

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for a Pan-Arctic Network of Marine Protected Areas (PAME 2015) and Actions for Biodiversity, 2013–2021: implementing the recommendations of the Arctic Biodiversity Assessment (CAFF 2015). It catalogues the extent of protected areas across the Arctic and the trends regarding protected area establishment. It helps track progress towards meeting the objectives of PAME and CAFF and supporting Aichi Biodiversity Targets 1 and 11 adopted in 2010 by Parties to the United Nations Convention on Biological Diversity (CBD). These Targets in turn contribute towards achieving relevant targets within the Sustainable Development Goals (UNEP-WCMC and IUCN 2016).

The *Arctic Protected Areas Indicator* is based on information submitted by the Arctic Council Member States and focusses on:

- Arctic protected areas (marine and terrestrial) overview;
- areas recognised under international conventions;
- marine protected areas;
- additional areas important for marine biodiversity;
- terrestrial protected areas; and
- protected areas inventory.

There is no single agreed-upon definition of the Arctic; however, for the purpose of this indicator the CAFF boundary is used to define the geographical extent of the Arctic. This covers 32.2 million km^2, 57% (18.4 million km^2) of which is marine and 43% (14 million km^2) terrestrial (Figure 1). It is important to note that some boreal forest is included within the CAFF boundary and is therefore included in the calculations presented in this report.

Arctic protected areas (marine and terrestrial) overview

Key messages

The extent of protected areas within the CAFF boundary (Figure 1) has almost doubled since 1980. While progress has been made, it has not been even across ecosystems and this article does not analyse how well the suite of protected areas meet the test of being an 'ecologically connected, representative and effectively-managed network of protected and specially managed areas that protects and promotes the resilience of the biological diversity, ecological processes and cultural heritage' (PAME 2015) of the Arctic.

Currently, in 2016, 20.2% of the Arctic's terrestrial area and 4.7% of the Arctic's marine areas are protected (Figure 2). Protected area coverage of the Arctic's terrestrial ecosystems exceeds Aichi Biodiversity Target 11 which aims for at least 17% of terrestrial and inland water to be protected by 2020. The protected area coverage of marine areas currently falls short of the Aichi Target goal for 10% of coastal and marine areas to be protected by 2020.

It is important to note that the terrestrial figures include some protected areas in the boreal forest and also that the percentage of terrestrial area protected includes one very large park in Greenland (covering approximately one quarter of the entire area protected in the Arctic) that protects one type of ecosystem. While the level of terrestrial protected areas is laudable, there remain important gaps in representation and connectivity that are not reflected by the figures. Action to create new protected areas continues and work is underway to close the gaps.

Box 1. Protected area definitions

A protected area as defined by the IUCN World Commission on Protected Areas, and as used in the Pan-Arctic MPA Framework, is: a 'clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values' (IUCN 2016). IUCN defines seven Management Categories of protected areas:

I. Strict nature reserves: are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphic features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

II. Wilderness areas: are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

III. National Parks: are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational and visitor opportunities.

IV. Natural monument or features: are set aside to protect a specific natural monument, which can be a landform, a sea mount, a submarine cavern, a geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

V. Habitat/species management areas: aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

VI. Protected landscape/seascape: A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VII. Protected areas with sustainable use of natural resources: conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.

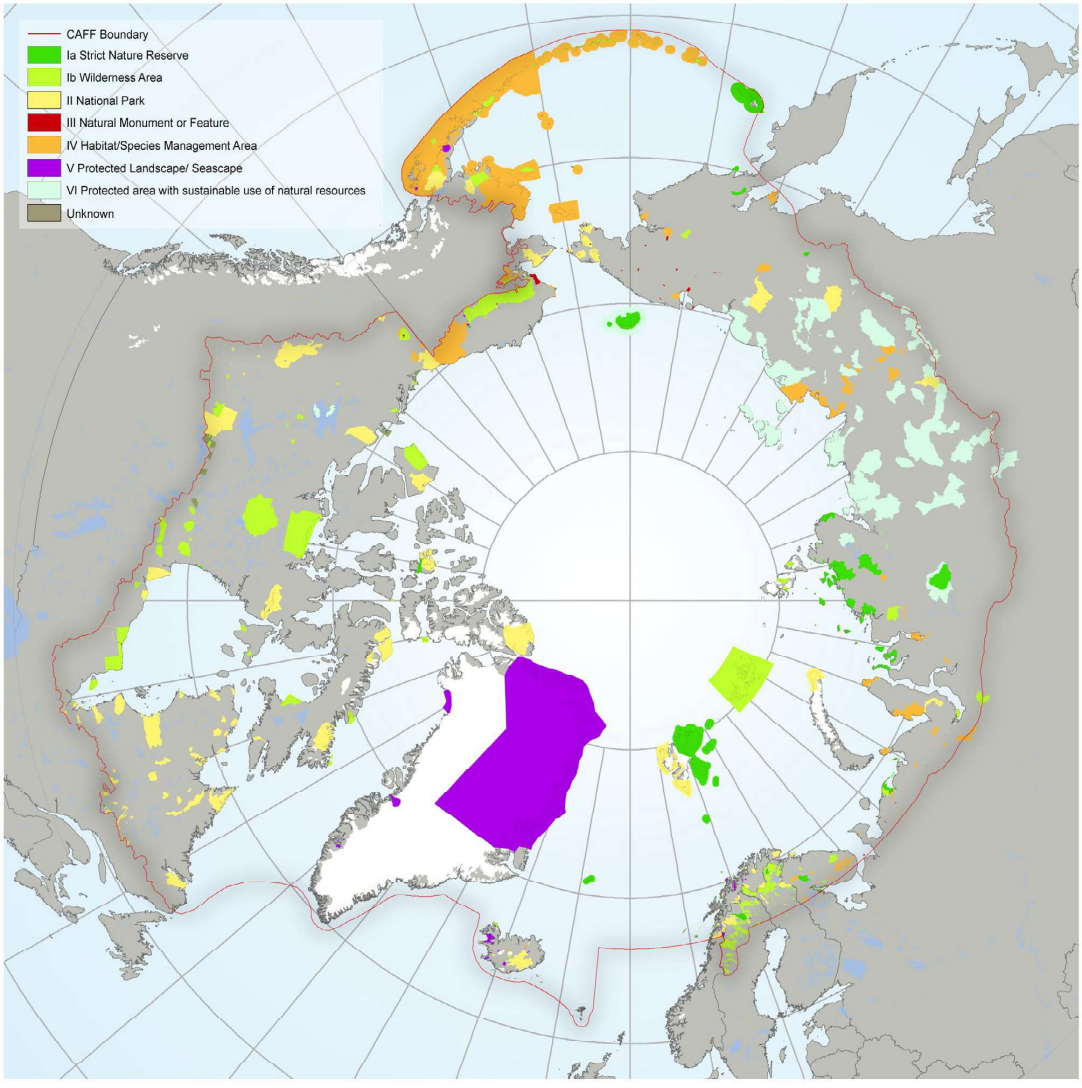

Figure 1. Protected areas in the Arctic classified by their IUCN Management Category, 2016.

While the Aichi Target does not specify exactly how the target should be applied (e.g. by country, by region, by ecosystem), using it for comparative analysis offers a useful tool to chart progress over time.

Status and trends

The first protected areas in the Arctic were established in Sweden and the United States at the beginning of the twentieth century (Barry and McLennan 2017). The total Arctic area (marine and terrestrial) under protection remained low until the 1970s, when it began to increase significantly with additions of large areas such as the Greenland National Park. By 1980, 5.6% of the Arctic (marine and terrestrial) was classified under some degree of protection. This has steadily increased to the present when 11.4% of the Arctic (marine and terrestrial), about 3.7 million km^2, has protected status (Figure 2). The nature of protection and governance of these areas varies throughout the circumpolar region, and there are varying levels of protection within countries.

Over 99% of all protected areas within the CAFF boundary have been assigned an IUCN Management Category. Protected areas falling in Category V, protected

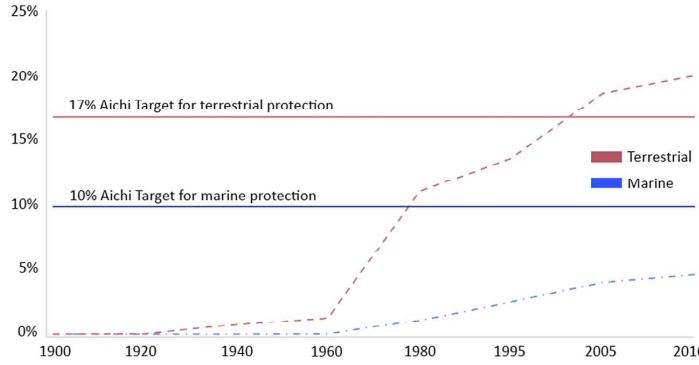

Figure 2. Trends in terrestrial and marine protected coverage within the CAFF boundary, 1900–2016.

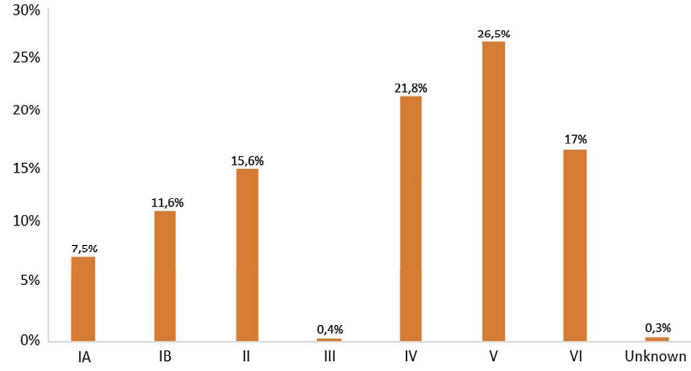

Figure 3. Distribution of protected areas (marine and terrestrial) across each of the six IUCN Management Categories, 2016.

landscape/seascapes, cover the largest total area, while those in Category Ia, strict nature reserves, cover only 7.5%. Most terrestrial protected areas fall under Category V, protected landscape/seascape, while for marine areas, Category IV is the most prevalent (see following sections for more detail). Figure 3 shows the distribution of protected areas by their IUCN Management Category in 2016.

Arctic areas recognised under international conventions

Within the CAFF boundary there are 92 areas recognised under global international conventions. These include 12 World Heritage Sites[5] (three of which have a marine component) and 80 Ramsar sites, which together cover 0.9% (289,931 km^2) of the CAFF area (Figure 4). Between 1985 and 2015, the total area covered by Ramsar sites[6] almost doubled, while the total area designated as World Heritage Sites increased by about 50% in the same time period (Figure 5).

Marine protected areas

The extent of protected areas in the Arctic's marine environment (Figure 6) has almost quadrupled since 1980 (Figure 7). In 2016, 4.7% of the Arctic marine area (860,000 km^2) was protected, which, when considered at a pan-Arctic scale, falls short of the Aichi Biodiversity Target 11 goal of 10% of coastal and marine areas to be protected by 2020 (Figure 7). The marine protected areas are dominated by several very large areas and some parts of the Arctic marine ecosystem were poorly protected in 2016.

All but 8% of the 334-current marine protected areas found within the CAFF Boundary have been assigned an IUCN Management Category. Protected areas falling in Category IV, Habitat/Species Management Areas, cover the largest area overall. Figure 8 shows the percentage of protected areas in each IUCN Management Category in 2016.

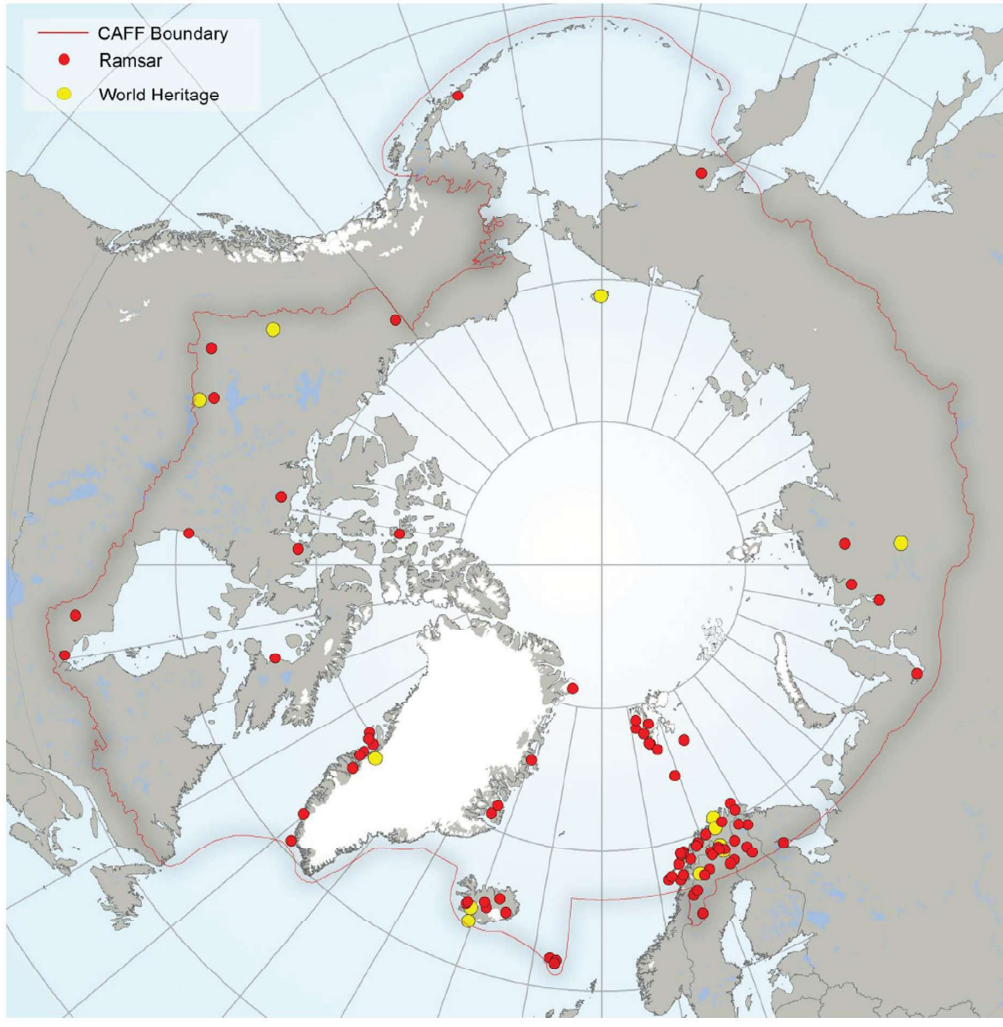

Figure 4. Distribution of Ramsar and World Heritage sites within the CAFF boundary, 2017.

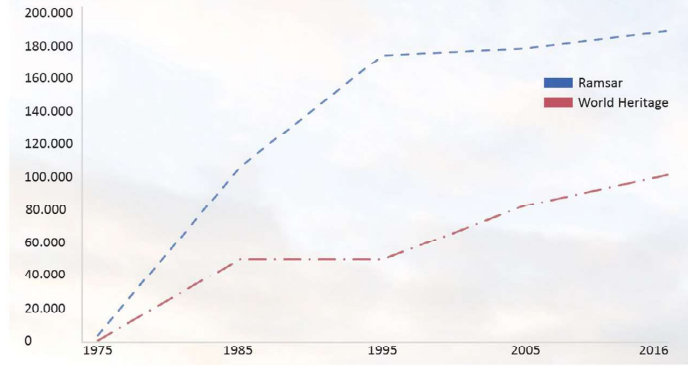

Figure 5. Growth in the total area of Ramsar and World Heritage sites within the CAFF boundary, 1974–2016 (Source: Ramsar 2016; UNESCO 2016).

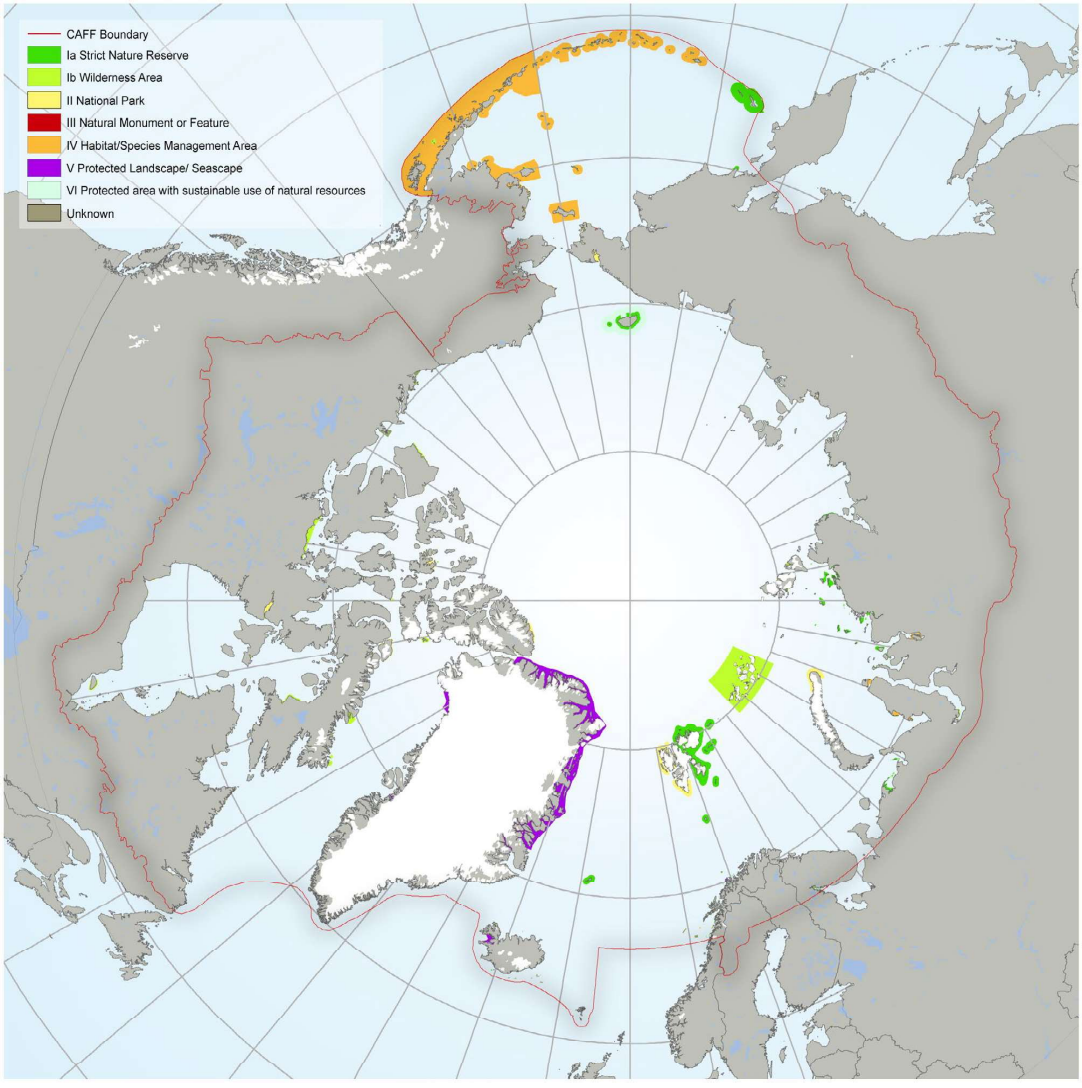

Figure 6. Marine protected areas in the Arctic classified according to their IUCN Management Category, 2016.

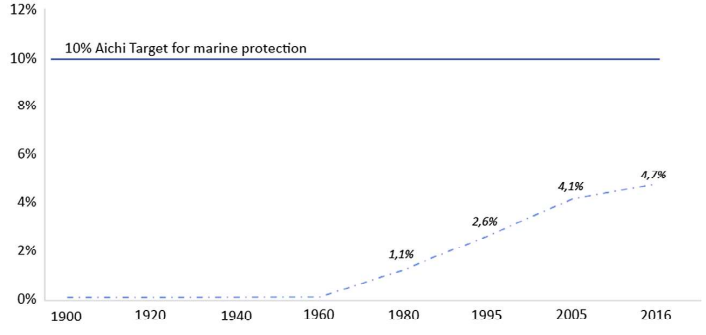

Figure 7. Trend in marine protected area coverage within the CAFF boundary, 1900–2016.

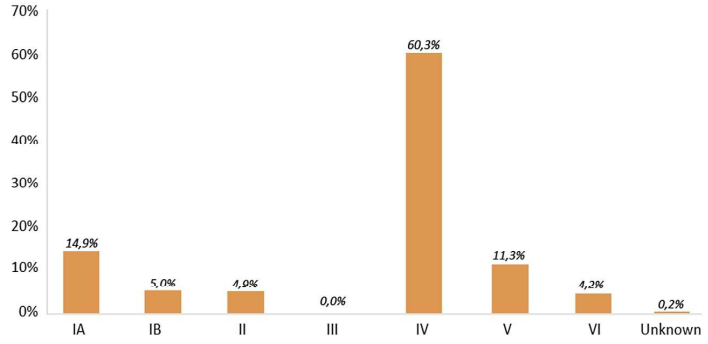

Figure 8. Distribution of marine protected areas across each of the six IUCN Management Categories, 2016.

Figure 9. EBSAs (Source: CBD 2016) and marine 'areas of heightened ecological and cultural significance' (Source: AMAP/CAFF/SDWG 2013).

Other areas-based measures important for arctic marine biodiversity

In 2013, the Arctic Council identified 'areas of heightened ecological and cultural significance' using the International Maritime Organization criteria for Particularly Sensitive Sea Areas (PSSAs), which are similar to the CBD Ecologically and Biologically Significant Areas (EBSAs) criteria (Skjoldal and Toropova 2010). The term 'areas of heightened ecological and cultural significance' comes from Recommendation IIC of the Arctic Council's 2009 Arctic Marine Shipping Assessment:

> That the Arctic states should identify areas of heightened ecological and cultural significance in light of changing climate conditions and increasing multiple marine use and, where appropriate, should encourage implementation of measures to protect these areas from the impacts of Arctic marine shipping, in coordination with all stakeholders and consistent with international law. (Brigham and Ellis 2009)

Through this process, 98 'areas of heightened ecological and cultural significance' were identified covering a vast area of approximately 14 million km^2 or 76% of the Arctic marine area (Figure 9).

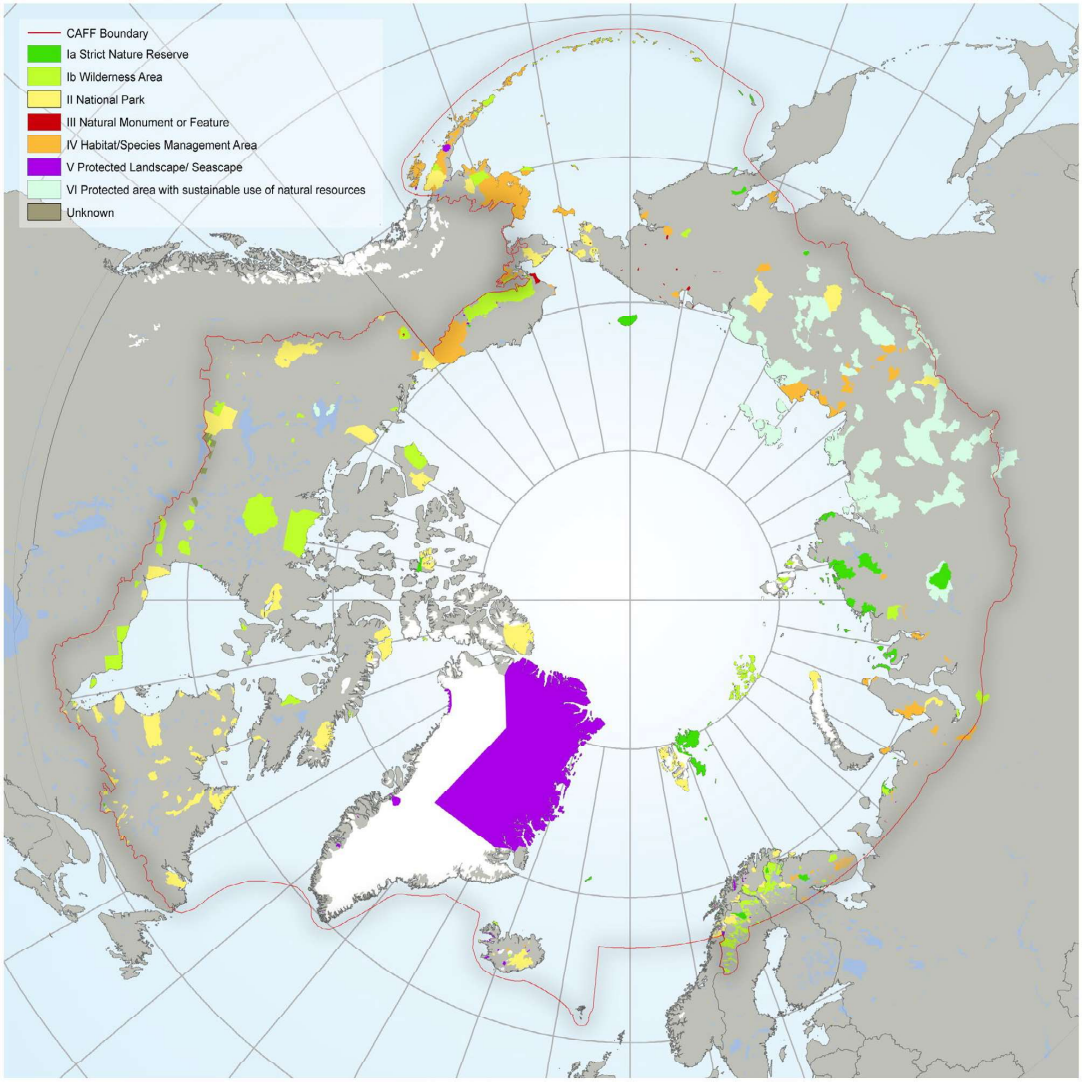

Figure 10. Terrestrial protected areas within the CAFF boundary classified according to their IUCN Management Category, 2016.

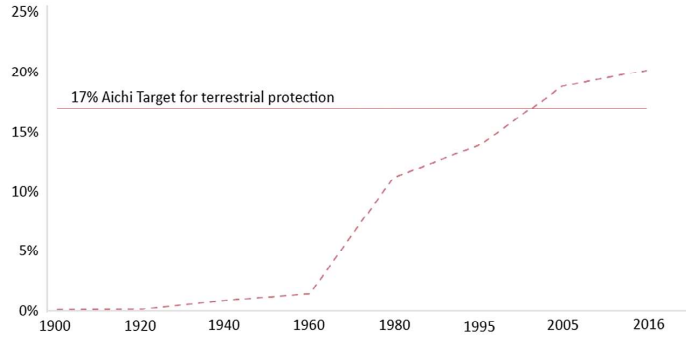

Figure 11. Trend in terrestrial protected area coverage within the CAFF boundary, 1900–2016.

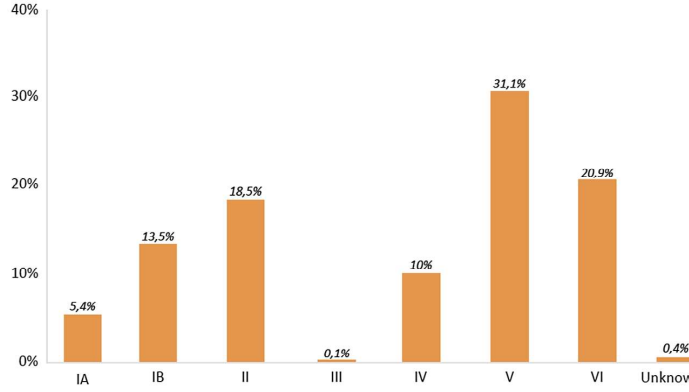

Figure 12. The distribution of protected areas across IUCN Management Categories in 2016.

The areas were identified primarily on the basis of their ecological importance to fish, birds and/or marine mammals, i.e. areas where large numbers of one or several species concentrate during particular times of the year, such as for breeding, feeding, staging or during migrations (AMAP/CAFF/SDWG 2013). Approximately 5% of 'areas of heightened ecological importance' lie within protected areas.

In 2014, a CBD regional workshop identified EBSAs for the Arctic and confirmed that these areas fulfil the EBSA criteria (CBD 2014). These are special areas that serve to support the healthy functioning of oceans and the many services it provides. Thirteen EBSAs were identified, covering 4.2 million km^2, or 22.7%, of the Arctic marine area (Figure 9). Less than 1% of EBSAs lie within protected areas. There are no PSSAs designated within the Arctic.

Terrestrial protected areas

The extent of terrestrial protected areas within the CAFF boundary (Figure 10) has almost doubled since 1980 (Figure 11). In 2016, 20.2% (2.8 million km^2) of the terrestrial area was protected. Protected area coverage exceeds Aichi Biodiversity Target 11, which aims for at least 17% of terrestrial and inland water to be protected by 2020 (Figure 11).

It is important to note that the terrestrial figures include some protected areas in the boreal forest and also that the percentage of terrestrial area protected includes one very large park in Greenland that protects just one type of ecosystem and covers more than one quarter of the entire area protected in the Arctic. While the level of terrestrial protected areas is laudable, a network of Arctic protected areas will help to identify important gaps and representation and connectivity that are not reflected.

Ninety-nine per cent of terrestrial protected areas had been assigned an IUCN Management Category. Protected areas falling in Category V (31,1%), protected landscape/seascape, cover the largest area overall, while those in Category Ia, strict nature reserves, cover 5.4% of the total protected area (Figure 12).

Notes

1. CAFF is the biodiversity working group of the Arctic Council with a mandate is to address the conservation of Arctic biodiversity, and to communicate its findings to the governments and residents of the Arctic, helping to promote practices which ensure the sustainability of the Arctic's living resources. www.caff.is.
2. PAME has a mandate is to address marine policy measures and other measures related to the conservation and sustainable use of the Arctic marine and coastal environment in response to environmental change and from both land and sea-based activities, including non-emergency pollution prevention control measures such as coordinated strategic plans as well as developing programs, assessments and guidelines. www.pame.is.
3. The Arctic Council is a high-level intergovernmental forum promoting cooperation, coordination and interaction among the Arctic states, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic. www.arctic-council.org/.
4. Arctic Council member states are: Canada, Finland, Iceland, Kingdom of Denmark, Norway, Russian Federation, Sweden, United States of America.
5. World Heritage Sites are cultural and/or natural sites considered to be of 'Outstanding Universal Value', which have been in- scribed on the World Heritage List by the World Heritage Committee (UNESCO 2016).
6. Ramsar sites are designated because they meet the criteria for identifying Wetlands of International Importance. The first criterion refers to sites containing representative, rare or unique wetland types, and the other eight cover sites of international importance for conserving biological diversity (RAMSAR 2016).

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

AMAP, CAFF, SDWG. 2013. *Identification of Arctic Marine Areas of Heightened Ecological and Cultural Significance: Arctic Marine Shipping Assessment (AMSA) IIC*, 1–123. Oslo: AMAP/CAFF/SDWG.

Arctic Council. 2013. *Kiruna Declaration: The Eight Ministerial Meeting of the Arctic Council*, 9. Tromso: Arctic Council.

Barry, T., and McLennan, D. 2017. Indicator 21: Changes in Protected Areas. In *Arctic Biodiversity Trends 2010 – Selected Indicators of Change*, 96–99. Akureyri: CAFF International Secretariat. Accessed October 4, 2017. http://abt2010.arcticbiodiversity.is/images/stories/report/pdf/Arctic_Biodiversity_Trends_Report_2010.pdf

Brigham, L., and B. Ellis. 2009. *Arctic Marine Shipping Assessment 2009 Report*, 1–194. Akureyri, Iceland: Protection of the Arctic Marine Environment (PAME).

Conservation of Arctic Flora and Fauna. 2013. *Arctic Biodiversity Assessment*, 1–678. Akuryeri: CAFF International Secretariat.

Conservation of Arctic Flora and Fauna. 2015. *Actions for Arctic Biodiversity 2013–2021: Implementing the Recommendations of the Arctic Biodiversity Assessment*, 1–32. Akureyri: CAFF International Secretariat.

Conservation of Arctic Flora and Fauna. 2017. *Protected Areas Database, Arctic Biodiversity Data Service (ABDS)*. Accessed October 4, 2017. http://geo.abds.is/geonetwork/srv/eng/catalog.search#/search?resultType=details&fast=index&_content_type=json&from=1&to=20&sortBy=relevance&_cat=Protected%20Area

Convention on Biological Diversity. 2014. *Report of the Arctic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas*, 1–157. Montreal: CBD Secretariat.

Convention on Biological Diversity. 2016. *Aichi Biodiversity Targets*. Accessed December 4, 2016. http://www.cbd.int/sp/targets

Convention on Wetlands (Ramsar). 2016. *Ramsar Information Service*. Accessed December 4, 2016. http://www.ris.ramsar.org

IUCN. 2016. *Home*. Accessed December 4, 2016. https://www.iucn.org/theme/protected-areas

Protection of the Arctic Marine Environment. 2015. *Framework for a Pan-Arctic Network of Marine Protected Areas, 1–52*. Akureyri: PAME International Secretariat.

Skjoldal, H., and C. Toropova. 2010. "Criteria for Identifying Ecologically Important and Vulnerable Marine Areas in the Arctic: Background Document Prepared for AMSA IIC and the IUCN-EBSA Workshop in San Diego, November 2010." *Society* 93: 304–311.

UNEP-WCMC and IUCN. 2016. *Protected Planet Report 2016*, 1–84. Cambridge UK and Gland, Switzerland: UNEP-WCMC and IUCN.

UNESCO. 2016. *UNESCO World Heritage Centre - World Heritage List*. Whc.unesco.org. Accessed December 4, 2016. http://whc.unesco.org/en/list/

Paper III

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The Arctic Council: an agent of change?

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ABSTRACT

The Arctic Council is an intergovernmental forum promoting cooperation, coordination and interaction among Arctic States, Indigenous communities and peoples on issues of common importance. The rising geo-political importance of the Arctic and the onset of climate change has resulted in the Council becoming a focus of increasing interest from both inside and beyond the Arctic. This has resulted in new demands placed on the Council, attracted an increasing number of participants and instigated a period of transformation as Arctic states work to find a way to balance conflicting demands for improving the effectiveness of the Council and taking care of national interests. This paper considers if during this time of change the Council is having an impact upon the issues it was formed to address i.e. environmental protection and sustainable development. To provide answers it looks at how the Council operates and through the lens of biodiversity identifies drivers and barriers to the Councils institutional effectiveness; providing an understanding of the norms and rules which constitute the Council and which are central its problem-solving abilities. It is clear that the Council is changing and how it operates is evolving in response to the increasing attention paid to all things Arctic. However, challenges to ensuring effective outcomes from its activities remain and without clear strategies many of the Councils efforts can appear ad-hoc and without due recourse to forward planning. However, when clear and detailed plans are in place to guide the work of the Council as for biodiversity then glimpses can be seen of its potential to act as an agent of change.

1. Introduction

The Arctic Council is an intergovernmental forum established in 1996 to promote cooperation, coordination and interaction among the Arctic States , with the involvement of Arctic indigenous communities and other Arctic inhabitants on issues of common importance (Arctic Council, 1996). Originally focused primarily on environmental protection and sustainable development it has evolved into a forum which also addresses social, cultural and economic issues with both regional and global implications. Its founding documents explicitly exclude any focus on military security and it is interesting to note that the Emergency Prevention, Preparedness and Response (EPPR), one of the Councils 6 Working Groups is chaired by a Danish naval Officer, perhaps reflecting evolving positions from at least one Arctic State on how security might be addressed within the Council.

This broadening of the Council's agenda coinciding with the rising geopolitical importance of the Arctic and the onset of climate change has resulted in the Council becoming a focus of increasing interest from both inside and beyond the Arctic (Knecht, 2017). This has resulted in new demands placed on the Council, attracted an increasing number of participants and instigated a period of transformation as Arctic states work to find a way to balance conflicting demands for improving the effectiveness of the Council and taking care of national interests. The failure of the Foreign Ministers of the Arctic States for the first time in the history of the Council to agree upon a Declaration at the 2019 Arctic Council Ministerial underlines the challenges being faced (Koivurova, 2019).

The goal of this paper is to look at how the Arctic Council is changing; explore drivers and barriers to its institutional effectiveness; and through the lens of biodiversity consider how these may hinder or be conducive to its ability to have an impact upon the issues it was formed to address i.e. environmental protection and sustainable development.

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[1] Research, Writing - original draft, revisions

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2. Effectiveness of the Arctic Council

This paper understands effectiveness as the extent to which an organisation has had an impact on or contributed to the resolution or improvement of the problem(s) it was created to address (Young, 2011). Evaluating effectiveness is challenging and there is a diverse literature focused on defining how this might be achieved (e.g. Levy, 1996; Oberthür and Stokke, 2011; Johns, Thorn and VanNijnatten, 2018) and a broad range of approaches that might be taken e.g. problem-solving, legal, economic, normative and political (Young and Levy, 1999; Smieszk, 2019). WWF have tried to measure progress on implementation of Arctic Council recommendations through scorecards which assign grades on progress being made on implementation (WWF, 2017, WWF, 2019). While the scorecards shed light on the need for the Council to be able to assess the effectiveness of its actions they do not establish causality by identifying clear linkages between a States actions and a Council recommendation. Common to all these approaches are the obstacles posed in defining how to measure effectiveness, and establish causality; as well as their tendency to focus on entities with a regulatory role.

Conducting an evaluation of the effectiveness of the Council's work on biodiversity is complicated by its consensual nature; lack of binding obligations placed upon its members; lack of information on how states implement or follow-up on Council outcomes; and because biodiversity is such a broad and diverse area it can be difficult to decide where to begin. The approaches taken to evaluating the effectiveness of Multilateral Environmental Agreements (MEA) the tools normally used by States to address regional and global environmental challenges and promote sustainable development (Johnsen *et al.*, 2010) provide a starting point. They contain core concepts of relevance when considering the Council's effectiveness and while the Council is not an MEA it reflects many of their concerns e.g. through efforts to ensure synergies; create more effective governance; and setting priorities leading to the development of legally binding agreements.

There are currently over 1300 MEAs (Mitchell, 2020) however their existence does not guarantee improved environmental conditions and evaluations of their effectiveness are often hindered by gaps in data, conceptual difficulties and methodological problems e.g. a lack of clear criteria (WGEA, 2010). The Working Group on Environmental Auditing (WGEA), under the International Organization of Supreme Audit Institutions (INTOSAI) which has a mandate to improve the use of audit instruments in the field of environmental protection policies, has proposed approaches to evaluate effectiveness of MEAs which entail utilizing auditing techniques to determine effectiveness (WGEA 2019). It has produced guidance specific to auditing biodiversity which provides a useful way to quantify progress towards implementation and compliance. These approaches inform the conceptual framework for this paper focusing on changes in behaviour related to the outputs and infrastructure being created as the Council evolves e.g. outcomes or actions taken by actors e.g. States relevant to the issue in question. This requires an understanding of the norms and rules of how the Council operates and which are central to its problem-solving abilities i.e.:

- Who the main players are and the constraints to which they are subject;
- How it is structured, funded and operates; and
- Where the Council sits in the Arctic Governance framework.

The methods used to inform this analysis include interviews with bureaucrats and experts with a long history of enagement in the Council both as State, Indigenous and Observer representatives; reviews of this paper by bureaucrats and experts with a long history of enagement in the Council both as State, Indigenous and Observer representatives; four meetings to evaluate the status of implementation of biodiversity actions in the Arctic Council; participation in numerous Arctic Council meetings between 2008-2019; and a review of Arctic Council meeting documents from 1996-2019.

3. Who are the main players and what are the limitations they face?

The Arctic Council is a consensus forum comprised of 8 member states (Canada, the Kingdom of Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States) and 6 indigenous organizations known as Permanent Participants (Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, and the Saami Council) (Arctic Council, 2019a). It has no ability to enforce a member state or organisation to implement any of its guidelines, advice or recommendations, which remain the responsibility of member States and organisations (Arctic Council, 2013a). The Permanent Participants sit at the same table as the member States, and can intervene and speak according to the same procedures applied to member States. The Arctic States are obliged to consult them on all the Council's negotiations and decisions but ultimately it is the Arctic States who are the final decisions makers (Arctic Council, 2013a). The importance of engaging indigenous peoples and incorporating their knowledge in the work of the Council is regularly highlighted in Council reports and Declarations. However, their ability to engage is restricted by limited resources and capacity. Of the 90 Council ongoing activities only 16 have a Permanent Participant as a co-Lead (Arctic Council, 2019b), reflecting the impacts of these limitations. The ability to engage also varies between organisations and is largely dependent upon individual State' willingness and capacity to provide resources. In an effort to address this challenge, 5 of the Permanent Participants formed in 2017 the Álgu Fund (Website)

In addition, the Council also has the category of Observers which currently consists of 13 Non-arctic States, 13 Intergovernmental and Inter-Parliamentary Organizations and 12 regional and Non-governmental Organizations (for a full list of all observer states and organisations see here: https://arctic-council.org/en/about/observers). The number of Observers has almost tripled since 1998, reflecting the increased global interest in the Arctic with most recently approved Observer States coming from Asia (Fig 1). The EU is an ad-hoc observer in the Arctic Council, but in practice is treated the same as other Arctic Council observers.

Observers are directed to focus their engagement within the activities of the Council's 6 Working Groups where they can propose projects through an Arctic State or a Permanent Participant, with a caveat that their total financial contributions may not exceed funds from Arctic States (Arctic Council, 2015). Projects with engagement from Observers are increasing with 10 projects currently listed where Observers are co-leads (Arctic Council, 2019b). However, this does not reflect the broader engagement of Observers who may lead on components nested within broader initiatives, a detail not captured in Senior Arctic Officials (SAO) progress reports to Ministers. For example, scientists from Observer states and organisations make important contributions in assessments of status and trends of biodiversity (Meltofte *et al,* 2013; CAFF, 2017); and play key roles in implementation of components of broader tasks e.g. through the Arctic Migratory Birds Initiative (AMBI) (Provencher et al., 2017).

Fig. 1. Numbers of Observers to the Arctic Council

A key-challenge is how can the Council accommodate the desires of Observers for greater involvement while retaining control. Its ability to do so will have consequences in terms of access to resources; knowledge; and how States and bodies outside the Council respond to and act upon the products of the Council. To manage this challenge, it has developed guidelines for Observer engagement (Arctic Council, 2015) and is trying to find ways to ensure more effective engagement and access to resources both monetary and scientific that Observers can contribute. For example, it is now common practice for SAO meetings to have components focused on Observer engagement where Observers can discuss their concerns and highlight how they are contributing to the Council's work. Observer states also meet in what are known as "Warsaw Format" meetings to discuss their role in the Council and to address the Arctic Council chairmanship without representatives from Arctic Council member states present. Six such events have been held, most recently in 2019 (Arctic, Council 2019c).

The Council is experimenting with different approaches to engaging Observers. Examples include an initiative co-led by the US, Republic of Korea, Italy and Poland which is developing an approach to more systematically engage with Observers on shipping-related work (PAME, 2019); and AMBI through which the Council is exploring a model for engaging with Observer States whereby for the first time it is recommending specific actions to be undertaken within non-Arctic States. AMBI flyway workplans extend into the southern hemisphere and were developed in cooperation with states along those flyways (Provencher et al., 2017;).

States such as China, Germany, India, Netherlands, Republic of Korea, Singapore and Spain have become active on implementation of AMBI goals and objectives. Reflecting this engagement, Flyway coordinators for AMBI have been based in Observer States (Germany and Singapore). Reflecting the global relevance of Arctic issues, non-Arctic States who otherwise have no connection to the Arctic Council have engaged with AMBI, e.g. Mexico, Brazil, Australia and Guinea-Bissau, and the Americas Flyway Coordinator is based in Ecuador. Such an initiative requires more parity of leadership between Arctic and non-Arctic States than is currently the case and in response the Council is exploring agreements with National institutes within Observer States as a means to provide a foundation to facilitate engagement on implementation actions (CAFF, 2019). This framework for Observer engagement raises procedural questions regarding how projects co-led by Observers address development of policy recommendations that might flow from such activities, this currently being within the purview of Arctic States alone. In the case of the AMBI East Asian Australasian Flyway, stakeholders identified the Council as a more direct route to higher powers within their respective States i.e. providing a channel to speak to Ministries of Foreign Affairs and bypassing other ministries where they may have been less effective in achieving their aims.

4. How are the norms and rules of how the Council operates evolving?

Upon its formation in 1996, the Council took over the framework of the Arctic Environmental Protection Strategy (AEPS, 1991) and consisted of 4 Working Groups with no central administrative component. In the intervening years, as attention on the Council increased, calls to restructure the Council in order to increase its effectiveness surfaced regularly (Haavisto, 2001; Norwegian Chairmanship, 2008). As a result, its framework began to evolve and currently consists of the following components (Fig 2):

- *Meetings of Foreign Ministers* as the primary decision-making body for the Council.
- *Senior Arctic Officials (SAOs)* comprising representatives from Ministries for Foreign Affairs of the Arctic States and Permanent Participants who are tasked with acting upon the interests of the Ministers, which includes providing guidance and direction to the Council's subsidiary bodies. The Arctic Council Secretariat (ACS) provides administrative support to the SAOs.
- *Working Groups* where the majority of the Council's work is undertaken and who deliver the outcomes of their activities to the SAOs for consideration. There are 6 Working Groups, each dealing with different thematic areas. These include the Arctic Contaminants Action Program (ACAP),Arctic Monitoring and Assessment Programme (AMAP), Conservation of Arctic Flora and Fauna (CAFF), Emergency Prevention, Preparedness and Response (EPPR), Protection of the Arctic Marine Environment (PAME) and the Sustainable Development Working Group (SDWG).
- *Task Forces* formed at Ministerial meetings to work on specific issues for a limited period, after which they are disbanded. Eleven Task Forces have been formed, all of which are now disbanded and 3 of which facilitated the development of legal agreements i.e. the Agreement on cooperation on aeronautical and maritime search and rescue in the Council, 2011; Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (2013b); and the Agreement on scientific cooperation (2017b).
- *Expert Groups outside of Working Groups* which are not defined within the Council's foundation documents and may differ from Task Forces in the level of representation assigned and the duration of their existence. Two Expert Groups have been formed, one of which is still operational the Expert Group in operation in support of implementation of the framework for action on Black Carbon and Methane which is required to submit at each Ministerial a progress report and recommendations.

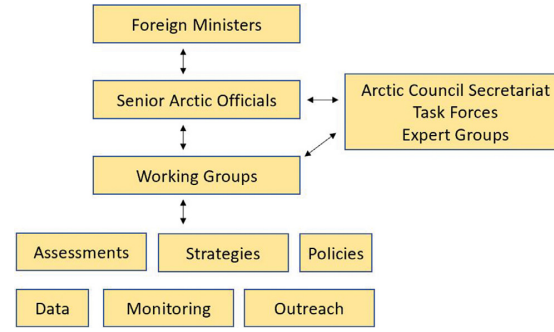

Fig. 2. Organisation of the Arctic Council

While aspects of biodiversity are touched upon across several of the Council's subsidiary bodies, the working group on the Conservation of Arctic Flora and Fauna (CAFF), is the primary instrument through which the Council addresses biodiversity. CAFF serves as a vehicle to cooperate on species and habitat management and utilization; share information on management techniques and regulatory regimes; and facilitate evidence-based decision making. It provides a mechanism to develop common responses on issues of importance for the Arctic ecosystem such as development and economic pressures, conservation opportunities and political commitments (CAFF, 1996).

There have been calls for the Council to alter its structure to help improve its efficiency and effectiveness. For example, in 2002 the SAOs submitted a review of the Arctic Council's Structure to the Ministers and Individual states during their Chairmanships have also delivered reports to inform this discussion (Haavisto, 2001; and Norwegian Chairmanship 2008 (Arctic Council 2008). In 2015 several Arctic States conducted a Multilateral Audit on their national authorities' work with the Arctic Council which found that the Council faced challenges in relation to its organizational structure (Supreme Audit Institutions of Denmark, Norway, The Russian Federation, Sweden and the USA, 2015). In response to such calls the Council created the SDWG

Working Group in 1998 and ACAP in 2006. More recently it has created new forms of subsidiary bodies with the introduction of Task Forces and Expert Groups in 2011; and the ACS in 2013. These additions were introduced in response to the increasing complexity of the Council's agenda and aimed in the case of the ACS to increase administrative effectiveness and through Task Forces and Expert Groups to place emphasis on specific issues outside the framework of the Working Groups e.g. the Expert Group in operation in support of implementation of the framework for action on Black Carbon and Methane.

Two Task Forces had mandates touching upon Arctic Council structure and efficiency. In the case of the Task Force for Institutional Issues (2011-13) this led to the establishment of the ACS. However, the Task Force on Arctic Marine Cooperation (TFAMC) (2015-19) established to consider the need for a regional seas program or other mechanism, to facilitate increased cooperation (Arctic Council, 2019d) proved unequal to the task posed by the necessity to take into account areas outside the jurisdiction of Arctic States and instruments of Arctic governance outside the remit of the Council (Young, 2019). It failed to come to any conclusion on several key needs it was formed to address e.g. it did not produce terms of reference for a new Arctic Council subsidiary body per its mandate (Arctic Council, 2017a) and thus far has been unable to extend cooperation throughout the marine stewardship cycle; and integration across sectors and jurisdictional boundaries (Arctic Council, 2019d). The only action to date has been agreement to establish a SAO based mechanism consisting of additional days added to SAO meetings focused on marine issues (Arctic Council, 2019b), with a first meeting scheduled in 2020. Additional challenges posed by the TFAMC included overlapping mandates between the TFAMC and the PAME Working Group.

The Council has also facilitated the creation of bodies outside the framework of the Council itself, which address issues of common concern e.g. the Arctic Economic Council (2014), Arctic Coastguard Forum (2015) and Arctic Offshore regulators forum (2015). Why introduce new mechanisms like this? is it because the SAOs are unable to have working groups prioritize what they want to prioritize? In this context the creation of the Arctic Economic Council might reflect that this lay outside the scope of SDWGs mandate or that the Working Group was not willing or unable to address economics in the way that the SAOs wanted.

New roles are also being created outside the existing structure of subsidiary bodies e.g. an innovation by the current Icelandic Chairmanship has been the appointment of a Special Coordinator on Plastics and marine litter. However, in the absence of specifics as to what such an advisor should do other than “coordinate” it remains unclear how this role will add value to already existing mechanisms e.g. the Regional Action Plan for Marine Litter being developed by (PAME, 2019) and if this post will disappear at the end of the Icelandic Chairmanship. A Connectivity Coordinator position staffed by the US has also been agreed upon with the purpose of improving communication between the Arctic Council and the Arctic Economic Council. The creation of such positions with unclear mandates seemingly in an unplanned fashion may reflect uncertainty among the Arctic States as to the effectiveness of the current institutional structure; or a desire to exert more direct control on specific issues rather than through Subsidiary bodies with established rules and processes which guide how priorities are acted upon.

In addition to these new instruments, an important evolution has been the use of the Council to facilitate negotiation of legal agreements where gaps in Arctic governance have been identified. Three such agreements have been formed, 2 of which, focusing on response to oils spills and scientific cooperation, are relevant for biodiversity. Reporting on and coordination of activities related to the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue (SAR) in the Arctic (Council, 2011); and Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (MPOR) (Arctic Council, 2013b) is conducted via the EPPR Working Group. The SAR led to the creation of the Arctic Coast Guard Forum in 2015 demonstrating the potential casual impacts of Arctic Council activities. While an important step in how the Council might operationalise outcomes from its work, neither the SAR or MOPR agreements create any significant new obligations to its parties to take concrete measures. Rather, they build on existing general international treaties and encourage practical cooperation (Durfee & Johnstone, 2019). Disputes are settled by direct consultations between parties meaning they are “basically unenforceable“ (Johnstone, 2015).

The addition of such new components without clear agreement as to what structural changes might be needed to improve the Councils efficiency and effectiveness presents potential barriers to effectiveness through duplication of processes and waste of resources e.g. more than one expert group addressing the same issue; and overlapping of roles e.g. between the role of the Special Coordinator on Plastics and Marine Litter and PAMEs responsibility to develop and implement a Regional Action Plan on Marine Litter (PAME, 2019).

From the outside the Council can seem a large organisation producing well respected assessments and reports. However, these are developed using a very small administrative core and the capacities of subsidiary body secretariats varies significantly. For example, the ACS has a staff of 9 to provide administrative support to the SAOs while ACAP, EPPR and SDWG each have a staff of 1. An additional complexity that can prove a hindrance to effectiveness is how different agencies often represent states within different subsidiary bodes. For example, the SAOs are comprised of representatives from the Ministries of Foreign Affairs while some Working Groups such as CAFF and AMAP are composed of representatives from Ministries of Environment or Environment institutes. Consequently, a barrier to effectiveness in decision making may be the need for improved coordination between differing national agencies on their positions across several subsidiary bodies. The challenges posed by this structure can be seen in the inability of the Council to thus far act on any of the goals or priority actions identified in the Arctic Invasive Alien Species (ARIAS) Strategy and Action Plan (CAFF and PAME, 2017) and approved by the Council over 3 years ago.

5. What does it cost?

A question often asked by the Council of itself is what does it all cost i.e. what resources are applied to support the activities it undertakes. This is difficult to answer as the Council has no programming budget. Activities are supported by a mixture of direct funding provided to a subsidiary body and in-kind support from various Arctic Council member states, Permanent Participants, Observers, national agencies and international organizations e.g. funding provided towards the salary and running costs of Working Group secretariats. In-kind support can consist of experts’ time or hosting of meetings. Quantifying the value of in-kind support is something only an individual state or organisation can do (Arctic Council, 2016).

Arctic Council activities are funded on a voluntary basis by individual Arctic states and not all states necessarily contribute to every activity, or to supporting subsidiary bodies. This depends upon where their interests lie. Such a voluntary structure means that the ability to implement workplans can be limited and unbalanced depending upon the prevailing interests of states or other funding sources. This can pose an obstacle to the Council's effectiveness leading to (Haavisto, 2001; Norwegian Chairmanship, 2008; Supreme Audit Institutions of Denmark, Norway, Sweden, the Russian Federation and the USA, 2015; Soltvedt and Rottem, 2016):

- *Inequalities in influence*, as countries willing to provide the most resources are able to push their priorities simply by funding them, even if the funded projects may not be priorities of the Arctic Council as a whole;
- *Lower priority projects* undertaken simply because they receive

funding;
- *Time and resources* spent on finding resources for projects; and
- *Projects being halted or delayed* because of a lack of funding.

An example of how this process can hinder the Councils ability to act upon its priorities can be seen in how it took 12 years from when the need for a comprehensive Arctic Biodiversity Assessment was identified (CAFF, 2001) until the assessment was completed in 2013 (Meltofte 2013). Given the rapid rate of Arctic environmental change, 12 years from identification of an urgent issue until action is taken is not reflective of an efficient process.

A partial exception to the lack of a programming budget is the Project Support Instrument (PSI) which finances Arctic Council activities aimed at preventing and mitigating pollution within the Arctic. However, this fund is managed outside the framework of the Council with a separate governing body and rules of procedure that are not the same as those of the Council. The PSI currently excludes any support for administration of Arctic Council subsidiary bodies and until 2017 only supported activities conducted by ACAP. CAFF however has recently secured funding focused on migratory bird issues addressing areas beyond Russia extending into Europe and Asia (NEFCO 2018).

In 2015 several states conducted a multilateral audit to consider the cost of national authorities' work with the Arctic Council (Supreme Audit Institutions of Denmark, Norway, The Russian Federation, Sweden and the USA, 2015). However, while termed an audit the exercise did not entail any examination of actual costs or resources being committed by States to Arctic Council activities. Rather it provided descriptions of activities that contributed towards Council activities and highlighted perceived challenges the current structure posed to its effectiveness. The national reports contained within the audit were not standardised making it difficult to harmonize their findings.

Building upon this audit the Working Group Secretariats delivered a report on Arctic Council Funding Arrangements (Arctic Council, 2016). This report highlighted that the majority of direct funding for Council activities came from Arctic States and that while other sources of direct funding were limited there was a broad range of sources of in-kind contributions. Efforts have also been made to estimate costs associated with individual programmes and to calculate the funds leveraged by a specific programme. For instance, CAFFs Circumpolar Biodiversity Monitoring Programme (CBMP) has an estimated annual cost of 1.740.000 USD (CAFF 2018a); and it was calculated that AMBI leveraged 1,343,806 USD between 2015-2017 in support of migratory bird actions (Provencher *et al*, 2017). Through AMBI, Observer States are also starting to provide direct funding to support Council activities, e.g. Germany, the Netherlands and Singapore have supported positions of AMBI Flyway Coordinators and Spain has offered to support the costs for a coordinator for the AMBI African-Eurasian Flyway (CAFF 2019b).

Funding provided to support the operational costs of subsidiary bodies varies significantly (Fig 3) and this imbalance has significant impacts upon abilities to fulfil mandates. For example, direct funding provided to the CAFF and PAME Secretariats covers only about 40-50% of annual operating costs (Arctic Council, 2016). This presents a significant barrier to effectiveness in terms of time and resources required to ensure this funding gap is filled. Operational funding is also not linked to inflation meaning that for CAFF operational funds provided by Arctic states between 1996-2017 increased by just 1,000 USD (CAFF, 2018b). The legal status of the Secretariats of subsidiary bodies also varies and can restrict their ability to raise and receive funding e.g. the ACAP, EPPR and SDWG Secretariats are not legal entities (Arctic Council, 2016).

The lack of a programming budget and insufficient operational budgets for Working Group Secretariats places financial constraints upon their ability to fulfil their mandates and complete tasks in accordance with agreed upon timelines. This in turn may then impact upon the Councils ability to better harness knowledge and capacity to inform timely and effective decisions in the face of the cumulative and accelerating change affecting the Arctic.

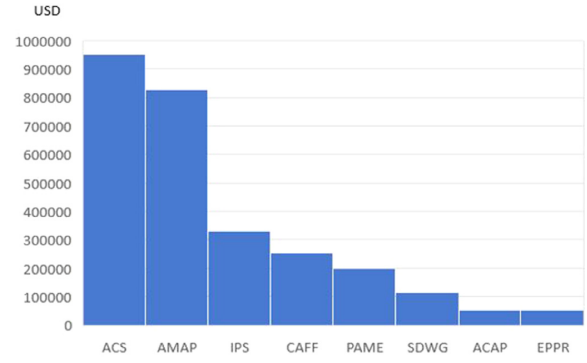

Fig. 3. Operational funding provided to subsidiary body Secretariats in 2015 (Arctic Council 2016)

6. How does it operate?

The Arctic Council currently has no overall strategy to guide its activities or help ascertain if its goals are being achieved and evaluate any impact its activities may have. Under the US Chairmanship (2015-17) efforts were instigated to develop an overarching strategy and were continued by the Finnish Chairmanship (2017-19). However, this process was not completed in time for the 2019 Ministerial meeting and it remains a task for the Icelandic Chairmanship (2019-21) to complete. The Rovaniemi Joint Ministerial Statement (Arctic Council 2019e) did not provide strong encouragement to complete the process any time soon, it simply *"welcomed the ongoing work and instructed SAOs to continue strategic planning, in order to provide guidance and improve the efficiency and effectiveness of the Arctic Council, further instructed the SAOs to review the roles of ministerial meetings, the SAOs and the Permanent Participants and to report to Ministers in 2021"*.

While the Council as a whole does not yet have a strategic plan, each of the Council's Working Groups have a strategic document (CAFF 2015; PAME 2015; EPPR 2016; ACAP 2016; SWDG 2017; AMAP 2019) defining overarching goals and objectives. Only two specify in detail actions needed to achieve these goals i.e. the *Actions for Arctic Biodiversity 2013-21: implementing the recommendations of the Arctic Biodiversity Assessment* (CAFF 2015) and the *Arctic Marine Strategic Plan 2015-25* (PAME 2015), thereby providing a reporting mechanism and a potential framework to facilitate evaluation of the effectiveness of the Council.

To the lack of a clear overarching strategy for the Council is added the concept of Chairmanship priorities which define priorities or themes for a state's Chairmanship. Over time these have become more substantive whereby States consult with other Member States and Permanent Participants producing detailed lists of priority initiatives or themes via which they plan to define their Chairmanships. For a full list of Chairmanship programmes see here: https://arctic-council.org/en/about/previous-chairmanships. These priorities tend to reflect national interests and not necessarily the ongoing work of the Council. They also differ between Chairmanships and can sometimes be described in general terms such that any Council activity can be related to them thereby limiting their impact and usefulness.

The practice of establishing Chairmanship priorities has also been adopted by some Working Groups. For example, in CAFF the Canadian (2011-13); Russian (2013-15); Norwegian (2013-15); and US (2017-19) chairmanships introduced priorities which helped facilitate action. For example, both Canada and Russia identified ABA recommendation 8 (CAFF 2013a) on reducing stressors on migratory species as crucial and

during their Chairmanships developed a mechanism to act on this recommendation i.e. AMBI. Preliminary results from the US Chairmanship for 2017-19 indicate that one of their priorities to improve national follow-up on CAFF outcomes has helped increase attention to national coordination in following-up on implementation of recommendations from CAFF reports (Jacobson, 2019).

In the absence of an overarching strategy the work of the Council is guided by SAO Progress Reports submitted to the Foreign Ministers of the Arctic States for approval every 2 years. These Reports contain a summary of achievements from the preceding 2 years and workplans for each of the Council's subsidiary bodies for the coming 2 years. Workplans are not fixed and can be added to and changed as needed between Ministerial meetings. They consist of lists of all activities planned and while all items contain a rationale and description of tasks, often there is no indication of the timeline or resources required to undertake an activity. This inconsistency reflects the nature of planning within the Council whereby an activity is often decided upon prior to a commitment of resources. Upon approval of workplans subsidiary bodies may then need to consider who will lead on each item, and source the funding and resources required (Arctic, Council 2016).

When considering workplan items of relevance beyond a specific subsidiary body, efforts are made to refer to relevant subsidiary bodies and identify specific activities of importance. However, it is usually left until after a Ministerial meeting to consider how different activities addressing similar issues should interact; and how subsidiary bodies should contribute or participate in each other's activities. This has the potential to create challenges in coordinating resources and avoiding overlapping activities, e.g. the Council currently has two initiatives with a focus on black carbon, one within the AMAP Working Group and the other an expert group operating outside the Working Group framework.

At Ministerial meetings the Foreign Ministers of the Arctic States usually sign a Declaration containing a series of statements in response to the SAO progress report to Ministers which: welcomes, endorses or approves deliverables from the previous 2 years; approves workplans for the next 2 years; highlights emerging issues which are considered important; and instructs SAOs on actions needed. The recommendations arising from Council reports and declarations are not legally binding and can be general and lacking in specifics on what actually needs to be done. They entail no reporting requirements either at a regional or national level and have no resource implications, without which it can be challenging to convince national authorities of the need to act on Council outcomes (Supreme Audit Institutions of Denmark, Norway, Sweden, the Russian Federation and the USA, 2015; Prip, 2016).

Despite the challenges outlined above the Arctic Council has produced several notable achievements where it has succeeded in: focusing attention on issues of urgency e.g. climate change in the Arctic and its global implications (ACIA 2005); Informing international conventions e.g. the ABA led to recognition by the UN Convention of Biological Diversity of Arctic biodiversity as an emerging issue and an invitation to the Arctic Council to provide relevant information and assessments of Arctic biodiversity (CBD, 2010); in support of article 4 of the Stockholm Persistent Organic Pollutants Convention every 4 years AMAP conducts a regional analysis of data on reduction of POPs emissions for the Arctic; the Arctic Marine Shipping Assessment (PAME, 2009) and the Arctic Ocean Review (PAME, 2013) were important contributions to the development of the International Code for Ships Operating in Polar Waters (Polar Code) and are examples of the Arctic Council impacting the development of international law to protect the marine environment (Johnston 2015), and facilitation by the Council of agreements (Arctic Council, 2011; 2013b; 2017b) where gaps in governance had been identified.

It is easier to map impacts of Arctic Council work on a regional or global scale than it is on a local or national scale where examples of impacts are harder to discern. This is due in part to a lack of cohesion, accountability and long-term planning described above which hinders the ability to evaluate effectiveness and helps create a lack of transparency on how issues move from science to policy and contribute to on the ground impacts. Perhaps one of its most significant achievements has been that it has helped to keep the Arctic a relatively peaceful and cooperative region of the world, despite very significant tensions among its members relating to other regions and issues.

7. Where does it fit within the Arctic Governance architecture?

In order to consider the effectiveness of the Council we need to understand the Arctic's existing governance architecture and the Council's place within this framework. The architecture for Arctic governance comprises intergovernmental fora (i.e. the Arctic Council), inter-parliamentary and inter-governmental bodies and Sub-regional cooperative bodies (e.g. Northern Forum) to hard law instruments such as the United Nations Law of the Sea (UNCLOS), regional multi-lateral environmental agreements (e.g. the agreement on the conservation of Polar Bears) and global multi-lateral environmental agreements (e.g. Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) and the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)).

The Council is a consensus-based body without any means to compel implementation of its recommendations and this has been used to support arguments to re-establish the Arctic Council or to replace it with some other international body on the basis of an Arctic treaty (Prip, 2016). Arctic States have emphasized that they do not see the Arctic as an area in need of additional governance (Ilulissat, 2008) and that there is an extensive legal framework in the Arctic and the need is not to address gaps in governance but rather better coordinate relationships between the various but often overlapping arrangements for Arctic governance (Fenge, 2013). Nevertheless, Arctic States have moved to strengthen Arctic governance in a number of notable ways, e.g. through efforts to strengthen the Arctic Council itself, development of legal agreements, the Polar Code and the Agreement to prevent unregulated high seas fisheries in the Central Arctic Ocean (DFO, 2018).

A good example of the potential for overlap and the role the Council can play in ensuring coordination and alignment of activities between different instruments can be seen in the activities of the OSPAR Convention; and the African Eurasian Waterbird Agreement (AEWA) under the Convention on Migratory Species (CMS). These bodies are developing conservation actions and strategies for Arctic seabirds, an area where CAFF has a long-established programme of work including agreed upon species conservation strategies and actions plans. Both AEWA and OSPAR are working with CAFF to both use its work and to facilitate coordination across these three different programmes. AEWA has also asked its member States to ensure national coordination with CAFFs activities on seabirds to avoid any duplication or overlap. Another relevant example is the cooperation between PAME, the International Council for Exploration of the Seas (ICES) and the North Pacific Marine Science Organization (PICES) to develop an integrated ecosystem assessment of the Central Arctic Ocean (ICES/PICES/PAME 2019).

The Arctic Council presents itself as *"the leading intergovernmental forum promoting cooperation, coordination and interaction among the Arctic States"* (Arctic Council 2019a). The language the Council uses to describe itself reflects this perceived role and has evolved from *policy informing, policy shaping* to most recently a *policy making* body. The evolution of the Council's ability to facilitate the creation of legal agreements also reflects such a role whereby it identified areas in need of more formal arrangements and moved to fill these gaps in governance. This function can also be seen in how the Council has facilitated the creation of bodies outside its framework, to address issues of common concern and where it was agreed there was need for

cooperation e.g. establishment of the Arctic Economic Council (Arctic, Council 2013c).

To facilitate coordination and engagement with regard to biodiversity the Council has through CAFF developed a framework of agreements with those global conventions and initiatives relevant for Arctic biodiversity (CAFF, 2019b) i.e. the UN Convention on Biological Diversity (CBD) (CAFF 2009a); Association of Early Polar Career scientists (CAFF 2009b); UN Convention on Migratory Species (CMS) (CAFF 2013b); AEWA (CAFF, 2013c); Ramsar Convention on Wetlands (CAFF, 2013d); and the East Asian-Australasian Flyway Partnership (CAFF, 2013e), The Arctic Spatial Data Infrastructure (Arctic SDI); Global Biodiversity Information Facility (GBIF) (CAFF 2016); Ocean Biogeographic Information System (OBIS); and Group on Earth Observations Biodiversity Observation Network (GEOBON); and the agreement on the conservation of Polar Bears (CAFF, 2019) . These provide a means to inform and guide activities related to Arctic biodiversity in these fora. For example, the process to develop the ABA led to recognition by the CBD of Arctic biodiversity as a new and emerging issue (CBD, 2010); and an invitation to the Arctic Council to provide relevant information and assessments of Arctic biodiversity resulted in a decision on cooperation with the Arctic Council (CBD, 2012).

Recent years have seen an increase in the number of instruments touching upon Arctic governance. Aside from the development of legal agreements under the auspices of the Arctic Council, a number of instruments have also been established outside the framework of the Council. These provide non-Arctic States with a more substantive role than is the case within the Council. Key developments have included the adoption of the Polar Code by the International Maritime Organisation (IMO) (2017); the initiation of annual Arctic science ministerial meetings with 2 of the 3 being held outside of the Arctic; and the 2018 International agreement to prevent unregulated high seas fisheries in the Central Arctic Ocean where the European Union and Non-Arctic States China, Japan and Republic of Korea are signatories alongside Arctic States. This increasing complexity of Arctic governance raises questions as to the role of the Council and how it might evolve in response. For example, the fisheries agreement entails taking into account Indigenous and local knowledge; cooperating in science and research; establishing conservation and management measures; and ensuring the engagement and participation of Arctic Indigenous peoples. All of these are tasks conducted by the Arctic Council and what role if any will the Council have, or will there be duplication of tasks with the resultant impacts on resources and capacity? It also raises issues of sovereignty whereby Arctic Council states are trying to declare their sovereignty over the Arctic, while other States outside the Arctic are trying to interject their own legitimacy in Arctic governance.

8. Is the Arctic Council an agent of change?

It is challenging to discern where Council activities have resulted in clear and measurable impacts, where you can see that without it something would not have happened and improved as a result. For example, the work of the TFAMC consumed energy and resources for over 4 years and to what outcome - an additional meeting to be held every other year? The same can be said of many of the Councils numerous reports and assessments. Drawing clear lines between the idea, the process and ultimate impacts if any is challenging, especially given the lack of reporting obligations. Although Voluntary reporting has begun on the status of implementation of recommendations for two Council assessments i.e. the Arctic Biodiversity Assessment (Barry 2017, 2019) and the Arctic Marine Shipping Assessment (PAME, 2011; 2013; 2015a; 2017). Impacts recorded are often those that point upwards e.g. through informing decisions at the CBD and the Stockholm Convention. As a result, it is often easier to focus on generalities and higher-level issues rather than on specific outputs from activities other than bureaucracy. To uncover the Councils potential to act as an agent of change requires looking deeper to find those hidden, examples of how the Councils work has directly led to or influenced change(s).

At a fundamental level, the gathering of knowledge by *the Council has led to clear impacts on behaviour*. For example, cooperation between states engaged in the implementation of CAFFs Circumpolar Marine Biodiversity Monitoring Plan (Gill *et al.*, 2011) led to the identification amongst Arctic States of time and cost-effective possibilities for marine benthos monitoring (CAFF, 2017). This resulted in an initiative to add a benthic component to the annual monitoring of commercial fish-stocks by several Arctic States leading to improved biodiversity monitoring in both geography and taxonomy with little extra cost and thereby adding value to existing endeavours. A very basic and simple task yet one that had would not have occurred without the Councils recognition of a gap in knowledge and subsequent investment by Arctic States in a framework to facilitate the gathering and exchange of knowledge. In this case the Council acted as the agent of change by identifying the gap in knowledge and what was needed to fill this gap. The Nordic Council of Ministers who play a key role in actualising much of the Councils work through seed funding provided the resources necessary to operationalise the outcomes. This is a clear impact showing how effective an agent of change it can be, leading to improved baseline data and understanding of what's happening to a key component of the Arctic's ecosystems and supporting informed decision making (Barry, 2019).

Similarly, the potential impact of Arctic Council activities on the conservation and sustainable management of biodiversity can be seen through its work on Seabirds. During the 1980s and 1990s there were reports of population declines in Canada, Russia, Greenland and Alaska e.g. in west Greenland an 80% reduction in breeding numbers was recorded between 1960-2000 (Merkel, 2004). In response facilitated by CAFFs Circumpolar Seabird Expert group (CBird) a population model was developed demonstrating that current harvest levels were unsustainable and that in order to halt declines harvest levels should be reduced by $\geq$40% (Merkel, 2010). These findings supported by actions defined in the Circumpolar Eider Conservation Strategy and Action Plan (CAFF, 1997) provided arguments in Greenland which led to: changes in harvest regulations e.g. restricting the hunting season; and implementation of a community-based monitoring program. As a result, some eider populations began to recover and human disturbance and egging in breeding colonies was reduced (Merkel 2010). More recent work facilitated by CBird entailed development of a harvest model on thick-billed murre quantifying the impacts of hunting and oil pollution in one country on the breeding population in other countries (Frederiksen *et al,* 2019). As a result, Canada, Greenland, Iceland and Norway initiated discussions on development of an international management plan for the thick-billed murre. Such examples demonstrate how the Arctic Council through providing a forum to foster cooperation e.g. CBird, can lead to changes in conservation and management practices for Arctic biodiversity.

The Council has also *directly impacted the behaviour of non-Arctic states* both in how they engage in the Council and how they act upon its recommendations. It has facilitated improved cooperation between Arctic and non-Arctic states leading to high-level communiques between Arctic Ambassadors and diplomats on the issue of migratory bird conservation, thus raising this topic beyond Arctic States, resulting in more active Observer engagement and support. It is too early to say if AMBI can contribute to direct impacts on migratory bird populations e.g. if any are rebounding or stabilising as result; or the threats they face e.g. habitat degradation and overharvesting. However, room for optimism can be seen in how AMBI facilitated the creation of a Task Force on Illegal Hunting along the EAAF. Prior to AMBIs intervention on this issue the various States in this flyway despite recognition that illegal hunting was a key threat were unable to agree on how to address this issue. It remains to seen how effective this Task Force may be, but there now exists a means to address this issue, *one which would not have existed without the intervention of the Council*. Observer States are increasingly active within AMBI asking where they can contribute, how

they can influence outcomes; and requesting agreements between their national agencies and CAFF to facilitate implementation of Arctic Council recommendations on migratory birds.

Change in the behaviour of how Observers engage in an Council initiative such as AMBI and direct on the ground impacts regarding how data is collected and analysed indicate that the Council has the potential to be an agent of change. However, as such examples of such change are often not reported further research is needed to ascertain if they are isolated examples and why other initiatives such as ARIAS have thus far failed to produce any outcomes.

9. Conclusion

When considering the institutional effectiveness of the Arctic Council it is clear that the Council has changed significantly since its formation. How it is structured and operates is evolving in response to the increasing attention paid to all things Arctic and the resulting increased focus by Arctic States in pursuing geopolitical agendas in the region. Factors which help enable this change include: the willingness of member states, Permanent Participants and Observers to commit resources to support its activities; its ability to often facilitate consensus; and the passionate commitment of individuals engaged in the Councils work. Additionally, the absence of an underlying legal agreement means it may be more flexible regarding changes to what it does and how it is structured than may be the case with MEAs and their clearly defined roles and restrictions. However, challenges to ensuring effective outcomes from the Council's activities remain.

The *ad-hoc nature of new components* being established, sometimes with unclear or overlapping mandates, can lead to wasted resources and a lack of clarity on who is doing what. These may also reflect *uncertainty among Arctic States* as to the ability of the current institutional structure to fulfil their needs; and a d*esire to exert more direct control* on specific issues rather than through existing subsidiary bodies with established rules and processes which guide how priorities are acted upon.

The lack of an overall strategy is one factor which hinders the Council's ability to address broader issues such as Climate Change and sustainable development; and the absence of *obligated reporting* lends itself to a lack of transparency as to how or if States act on any outcomes from the Council and means that while the Council has had impacts at the global scale detecting impacts at national or local levels is difficult. The Arctic States have agreed that while climate change is the most serious threat to the Arctic's biodiversity decisive action could help sustain its ecosystems and the services they provide (CAFF, 2013a). A comprehensive plan outlining the actions needed has been developed (CAFF, 2015) however the lack of obligated reporting means the extent to which these are being acted upon remains unclear.

All the Arctic Council member States have developed documents defining their goals and objectives in the region (Heininen et al., 2019), and with the Council chairmanship changing every two years these play a role in defining Chairmanship priorities. For example, Iceland's focus as an island nation on marine issues is reflected in its plans to organise a meeting of Ministers with responsibilities for Oceans during its 2019-2021 Chairmanship. The outcome of disagreement between State interests can also be seen in the failure of the Arctic States to agree upon a Ministerial declaration in 2019 due to disagreements as to how or even if climate change should be reflected in the proposed Declaration (Koivurova, 2019).

Despite these challenges it is clear that the Council has had positive impacts both at national and global scales through increasing common awareness and understanding of issues such as the challenges facing Arctic biodiversity; generating knowledge to support evidenced based decision making; addressing gaps in Arctic governance through facilitating creation of legal agreements; and providing a venue for communication in times of geopolitical tension. However, the Council's ability to continue to have positive impacts and to function as a forum for cooperation will be tested by how it responds to climate change and the extent to which Arctic States may allow security issues to be addressed. The development of an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (UNCLOS 2017) may have significant impacts on how the Council deals with Arctic biodiversity. These impacts are already being reflected in the increased emphasis placed on the need for improved coordination on ocean governance e.g. the TFAMC. What role might the Council play in implementing this agreement once it has been completed?

Without clear strategies *many of the Councils efforts can appear ad-hoc, reactive rather than responsive* and without due recourse to forward planning. However, when clear and detailed plans are in place to guide the work of the Council as in biodiversity e.g. the Action plan for Arctic biodiversity (CAFF 2015) and the AMBI work plans (Provencher *et al.* 2015; CAFF, 2019) then glimpses can be seen of the potential of the Council to act as an agent of change.

CRediT authorship contribution statement

Tom Barry: Writing - review & editing. **Brynhildur Davíðsdóttir:** Supervision, Writing - review & editing. **Níels Einarsson:** Supervision, Writing - review & editing. **Oran R. Young:** Supervision, Writing - review & editing.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The corresponding author is employed (2008-present) within the Arctic Council which is the organisation considered within this article.

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Bibliography

ACAP, 2016. ACAP Strategy to Address Contamination of the Arctic Environment and its People. Arctic Council Secretariat Available at: http://hdl.handle.net/11374/2111.
ACIA (2005) 'Arctic Climate Impact Assessment. ACIA Overview report'. Cambridge University Press. 1020 pp. ISBN: 0 521 86509 3.
AEPS, 1991. Arctic Environmental Protection Strategy, June 14, 1991 30. I.L.M., pp. 1624.
AMAP, 2019. Strategic Framework 2019+. AMAP Secretariat.
Arctic Council (1996) Ottawa Declaration. Available at:http://hdl.handle.net/11374/85.
Arctic Council, 2008. Improving Effectiveness and Efficiency of the Arctic Council. Norwegian Chairmanship Arctic Council Available at: https://oaarchive.arctic-council.org/handle/11374/1668.
Arctic Council (2013a) 'Arctic Council Rules of Procedure', pp. 1–16. Available at:http://hdl.handle.net/11374/940.
Arctic Council (2013b) 'Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic'. Available at:http://hdl.handle.net/11374/529.
Arctic Council (2013c) 'Task Force to Facilitate the Creation of a Circumpolar Business Forum: Report to the Arctic Council's Senior Arctic Officials meeting in Yellowknife, Canada, March 26-27, 2014'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/1308.
Arctic Council (2015) 'Observer Manual for Subsidiary Bodies'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/939.
Arctic Council, 2016. Arctic Council Funding Arrangements. Arctic Council Secretariat.
Arctic Council (2017a) 'Report to Ministers of the Task Force on Arctic Marine Cooperation'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/2344.
Arctic Council (2017b) 'Agreement on Enhancing International Arctic Scientific Cooperation'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/1916.
Arctic Council (2019a) 'Arctic Council: a backgrounder'. Retrieved on January 11, 2020

at:https://arctic-council.org/index.php/en/about-us.
Arctic Council (2019b) 'Senior Arctic Officials Report to Ministers 2019'. ISBN 978-82-93600-48-0. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/2354.
Arctic Council (2019c) 'Senior Arctic Officials meeting report, Hveragerði, November 2019'. Arctic Council Secretariat.
Arctic Council. (2019d) 'Report on the work of the Task Force on Arctic Marine Cooperation II in 2017-2019'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/2344.
Arctic Council (2019e) 'Rovaniemi joint Ministerial statement 2019'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/2342.
Barry T. (2017) 'Actions for Biodiversity 2013- 2021: implementing the recommendations of the ABA. Progress Report 2017'. CAFF International Secretariat, Akureyri, Iceland.
Barry T. (2019) 'Actions for Biodiversity 2013- 2021: implementing the recommendations of the ABA. Progress Report 2019'. CAFF International Secretariat, Akureyri, Iceland. ISBN 978-9935-431-82-0.
CAFF, 1996. CAFF Framework document. CAFF International Secretariat, Akureyri, Iceland.
CAFF, 1997. Circumpolar Eider Conservation Strategy and Action Plan. CAFF International Secretariat, Akureyri, Iceland ISN: 9979-9294-3x.
CAFF, 2001. Arctic Flora and Fauna: status and conservation. CAFF International Secretariat, Akureyri, Iceland ISBN 997-9947-659.
CAFF, 2009. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Convention on Biological Diversity. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF, 2009. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Association of Early Polar Career Scientists. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF (2013a) 'Arctic biodiversity assessment: report for policy makers'. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-23-3.
CAFF, 2013. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Convention on Migratory Species. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF, 2013. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and African-Eurasian Waterbird Agreenebt. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF, 2013. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Ramsar Convention on Wetlands. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF, 2013. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the East Asian Australasian Flyway Partnership. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF, 2015. Actions for Arctic Biodiversity, 2013-2021: Implementing the recommendations of the Arctic Biodiversity Assessment. CAFF International Secretariat, Akureyri, Iceland ISBN: 978-9935-431-41-7.
CAFF, 2016. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Global Biodiversity Information Facility. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF (2017) 'State of the Arctic Marine Biodiversity Report'. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-63-9.
CAFF (2018a) 'Circumpolar Biodiversity Monitoring Program Strategic Plan 2018-2021'. CAFF Monitoring Series Report No. 29. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-71-4.
CAFF, 2018. Memo on annual budget to CAFF, 2017. CAFF International Secretariat, Akureyri, Iceland.
CAFF, 2019. Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Polar Bear Conservation agreement. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/resolutions-of-cooperation.
CAFF, 2019. CAFF Board meeting Records of Decision, Stockholm Sept 2019. CAFF International Secretariat, Akureyri, Iceland.
CAFF, 2019. CAFF Framework of agreements. CAFF International Secretariat, Akureyri, Iceland Retrieved on January 11, 2020 at: https://caff.is/policy-home.
CAFF and PAME, 2017. Arctic Invasive Alien Species: Strategy and Action Plan 2017. CAFF International Secretariat and PAME International Secretariat, Akureyri, Iceland ISBN: 978-9935-431-65-3. Available at: https://caff.is/invasive-species.
CBD (2010) 'UN Convention on Biological Diversity (CBD): Decision X/13 New and emerging issues'. Retrieved on January 11, 2020 at:https://www.cbd.int/decision/cop/?id=12279.
CBD (2012) 'UN Convention on Biological Diversity (CBD): Decision XI/6/D. Collaboration on Arctic biodiversity'. Retrieved on January 11, 2020 at:https://www.cbd.int/decision/cop/?id=13167.
Council Arctic. http://hdl.handle.net/11374/531.
DFO, 2018. International Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean. Fisheries and Oceans Canada (DFO) Retrieved on January 11, 2020 at: https://www.dfo-mpo.gc.ca/international/arctic-arctique-eng.htm.
Durfee, M., Johnstone, R.L., 2019. Arctic governance in a changing world. Rowman & Littlefield Publishers ISBN 978-1-4422-3562-5.
EPPR (2016) 'EPPR Strategic Plan of Action for approval'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/1262.
Fenge, T., 2013. The Arctic Council: Past, Present, and Future Prospects with Canada in the Chair from 2013 to 2015. Northern Review 37 (37), 7–35.
Frederiksen, M., Linnebjerg, J.F., Merkel, R.M, Wilhelm, S.I, Robertson, G.J., 2019. Quantifying the relative impact of hunting and oiling on Brünnich's guillemots in the North-west Atlantic. Polar Research 2019 38, 3378. http://dx.doi.org/10.33265/polar.v38.3378.
Gill M., K. Crane, R. Hindrum, P. Arneberg, I. Bysveen, N.V. Denisenko, V. Gofman, A. Grant-Friedman, G. Gudmundsson, R.R. Hopcroft, K. Iken, A. Labansen, O.S. Liubina, I.A. Melnikov, S.E. Moore, J.D. Reist, B.I. Sirenko, J. Stow, F. Ugarte, D. Vongraven, and J. Watkins (2011) 'Arctic Marine Biodiversity Monitoring Plan'. CAFF Monitoring Series Report No.3, April 2011, CAFF International Secretariat, Akureyri, Iceland. ISBN 1. 978-9979-9778-7-2.
Haavisto, P. (2001) 'Review of the Arctic Council Structures - A consultant's Study'. Retrieved on January 11, 2020 at:http://hdl.handle.net/11374/449.
Heininen, L., Everett, K., Padrtova, B., Reissell, A., 2019. Arctic Policies and Strategies: Analysis, Synthesis, and Trends. The International Institute for Applied Systems Analysishttps://doi.org/10.22022/AFI/11-2019.16175. ISBN-13: 978-3-7045-0156-1.
ICES/PICES/PAME (2019) 'Working Group on Integrated Ecosystem Assessment (IEA) for the Central Arctic Ocean'. Retrieved on January 11, 2020 at:http://www.ices.dk/community/groups/Pages/WGICA.aspx.
Ilulissat (2008) 'Ilulissat Declaration, 28 May 2008', (May), pp. 27–28. Retrieved on January 11, 2020 at: http: //www.cil.nus.edu.sg.
IMO (2017) 'Resolution MSC.385(94): International Code for ships operating in polar waters (POLAR CODE)'.
Johns, C., Thorn, A., VanNijnatten, D., 2018. Environmental regime effectiveness and the North American Great Lakes Water Quality Agreement. International Environmental Agreements: Politics, Law and Economics 18. Springer, Netherlands, pp. 315–333. https://doi.org/10.1007/s10784-018-9385-1.
Jacobson, C. (2019). Personal communication from Jacobson, C., CAFF Chair during US Chairmanship of CAFF, 2017-19.
Johnsen, K.I., Alfthan, B., Hislop, L., Skaalvik, J.F., 2010. Protecting Arctic Biodiversity. Protecting Arctic Biodiversity - Limitations and Strengths of Environmental Agreements. United Nations Environment Programme, GRID-Arendal.
Johnstone, R.L, 2015. Offshore Oil and Gas Development in the Arctic under International Law: Risk and Responsibility. Queen Mary studies in international law 14 ISBN 978-90-04-26933.
Knecht, S., 2017. The politics of Arctic international cooperation: Introducing a dataset on stakeholder participation in Arctic Council meetings, 1998–2015. Cooperation and Conflict 52 (2), 203–223. https://doi.org/10.1177/0010836716652431.
Koivurova, T (2019) 'Is this the end of the Arctic Council and Arctic governance as we know it? The Polar Connection'. Retrieved on March 10, 2020 at:http://polarconnection.org/arctic-council-governance-timo-koivurova.
Levy, M, 1996. Assessing the effectiveness of international environmental institutions. Global Environmental Change 6 (Issue 4), 395–397. September 1996. https://doi.org/10.1016/S0959-3780(97)88961-3.
Meltofte, H., 2013. Arctic Biodiversity Assessment. Status and trends in Arctic biodiversity. CAFF International Secretariat, Akureyri.
Merkel, F.R., 2004. Evidence of population decline in common eiders breeding in western Greenland. Arctic 57, 27–36.
Merkel, F.R., 2010. Evidence of Recent Population Recovery in Common Eiders Breeding in Western Greenland. Journal of Wildlife Management 74 (8), 1869–1874. https://doi.org/10.2193/2009-189. 2010.
Mitchell. Ronald B. (2020) 'International Environmental Agreements Database Project (Version 2018.1)'. Available at:http://iea.uoregon.edu/.
NEFCO, 2018. 'Update report on the Nordic Environment Finance Corporation (NEFCO) Project Support Instrument (PSI). In: SAO Plenary meeting 22-23 March. Levi, Finland. 2018 Retrieved on January 11, 2020 at: http://hdl.handle.net/11374/2132.
Norwegian Chairmanship, 2008. Improving Effectiveness and Efficiency of the Arctic Council. Norwegian Chairmanship Arctic Council Retrieved on January 11, 2020 at: https://oaarchive.arctic-council.org/handle/11374/1668.
Oberthür, S., Stokke, O.S., 2011. Managing institutional complexity: Regime interplay and global environmental change. Managing Institutional Complexity: Regime Interplay and Global Environmental Change 1–353.
PAME, 2009. Arctic Marine Shipping Assessment. PAME International Secretariat, Akureyri, Iceland.
PAME (2011) 'Arctic Council Status on Implementation of the AMSA 2009 Report Recommendations May 2011'. PAME International Secretariat, Akureyri, Iceland.
PAME (2013) 'Arctic Council Status on Implementation of the AMSA 2009 Report Recommendations May 2013'. PAME International Secretariat, Akureyri, Iceland.
PAME (2015) 'Arctic Council Status on Implementation of the AMSA 2009 Report Recommendations April 2015'. PAME International Secretariat, Akureyri, Iceland.
PAME (2017) 'Arctic Council Status on Implementation of the AMSA 2009 Report Recommendations May 2013'. PAME International Secretariat, Akureyri, Iceland.
PAME, 2019. PAME Work Plan 2019-2021. PAME International Secretariat, Akureyri Iceland A Retrieved on January 11, 2020 at: https://pame.is/.
Prip, C., 2016. The Arctic Council and biodiversity-need for a stronger management framework? Nordisk Miljörättslig Tidskrift Nordic Environmental Law Journal.
Provencher, J., Yong, D.-L., Black, A., Mikander, N., Syroechkovskiy, E., Braa, A., Lanctot, R., Ekker, M., Gilchrist, G., Crockford, N., Price, C., 2017. Arctic Migratory Birds Initiative mid-term evaluation. CAFF International Secretariat, Akureyri, Iceland 978-9935-431-60-8.
SDWG, 2017. The Human Face of the Arctic: Strategic Framework 2017. SDWG Secretariat Retrieved on January 11, 2020 at: http://hdl.handle.net/11374/1940.
Smieszek, G., 2019. Evaluating institutional effectiveness: The case of the Arctic Council.

The Polar Journal 9 (1), 3–26. https://doi.org/10.1080/2154896X.2019.1618554.
Soltvedt, I.F., Rottem, S.V., 2016. The Arctic Council : Policy Recommendations and National Implementation. Fridtjof Nansen Institute Report 4/2016. ISBN: 978-82-7613-707-1.
Supreme Audit Institutions of Denmark, Norway, The Russian Federation, Sweden and the USA, 2015. The Arctic Council: perspectives on a changing Arctic, the Council's work, and key challenges. In: A Joint Memorandum of a Multilateral Audit on the Arctic States' national authorities' work with the Arctic Council, Retrieved on January 11, 2020 at: http://hdl.handle.net/11374/1527.
UNCLOS (2017) 'Resolution adopted by the General Assembly on 24 December 2017, 72/249'. Retrieved on January 11, 2020 at:https://undocs.org/en/a/res/72/249.
WGEA, 2010. Auditing the Implementation of Multilateral Environmental Agreements (MEAs): A Primer for Auditors. INTOSAI Working Group on Environmental Auditing ISBN: 978-92-807-3126-2.
WWF (2017) Arctic Council Scorecard. Retrieved on March 1, 2020 at:http://wwf-ap.org/apps/acscorecard/.
WWF (2019) Arctic Council Scorecard. Retrieved on March 1, 2020 at:https://arcticwwf.org/work/governance/acscorecard19/#download.
WGEA, 2019. Auditing Biodiversity: Guidance for Supreme Audit Institutions. INTOSAI Working Group on Environmental Auditing ISBN 978-0-662-46860-8.
Young, O.R., Levy, M.A., 1999. 'The effectiveness of international environmental regimes. In: Young, O.R. (Ed.), The effectiveness of international environmental regimes: Causal connections and behavioral mechanisms. MIT Press, Cambridge, MA, pp. 1–32.
Young, O.R., 2011. Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies. Proceedings of the National Academy of Sciences of the United States of America 108 (50), 19853–19860. https://doi.org/10.1073/pnas.1111690108.
Young, O.R., 2019. Is it time for a reset in Arctic governance? Sustainability (Switzerland) 11 (16). https://doi.org/10.3390/su11164497.
Álgu fund, Accessed date: 21 December 2019.

Paper IV

sustainability

MDPI

Article

How Does the Arctic Council Support Conservation of Arctic Biodiversity?

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Abstract: The Arctic Council is an intergovernmental forum promoting cooperation, coordination and interaction among Arctic states, indigenous communities, and peoples on issues of common importance. The rising geo-political importance of the Arctic and the onset of climate change has resulted in the Council becoming a focus of increasing interest from both inside and beyond the Arctic. This has resulted in new demands placed on the Council, attracting an increasing number of participants, and instigating a period of transformation as Arctic states work to find a way to balance conflicting demands to improve the Council's effectiveness and take care of national interests. This paper considers whether, during this time of change, the Council is having an impact on the issues it was formed to address, i.e., environmental protection and sustainable development. To provide answers, it looks at how the Council reports on and evaluates progress towards the implementation of recommendations it makes regarding biodiversity, how it identifies where activities have had impacts and uncovers the mechanisms through which they were successful, to provide an insight into how the Arctic Council can be an agent of change.

Keywords: Arctic; Arctic Council; CAFF; biodiversity; conservation; conservation of Arctic flora and fauna; Arctic biodiversity assessment; institutional effectiveness

1. Introduction

Arctic biodiversity is under serious threat from climate change [1] and, with temperatures increasing by more than double the global average over the last two decades [2], this is expected to drive widespread changes in its wildlife [3–5]. Large tracts of the Arctic, however, remain relatively undisturbed, providing a unique opportunity for proactive action that can minimize or even prevent future problems that would be costly, or impossible, to reverse [1]. In response, there is an urgent need to speed up and scale up actions to ensure Arctic biodiversity conservation. This includes the implementation of relevant Arctic Council recommendations, as well as commitments under international agreements relevant to the Arctic, such as the Aichi Biodiversity Targets under the United Nations Convention on Biological Diversity (CBD) [6].

The Arctic Council is an intergovernmental forum promoting cooperation, coordination, and interaction among Arctic States, with the involvement of Arctic indigenous communities and other Arctic inhabitants [7]. It is a consensus forum with no ability to enforce its guidelines, advice or recommendations, which remain the responsibility of member states The Arctic Council is comprised of eight member states (Canada, the Kingdom of Denmark (including Greenland and the Faroe

Islands), Finland, Iceland, Norway, Russia, Sweden and the United States) and six indigenous organizations known as Permanent Participants (Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, Saami Council). The Permanent Participants sit at the same table as the member States and can intervene and speak according to the same procedures applied to member States. The Arctic States are obliged to consult them on all the Council's negotiations and decisions but ultimately it is the Arctic States who are the final decisions makers [8]. In addition, the Council also has the category of Observers which currently consists of 13 Non-arctic States, 13 Intergovernmental and Inter-Parliamentary Organizations and 12 regional and Non-governmental Organizations. There are six Working Groups where the majority of the Council's work is undertaken: the Arctic Contaminants Action Program (ACAP), Arctic Monitoring and Assessment Programme (AMAP), Conservation of Arctic Flora and Fauna (CAFF), Emergency Prevention, Preparedness and Response (EPPR), Protection of the Arctic Marine Environment (PAME) and the Sustainable Development Working Group (SDWG).

While the Council is not a Multi-Lateral Environmental Agreement (MEA) it reflects many of their concerns, e.g., through efforts to ensure synergies, create more effective governance and set priorities leading to the development of legally binding agreements [9]. The importance of linkages between the Council and MEAs that touch on the Arctic can be seen in how its activities inform the work of MEAs and in some cases contribute towards their formation. For example, the work of its subsidiary bodies has led to recognition by the UN Convention of Biological Diversity (CBD) of Arctic biodiversity as an emerging issue [10] and subsequent reporting to the CBD on the status of Arctic biodiversity (e.g., [11]); every 4 years, an analysis of data on the reduction in Persistent Organic Pollutant emissions for the Arctic is conducted by the Council in support of article 4 of the Stockholm Persistent Organic Pollutants Convention; and the Council's work on shipping contributed to the development of the International Code for Ships Operating in Polar Waters (Polar Code) [12].

The Council, however, has no overall strategy to guide its activities or evaluate any impact its activities may have to help ascertain if its goals are being achieved, hindering its ability to address broader issues such as climate change and sustainable development [9]. While the Council as a whole does not yet have a strategic plan, each of its Working Groups have strategic documents defining overarching goals [13–18]. However, only two specify in detail the actions needed to achieve these goals, i.e., the Actions for Arctic Biodiversity 2013–2021: implementing the recommendations of the Arctic Biodiversity Assessment (Actions for Arctic Biodiversity) [15] and the Arctic Marine Strategic Plan 2015–2025 (AMSP) [17], thereby providing a reporting mechanism and a potential framework to facilitate the evaluation of the effectiveness of the Council [9]. The absence of obligated reporting as to how Arctic states are following up on the implementation of the Council's recommendations also lends itself to a lack of transparency as to how, or if, states act on outcomes from the Council's work, meaning that while the Council's impacts on a global scale are visible, detecting the effects of the Council's work at national or sub-national levels is difficult. While reporting by Arctic states is voluntary, observer states and organisations are required to submit reports every four years on their contributions to the work of the Council [8].

It is within this context that this paper considers whether, during this time of change, the Council is having an influence on the issues it was formed to address, i.e., environmental protection and sustainable development. To provide answers it focuses on biodiversity as one aspect of its work which touches on both goals and looks at how the Council reports on and evaluates progress towards the implementation of recommendations it makes regarding biodiversity. It identifies where activities have had impacts and uncovers mechanisms through which they were successful, to provide insight into how the Arctic Council can be an agent of change. In order to do so, it looks at the creation and implementation of the first circumpolar assessment of the Arctic's biodiversity, the Arctic Biodiversity Assessment (ABA) [19], asks whether it has made a difference to the conservation of Arctic biodiversity and, if so, how this was achieved. Attempting to answer these questions entails considering the process

of developing the ABA and the use of its subsequent implementation plan [15] as a framework to analyse how the Council is following up on these recommendations.

2. Materials and Methods

To provide a baseline to inform this analysis, a database was created detailing actions taken by the Arctic Council in response to ABA recommendations [1]. This baseline was informed by a series of meetings to evaluate the status of the implementation of biodiversity actions in the Arctic Council, delivered to the Foreign Ministers of the Arctic States in 2017 and 2019 in the form of reports on progress towards the implementation of the ABA recommendations [20,21]. Methods used to inform the analysis include reviews by bureaucrats, experts and programme staff with a long history of engagement in the Council, both as state and indigenous representatives, participation in numerous Arctic Council meetings between 2008–2020, and a review of Arctic Council meeting documents from 1996–2020.

3. Results

3.1. Arctic Council

Arctic Council members are committed to consensual decision making and, as an organization, it lacks the resources and often the mandates to engage directly in implementation. Despite this lack of formal authority and resources, the Council can influence the behaviour of member states and organisations, e.g., through knowledge building, capacity enhancement, facilitating dialogue and transferring information or advice to decision makers. However, the lack of obligated reporting on national follow-up can make it difficult to discern when Council actions have led to or influenced an effective response [8], and challenging to trace the pathways via which this may have happened, e.g., through nudging movements by decision makers towards desired outcomes. Furthermore, progress towards achieving a goal may also be due to a combination of multiple causal factors, such as the timing and prominence of the issue to the state in question, contributing to the difficulty in tracing the roles a Council activity might have played in ensuring a specific outcome. Therefore, identifying where Council activities have had impacts and uncovering the mechanisms through which they were successful may provide an insight into how the Council can be an agent of change.

Research on the Council has largely focused on approaches to how its organisational effectiveness might be evaluated [22] and the role its structure plays [23–25]. While environmental cooperation has received some attention (e.g., [26–29]), consideration of the Council's work on biodiversity is, with a few exceptions, absent from the literature (e.g., [21–24]). Notable exceptions include the World Wildlife Funds (WWF) Arctic Council Scorecards [30,31], which attempt to measure how state governments are responding to key Council recommendations. This analysis includes a biodiversity category, where in 2017 efforts by the Council and Arctic states were assigned grades of C or D meaning either some or little progress on implementation while in 2019 only Sweden scored higher with a grade of B meaning encouraging progress towards implementation. While the scorecards shed light on the need for both Arctic Council and state action to demonstrate Council effectiveness, they do not establish causality, e.g., identify clear links between a State's actions and a Council recommendation. The use of different approaches used in the scorecards also makes comparisons between them difficult and the 2019 scorecard does not provide an assessment of the Councils overall implementation [32].

The Arctic Council has made some efforts to improve how it reports on what it does and, in 2015, it introduced the Amarok tracking tool [33] intended to report on the status, duration and leads of an activity. However, this tool is of limited use as it fails to capture the level of detail and actions found in strategies such as the Actions for Biodiversity. A promising development are efforts by the Conservation of Arctic Flora and Fauna (CAFF) and the Protection of the Arctic Marine Environment (PAME) Working Groups to align reporting on the implementation of the AMSP [17] and the Actions for Biodiversity [15], offering a potential step towards a broader and more detailed reporting model within the Council.

3.2. Arctic Council and Biodiversity

While aspects of biodiversity are touched upon across several of the Council's subsidiary bodies, the CAFF Working Group is the primary instrument through which the Council addresses biodiversity [9] with a mandate to address the conservation of Arctic biodiversity, and to communicate its findings to the governments and residents of the Arctic, helping to promote practices which ensure the sustainability of the Arctic's living resources [34]. It does so through monitoring what is happening to Arctic biodiversity, assessing changes detected and, based on the outcomes from these activities, developing policy recommendations and management advice designed to contribute towards informed decision making (Figure 1).

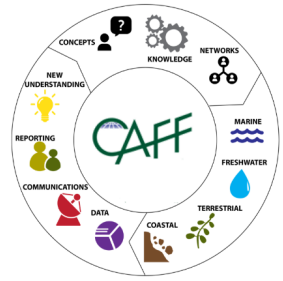

Figure 1. Conceptual framework for how Conservation of Arctic Flora and Fauna (CAFF) operates.

CAFF also reports on Arctic biodiversity through a framework of agreements with global conventions and initiatives relevant for Arctic biodiversity [35–41]. One example of how an Arctic Council report can directly inform and support decisions relating to global biodiversity frameworks is demonstrated by the release of the Arctic Biodiversity Trends 2010: Selected Indicators of Change report [42], which led to recognition by the Convention of Biological Diversity (CBD) of Arctic biodiversity as an emerging issue [43] and an invitation to the Arctic Council to provide information and assessments on Arctic biodiversity [44]. While CAFF has delivered information to the CBD (e.g., [45]), Arctic states have so far made limited use of CAFF products in national reporting to the CBD. However, there are exceptions, with Canada, for example, using data from the first component of the ABA, the Arctic Biodiversity Trends 2010: Selected Indicators of Change report and CAFF's Arctic Species Trend Index (ASTI) [46] to inform on the status and trends of Arctic ecosystems and species in its 2014 national report to the CBD [47]. Information is also provided to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), but without an agreement to guide this cooperation, it has been less coordinated than, e.g., with the CBD. Climate change is the most serious threat to Arctic biodiversity, driving a broad range of stressors on biodiversity [1] and its relative failure is a key factor impacting Arctic biodiversity, e.g., in determining the fate of polar bears. Links between the Council and the United Nations Framework Convention on Climate Change (UNFCCC) reflect the thematic structure of how the Council's subsidiary bodies are coordinated via the AMAP Working Group, which deals with pollutants and climate change.

As a bridging organization in the divide between science and policy, CAFF is accountable to both worlds, as can be seen through the abovementioned framework of agreements. However, few studies have considered its role in any detail (e.g., [48]) or the outcomes of its activities (e.g., [8,49,50]). Research that considers CAFF has largely done so peripherally in the context of the structure and operation of the Council (e.g., [51]) rather than through an analysis of its role or the impact of its activities.

3.3. Assessing the Status and Trends of Arctic Biodiversity

The ability to develop effective management advice and policy recommendations on Arctic biodiversity requires a baseline to provide an understanding of status, trends and gaps in knowledge. In 2001 CAFF provided the first circumpolar overview of Arctic biodiversity, identifying key

conservation issues and relationships, and the actions needed to achieve an assessment of the overall state of the Arctic environment [52]. However, it was not until 2006 that the Foreign Ministers of the Arctic States approved a proposal to develop a comprehensive assessment, agreeing that it would be a " . . . major contribution to international conventions and agreements in regard to biodiversity conservation; providing policymakers with comprehensive information on the status and trends of Arctic biodiversity" [53].

The Tromsø Ministerial Declaration reiterated the need for an ABA to improve our understanding of the " . . . impacts of climate change and other stressors on nature and biodiversity and the adaptability and sustainable use of all living resources in the Arctic" [54] and highlighted its importance as a contribution towards the United Nations 2010 goal to reduce the loss of biodiversity. However, it took four years after the proposal to develop an ABA, was approved before the first component, the Arctic Biodiversity Trends 2010: Selected Indicators of Change report [42], was delivered. This was a preliminary report ahead of the full assessment itself, which the Nuuk Ministerial Declaration [55] emphasized had still not been completed. In 2013, the Arctic Council finally released the ABA [56], highlighting the dramatic consequences of climate change and other factors adversely affecting Arctic species and their habitats, and providing critical information and recommendations to policymakers [1].

Despite unanimous agreement amongst Arctic States and being reflected in three Ministerial Declarations [54–56], it took three years after the ABA proposal was approved to find the resources and capacity to initiate the process and another five before its completion in 2013. That it took the greater part of a decade to complete a unanimously agreed upon, urgent task is not reflective of an efficient approach to harnessing the knowledge and capacity needed to make informed, timely and effective decisions in the face of cumulative and accelerating change [9,57]. As the Arctic faces an ever-increasing rate of change, this delay underscores the need to find ways to speed up and scale up actions to support the sustainable conservation of the Arctic's biodiversity, and to shorten the time between the detection of changes in Arctic ecosystems, and effective policy responses.

In order to keep the baseline created by the ABA up to date, CAFF's Circumpolar Biodiversity Monitoring Programme (CBMP) [58] is implementing a series of ecosystem-based monitoring plans [59–62] to compile, harmonize and compare results from existing Arctic biodiversity and ecosystem monitoring efforts. Each plan identifies key elements, Focal Ecosystem Components (FEC), where changes in their status likely indicate changes in the overall environment [58]. The first outcomes from the implementation of these plans are a series of State of Arctic Biodiversity Reports [55,63], which respond to ABA recommendations on the need to fill gaps in knowledge and detect trends [1]. These reports reflect a move towards more coordinated and integrated reporting on biodiversity by the Council.

3.4. Developing Key Findings and Recommendations

The ABA was an essential first step in developing a foundation to support informed decision making. However, a 678-page document is not easily digested and ensuring its findings and recommendations might be understood and acted upon required a distilling of its key messages into a form that was more readily understood and less technical. Therefore, upon completion of the scientific assessment, the experts involved summarised its findings and identified a suite of suggested conservation and research priorities [64]. Informed by these priorities, the Arctic states, in consultation with the indigenous organizations who are members of the Council and assisted by the ABA Chief Scientist [65], negotiated nine key findings and seventeen policy recommendations designed to act on these findings. As part of this process, recommendations from all Arctic Council initiatives were also reviewed to ensure that the ABA recommendations, while they may sometimes overlap, are also mutually supportive [15]. It is interesting to note that the conservation and research priorities are more far reaching than the policy recommendations, but are not tracked or reflected in reporting on the status of implementation of the ABA recommendations, reflecting an oversight on how the outcomes of the ABA have been addressed.

These seventeen recommendations for policymakers (Table 1) are directed to the Arctic Council as a whole, and while some are intended to be implemented through CAFF, others are intended to be addressed via other Arctic Council subsidiary bodies, while others still require action by national/sub-national authorities, stakeholders, non-Arctic States and international organizations [15]. Upon approval of the policy recommendations at the 2013 Kiruna meeting of the Foreign Ministers of the Arctic States [56] the Arctic Council had, for the first time, a comprehensive framework identifying the issues affecting biodiversity and an agreement about where action was needed.

Table 1. Arctic Biodiversity Assessment (ABA) Recommendations [1].

Climate Change	
1	Actively support international efforts addressing climate change, both reducing stressors and implementing adaptation measures, as an urgent matter.
2	Incorporate resilience and adaptation of biodiversity to climate change into plans for development in the Arctic.
Ecosystem-based management	
3	Advance and advocate ecosystem-based management efforts in the Arctic as a framework for cooperation, planning and development.
Mainstreaming biodiversity	
4	Require the incorporation of biodiversity objectives and provisions into all Arctic Council work and encourage the same for on-going and future international standards, agreements, plans, operations and/or other tools specific to development in the Arctic.
Identifying and safeguarding important areas for biodiversity	
5	Advance the protection of large areas of ecologically important marine, terrestrial and freshwater habitats, taking into account ecological resilience in a changing climate.
6	Develop guidelines and implement appropriate spatial and temporal measures where necessary to reduce human disturbance to areas critical for sensitive life stages of Arctic species that are outside protected areas, for example along transportation corridors.
7	Develop and implement mechanisms that best safeguard Arctic biodiversity under changing environmental conditions, such as loss of sea ice, glaciers and permafrost.
Addressing individual stressors on biodiversity	
8	Reduce stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes.
9	Reduce the threat of invasive alien/non-native species to the Arctic by developing and implementing common measures for early detection and reporting, identifying and blocking pathways of introduction, and sharing best practices and techniques for monitoring, eradication and control.
10	Promote the sustainable management of the Arctic's living resources and their habitat.
11	Reduce the threat of pollutants to Arctic biodiversity.
Improving knowledge and public awareness	
12	Evaluate the range of services provided by Arctic biodiversity in order to determine the costs associated with biodiversity loss and the value of effective conservation in order to assess change and support improved decision making.
13	Increase and focus inventory, long-term monitoring and research efforts to address key gaps in scientific knowledge identified in this assessment to better facilitate the development and implementation of conservation and management strategies.
14	Recognize the value of traditional ecological knowledge and work to further integrate it into the assessment, planning and management of Arctic biodiversity.
15	Promote public training, education and community-based monitoring, where appropriate, as integral elements in conservation and management.
16	Research and monitor individual and cumulative effects of stressors and drivers of relevance to biodiversity, with a focus on stressors that are expected to have rapid and significant impacts and issues where knowledge is lacking.
17	Develop communication and outreach tools and methodologies to better convey the importance and value of Arctic biodiversity and the changes it is undergoing.

3.5. Creating a Framework to Guide Implementation

A challenge facing some Arctic Council products is that, upon delivery of a report or assessment, no plan for implementing findings or recommendations may be asked for, leading to the lack of a framework to guide and report on follow-up actions. For example, in the case of the Arctic Human Development Reports [66,67], the lack of a clear set of approved policy recommendations hindered how they might have helped frame the work of the Council with regards to sustainable development [9]. However, upon approving the ABA recommendations, the foreign ministers of the Arctic states also encouraged Arctic states to follow-up on the recommendations, and (importantly) instructed the Senior Arctic Officials (SAOs) to develop a plan to support and implement its recommendations and deliver a progress report to the next ministerial meeting [56].

In response, CAFF developed the Actions for Biodiversity [15], which entailed each ABA recommendation being analysed to identify gaps and implementation options, with all Arctic Council subsidiary bodies reviewing their activities and indicating how they have or would respond to the recommendations. A broader realm of stakeholders were engaged through the first Arctic Biodiversity Congress [68], where participants had opportunities to advise on the development of the Actions for Biodiversity [15]. For each recommendation, a series of actions were then defined that need to be accomplished in order for a recommendation to have an impact upon the issue it was designed to address.

The Actions for Biodiversity are organized into two-year implementation periods, corresponding to the cycle of rotation of the Arctic Council and Working Group chairmanships, with each period finishing at a Ministerial Meeting where the focus and deliverables for the next phase are reviewed. This was designed to help align priorities, resource allocation, and reporting, thus smoothing the groundwork for implementation. The current Actions for Biodiversity are scheduled to be completed in 2021, with a final report, including new Actions for Biodiversity, to be delivered to the foreign ministers of the Arctic states in 2021.

While the Council as a whole does not yet have a strategic plan, for the first time it now has a clear overarching framework to guide and inform its actions on biodiversity, and to align these actions within the broader global biodiversity frameworks, e.g., the upcoming Post-2020 global biodiversity framework. Furthermore, the structure of the Actions for Biodiversity has provided a means of tracing the path between a Council recommendation and an effective response, thus increasing the visibility of Council effectiveness, and better connecting disparate actions into an overall strategic direction. This provides a reporting mechanism and a potential framework to facilitate evaluation of the effectiveness of the Council's biodiversity activities. However, in the absence of obligated reporting, a challenge remains to ensure that follow-up progress reports are conducted and that the gaps and challenges identified in this reporting process are acted upon.

3.6. Reporting on Implementation

In order to understand if a recommendation has had a positive impact on the issues it was created to address, certain minimum criteria need to be met: (1) an activity needs to be initiated in response to the recommendation; (2) the design of the activity should include a means to evaluate outcomes; and (3) these outcomes and evaluation should be reported within the Council. The Actions for Biodiversity go some way towards meeting these criteria in that they provide the means to track what actions are being taken in response to each ABA recommendation and contains a reporting and evaluation component. However, the utility of the current Actions for Biodiversity is limited in that the overview it provides is of initiatives taken by the Council itself and, except for isolated examples, does not capture how or if the behaviour of Arctic Council states, Permanent Participants and/or Observers might have changed in response to recommendations.

The reporting framework for the Actions for Biodiversity comprise annual reports on progress towards implementation; biennial reports providing a more in-depth evaluation to review progress and make revisions as needed; and a final report, which will include recommendations for follow-up,

to be delivered at the Arctic Council Ministerial Meeting in 2021. Thus far two biennial progress reports have been delivered to the Foreign Ministers of the Arctic Council [20,21] and regular reports delivered to the CAFF Board [69] providing a status on implementation of tasks described in the Actions for Biodiversity. In addition, progress reports have been developed for three CAFF programmes which are key to the implementation of the Actions for Biodiversity, i.e., the CBMP [70], Arctic Migratory Birds Initiative (AMBI) [71], and Arctic Biodiversity Data Service (ABDS) [72,73].

Given CAFF's role as a mechanism to develop common responses on issues of importance for Arctic biodiversity and ecosystems [28], the implementation of the Actions for Biodiversity could serve an important function in reporting on progress in the Arctic towards achieving global biodiversity targets, e.g., Aichi Targets, the Sustainable Development Goals (SDG), and the new Post-2020 Global Biodiversity Framework currently under development. To explore this potential, the ABA recommendations were mapped by CAFF against the Aichi Targets and the SDGs, which found that CAFF activities relate most directly to SDGs 14, 15 and 17 as well as several targets within SDGs 6, 11–13 and most Aichi Targets [74].

3.7. Status of Implementation

In reporting on the Actions for Biodiversity, each action was assigned a status (initiated; not started; planned; completed) indicating if implementation was underway, which might result in steps towards the achievement of a recommendation (Figure 2). In order to assign a status to them, Arctic Council reports were reviewed and experts queried. Outcomes underwent a review by Arctic Council Working Groups and representatives of Arctic states and permanent participants. There are currently 124 implementation actions defined in the Actions for Biodiversity, an increase of 17 from 2013, and of these:

- Seventy-six have been initiated and are ongoing;
- Fourteen planned for 2013–2019 have not started;
- Seven are scheduled to begin between 2019 and 2023;
- Twenty-seven have been completed.

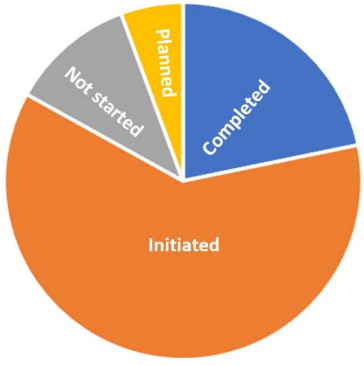

Figure 2. Status of ABA implementation actions 2013–2019.

Failure to initiate a task(s) was determined to be due to one or more of the following factors: no leads, a lack of funding and/or changing priorities. The progress report on ABA implementation delivered to the 2019 Arctic Council ministerial meeting contains details on the status of implementation for each task [21].

4. Discussion

4.1. Mechanisms of Influence

Delivering policy recommendations and advice for management are key to how the Council draws attention to issues of concern. Through the identification of actions needed in response, e.g., as in the Actions for Biodiversity, the Council can nudge states and others towards necessary changes in behaviour. However, reporting on the Actions for Biodiversity in terms of whether tasks have been initiated only reflects those issues and actions that states are willing to address collectively within the context of the Council. It does not capture changes in behaviour by individual states, for example, in state policy or regulations in response to a recommendation. What the progress reports [20,21] do begin to highlight is how, despite its lack of formal authority and resources to directly engage in implementation, the Council can influence behaviour and nudge movement towards the desired actions through knowledge building, facilitating dialogue, enhancing capacity, making data accessible, supporting regional and global frameworks, and providing advice to decision makers. Such mechanisms can be viewed as an exercise in "soft power" and are often overlooked by those who think in terms of formal authority or material resources, but can be key in ensuring change occurs. However, they are not always effective and a consideration of how they are deployed by the Council can help tease out the conditions that are conducive to success in exercising such soft power.

Building knowledge through monitoring and assessment is a core activity of the Council where it has received widespread recognition as a credible and legitimate source on the challenges being faced in the Arctic [48,75]. This mechanism can sometimes trigger political action, with the Arctic Climate Impact Assessment [76] being perhaps the most well-known example of the potential a Council assessment has to influence change. A more recent example is how cooperation between states engaged in the implementation of CAFF's Arctic Marine Biodiversity Monitoring Plan [62] led to the identification of time and cost-effective possibilities for marine benthos monitoring. This resulted in a benthic biodiversity monitoring component being added to the existing annual monitoring process for commercial fish-stocks in several Arctic countries (Greenland, Iceland and Norway), thus improving the coverage of overall biodiversity monitoring with relatively little extra cost [20]. This synergy might seem simple, but may not have occurred, without the Council's recognition of a gap in knowledge and subsequent investment by Arctic states to facilitate the gathering and exchange of knowledge [9].

Other important influence mechanisms are the efforts to facilitate and increase engagement with Arctic biodiversity among diverse stakeholders on different scales. This can be seen in how the Council is responding to a key challenge, i.e., accommodating the desires of observer states and organisations for greater involvement, while retaining Arctic state sovereignty. Its ability to do so will have consequences in terms of access to resources, knowledge, and how states and bodies outside the Council respond to and act upon its products [9]. Migratory species are an obvious issue in which to engage with non-Arctic states and CAFF's Arctic Migratory Birds Initiative (AMBI) has become a test case through which the Council is exploring a model for how to do so. Under AMBI, for the first time, the Council is recommending specific actions to be taken outside of the Arctic in order to help conserve Arctic species [77]. This allows Arctic Council observer states to directly contribute to the Council's work within their own jurisdictions, thus fulfilling the ABA recommendations as well as the requirement for observer states to engage with the Council at the Working Group level [73]. The impact of these efforts is reflected in the significant increase in the numbers of organizations and non-Arctic states involved in AMBI. Over 70 organizations, including governments, academia, industry and NGOs from 20 non-Arctic states have been engaged, ranging from attending or hosting meetings, membership on flyway committees and providing resources. Prior to this, observer state engagement in CAFF was limited, and this increased cooperation reflects a growing understanding that the implementation of some ABA recommendations requires action by and partnership between Arctic and non-Arctic states, stakeholders, and international organizations, thereby strengthening the role of the Arctic Council and fulfilling various Arctic Council priorities.

Facilitating engagement within the Council itself is also an important task and a perceived lack of cooperation across its subsidiary bodies is often cited in the literature on the Council (e.g., [47,78]). The reporting and evaluation component built into the Actions for Biodiversity is an example of how cooperation across Arctic Council subsidiary bodies can be encouraged, with all subsidiary bodies involved in the design of the plan and reporting on its implementation. Increasing engagement can also be seen in the growing number of cross-cutting initiatives between subsidiary bodies working on tasks identified in the Actions for Biodiversity. Cross-cutting tasks focused initially on technical issues, e.g., as in the pooling of expertise to identify areas of heightened sensitivity to shipping [79], but have begun to evolve to include co-led policy-orientated activities, such as the development of the Arctic Invasive Alien Species Strategy and Action Plan (ARIAS) [80] and cooperation on the Arctic Marine Protected Areas Framework [81].

Enhancing the capacity of the Council is challenging to achieve, given the limited resources available. However, opportunities are provided for relevant stakeholders to join Council activities, learn how the system operates, and to take these skills back to inform their organisations. Examples include the science–policy fellowship developed by CAFF and the International Arctic Science Committee (IASC), supported by the Association of Polar Early Career Scientists (APECS), where early career scientists are recruited to join a CAFF initiative and become involved in the process of conducting research and developing a product to inform decision making [82]. Furthermore, reflecting an urgency to include youth in the Council's work, CAFF and WWF organised the first Arctic Youth Summit, engaging youth from around the world to raise awareness about the Arctic environment, share knowledge, promote conservation and sustainable development, and empower young people [83]. CAFF's youth exchange programme also provides opportunities for young people to spend time in different parts of the Arctic, and contributed to the establishment of the global Arctic Youth Network [84] which has become a presence at Arctic Council meetings, engaging both with SAOs and ministers.

Making information on Arctic biodiversity accessible is an important mechanism in contributing to increased awareness of Arctic biodiversity. It is clear from the growth in visits to CAFF websites, social media followers and numbers of events that the overall trend is one of increasing traffic and dissemination, with peaks occurring around the Arctic Biodiversity Congresses in 2014 [68] and 2018 [85], demonstrating the utility of such events in Arctic Council communication efforts (Figure 3). The Biodiversity Congresses held in conjunction with meetings of the Environment Ministers of the Arctic States have come to play a key role in Arctic Council outreach and are an important tool in both increasing engagement and facilitating dialogue with scientists, indigenous peoples, policymakers, government officials, industry, students, and civil society [6]. Other examples can be seen in efforts to facilitate the mainstreaming of biodiversity, through strengthening and developing the incorporation of biodiversity provisions into the mining industry [86], and how CAFF, through its framework of agreements, supports global biodiversity frameworks, a role that can influence how these fora act on Arctic biodiversity issues. The dramatic increase in numbers of biodiversity data records available from 2015 (Figure 3) reflects the growing capacity of the ABDS to facilitate archiving and access to biodiversity information [72,73]. The recognition of the ABDS as an Arctic node within the United Nations Educational, Scientific and Cultural Organizations (UNESCO) Ocean Biogeographic Information System (OBIS) and the Global Biodiversity Information Facility (GBIF) reflects an increasing awareness of the Council as a provider of data and knowledge on Arctic biodiversity.

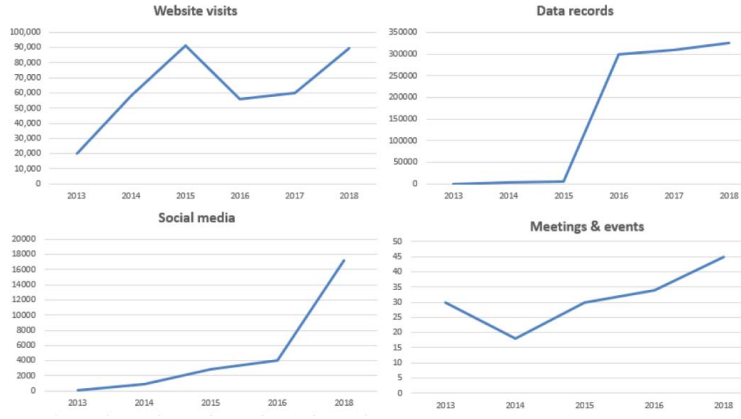

Figure 3. Engagement with CAFF 2013–2018.

4.2. Making a Difference?

Through development of the ABA and its implementation plan, the Council has created a means to more effectively guide its activities and decision making concerning biodiversity. While it is easy to map progress on developing outputs such as the ABA [20,21], CBMP [68] and AMBI [71], detecting changes in behaviour in response is more challenging. However, examples can be found, which illustrate how some states are taking steps towards behavioural change in response to Council calls for action on biodiversity issues. For example, the US, in response to the State of the Arctic Marine Biodiversity Report [63], are engaged in a process to improve coordination and planning between state agencies on how they act upon the report's findings and advice. This is an encouraging sign of Council outputs helping nudge movements by a state towards desired actions. However, if the results of such processes do not contribute to resolving the underlying issues being addressed, then, ultimately, they will have failed.

The mechanisms described in Section 4.1, through which the Council can exert influence, can seem nebulous and it is often difficult to draw clear lines between efforts to build knowledge and facilitate dialogue and on the ground change, where clear benefits to biodiversity can be confirmed. However, it is possible to identify examples which illustrate the importance of recording such impacts, helping to highlight the relevance of the Council. For example, during the 1980s and 1990s, declines in eider populations were reported in Canada, Russia, Greenland, and Alaska, e.g., in west Greenland an 80% reduction in breeding numbers was recorded between 1960 and 2000 [87]. In response, CAFF's Circumpolar Seabird Expert group (CBird) facilitated the development of a population model, demonstrating that harvest levels were unsustainable and should be reduced to halt declines [88]. These findings, supported by actions defined in the Circumpolar Eider Conservation Strategy and Action Plan [89], provided arguments in Greenland that led to modified harvest regulations to restrict the hunting season and the establishment of a community-based monitoring program. As a result, some eider populations began to recover and human disturbance and egging in breeding colonies was reduced [88]. More recent work facilitated by CBird entailed the development of a harvest model for thick-billed murre, quantifying the impacts of hunting and oil pollution in one country on the breeding population in other countries [90]. As a result, Canada, Greenland, Iceland and Norway have begun to discuss an international management plan for the thick-billed murre. Such examples demonstrate how the Arctic Council can contribute towards direct changes in conservation and management practices for Arctic biodiversity.

Another example can be found in the East Asian-Australasian Flyway, where states along the flyway had not managed to find a way to address illegal hunting and unsustainable harvest, one of the key challenges in the conservation of Arctic migratory birds along the Flyway [77]. CAFF's AMBI facilitated the creation of a Task Force on the Illegal Hunting, Taking and Trade of Migratory Waterbirds

under the auspices of the East Asian–Australasian Flyway Partnership (EAAFP). Prior to AMBI's role in facilitation, states did not systematically address this issue under this cooperative mechanism, despite recognition that illegal hunting was a key threat. It remains to be seen how effective this taskforce may be, but there now exists a means to address this issue, one which would not have existed without the intervention of the Council. Again, this demonstrates the potential for change that the Council can exert. Equally, there are examples where actions in response to ABA recommendations have, following the same recipe, not yielded comparable success, e.g., ARIAS [80], where, three years after its approval, the Council has taken no action as of yet to implement its goals and objectives. This may be reflective of the inability of states to collectively agree on how to implement the ARIAS Strategy and Action Plan or it may just be that a lack of reporting is making it difficult to link relevant actions inside national jurisdictions to ARIAS.

The implementation of policy recommendations is challenging and the literature focused on how this might be achieved is diverse [22,91–94] and it identifies obstacles along the journey from policy to on the ground change (e.g., [95,96]). A lack of response to Council recommendations may be due to the need for improved coordination between differing national agencies on their positions across subsidiary bodies of the Council, or it may be that those agencies who have the legal authority to act on Council recommendations are not aware of or engaged in their development. A lack of direct relationships and distance between the Council and the multiple actors who might be expected to act on its recommendations may also contribute to challenges in implementation. Clarity in terms of how recommendations are worded may also influence how or whether recommendations are acted upon. The more ambiguous the wording, then the more challenging it may be for implementing bodies to understand how they might be expected to act in response. ABA recommendations are a mix of specific directions as to what is needed, i.e., to develop and implement joint management and recovery plans for threatened species, while others are more ambiguous, reflecting a need to tackle an issue without specifying how, e.g., to actively support international efforts addressing climate change. Given the complex patterns of causality involved, it can be difficult to pinpoint exact reasons why a response has not been effective or why an action has not been taken. However, a key ingredient often overlooked is leadership—having the right person in the right place at the right time with the passion and skills to make a difference.

5. Conclusions

The Arctic Council is undergoing changes in how it operates [9], while, at the same time, the Arctic is facing growing ecological challenges. At this critical juncture, identifying where the Council's activities have had impacts on biodiversity and uncovering the mechanisms through which they were successful may provide an insight into how the Arctic Council can be an agent of change during these ecological crises and inform discussions on its future. The mechanisms used to exercise the soft power described in this paper—knowledge building, facilitating dialogue, enhancing capacity, making data accessible, supporting regional and global frameworks and providing advice to decision makers—play important roles in how the Council works to influence change. We must keep in mind that, as multiple causal factors are often involved in shaping outcomes, it can be difficult to trace the role a Council activity might have played in ensuring a specific outcome.

The Actions for Biodiversity provide a means to evaluate and guide the Council's work on biodiversity and help focus the Council's efforts to influence change. It has resulted in a more coordinated approach by the Council on how it follows up on its biodiversity recommendations. While the absence of obligated reporting makes it difficult to pinpoint where the ABA has had a direct impact, the examples provided, e.g., the role played by the CBMP in filling knowledge gaps and raising awareness, illustrate how the implementation of Council recommendations in tandem with the influence mechanisms described above can play an important role in conserving Arctic biodiversity. While the Actions for Biodiversity have been effective in focusing attention on the importance of implementation and follow-up reporting, it is also clear that, when it comes to taking the jump from

knowledge to action, the tools or willingness to translate this into action at the national level are often missing [9,48]. The Council can also suffer from a lack of forward planning, in that attention can be focused on a product itself, without enough thought given to structure and planning to ensure follow ups on its findings [9] in order to facilitate clear reporting and an evaluation of responses. A more thorough understanding of how the Council's activities have been used and acted upon in global, national, and more local contexts will require more comprehensive reporting within the Council by member states and organisations.

As the Arctic Council approaches its 25th anniversary, its purpose and role in Arctic governance is increasingly under scrutiny (e.g., [97]). Therefore, as it reaches this milestone, establishing a robust means of reporting on the outcomes of its activities and evaluating their effectiveness would be an important contribution towards demonstrating the relevance of the Council, facilitating the setting of priorities for its work, and shedding light on potential roles the Council might play in the increasingly complex framework of Arctic governance. While this paper has focused on just one aspect of the Council's, work similar attention paid to other areas within its broad range of activities would help inform discussions on the future of the Council.

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Abbreviations

ABA	Arctic Biodiversity Assessment
ABDS	Arctic Biodiversity Data Service
ACAP	Arctic Contaminants Action Programme
AMAP	Arctic Monitoring and Assessment Programme
AMBI	Arctic Migratory Birds Initiative
AMSP	Arctic Marine Strategic Plan
APECS	Association of Polar Early Career Scientists
ARIAS	Arctic Invasive Alien Species–Strategy and Action Plan
CAFF	Conservation of Arctic Flora and Fauna
CBD	United Nations Convention on Biological Diversity
CBird	Circumpolar Seabird Expert Group
CBMP	Circumpolar Biodiversity Monitoring Programme
EAAFP	East Asian–Australasian Flyway Partnership
EPPR	Emergency Prevention, Preparedness and Response
FEC	Focal Ecosystem Components
GBIF	Global Biodiversity Information Facility
IASC	International Arctic Science Committee
IPBES	The Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services
MEA	Multi-Lateral Environmental Agreement
OBIS	Ocean Biogeographic Information System
PAME	Protection of the Arctic Marine Environment
SAOs	Senior Arctic Officials
SDG	Sustainable Development Goal
SDWG	Sustainable Development Working Group
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change

References

1. CAFF. *Arctic Biodiversity Assessment: Report for Policy Makers*; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–28.
2. IPPC. Summary for Policymakers. In *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate'*; Pörtner, H.-O., Roberts, D.C., Masson-Delmotte, V., Zhai, P., Tignor, M., Poloczanska, E., Mintenbeck, K., Alegría, A., Nicolai, M., Okem, A., et al., Eds.; IPCC Secretariat: Geneva, Switzerland, 2019.
3. Taylor, J.J.; Lawler, P.M.; Aronsson, M.; Barry, T.; Bjorkman, A.D.; Christensen, T.; Coulson, S.J.; Cuyler, C.; Ehrich, D.; Falk, K.; et al. Arctic terrestrial biodiversity status and trends: A synopsis of science supporting the CBMP State of Arctic Terrestrial Biodiversity Report'. *Ambio* **2020**, *49*, 833–847. [CrossRef] [PubMed]
4. Lento, J.; Goedkoop, W.; Culp, J.; Christoffersen, K.S.; Lárusson, K.F.; Fefilova, E.; Guðbergsson, G.; Liljaniemi, P.; Ólafsson, J.S.; Sandøy, S.; et al. *State of the Arctic Freshwater Biodiversity*; Conservation of Arctic Flora and Fauna International Secretariat: Akureyri, Iceland, 2019; pp. 1–124.
5. CAFF. *State of the Arctic Marine Biodiversity: Key Findings and Advice for Monitoring*; Conservation of Arctic Flora and Fauna International Secretariat: Akureyri, Iceland, 2017; pp. 1–22.
6. Smith, R.; Barry, T.; Kateras, F. Thoughts on the Arctic Biodiversity Congress. *Biodiversity* **2015**, *16*, 47–50. [CrossRef]
7. Arctic Council. 1996 Ottawa Declaration, Arctic Council Secretariat. 1996. Available online: http://hdl.handle.net/11374/85 (accessed on 1 May 2020).
8. Arctic Council. *Arctic Council Rules of Procedure*; Arctic Council: Tromsø, Norway, 2013; pp. 1–16; Available online: http://hdl.handle.net/11374/940 (accessed on 1 May 2020).
9. Barry, T.; Daviðsdóttir, B.; Einarsson Young, O. The Arctic Council: An Agent of Change? *Glob. Environ. Chang.* **2020**, *63*. [CrossRef]
10. CBD. UN Convention on Biological Diversity (CBD): Decision X/13 New and Emerging Issues. 2010. Available online: https://www.cbd.int/decision/cop/?id=12279 (accessed on 11 January 2020).
11. CAFF. *Arctic Biodiversity and the Post2020 Framework, Report Submitted to the Chairs of the Open-Ended Working Group on the Post-2020 Global Biodiversity Framework on Its Second Meeting*; CAFF International Secretariat: Akureyri, Iceland, 2020; pp. 1–13.
12. Johnstone, R.L. *Offshore Oil and Gas Development in the Arctic under International Law: Risk and Responsibility*; Queen Mary Studies in International Law; Martinus Nijhoff Publishers: Leiden, The Netherlands, 2015; Volume 14, ISBN 978-90-04-26933.
13. ACAP. *ACAP Strategy to Address Contamination of the Arctic Environment and its People*; Arctic Council Secretariat: Tromsø, Norway, 2016; pp. 1–4.
14. AMAP. *Strategic Framework 2019+*; Arctic Monitoring and Assessment Programme (AMAP): Tromsø, Norway, 2019; pp. 1–8.
15. CAFF. *Actions for Arctic Biodiversity, 2013–2021: Implementing the Recommendations of the Arctic Biodiversity Assessment*; CAFF International Secretariat: Akureyri, Iceland, 2015; pp. 1–32.
16. EPPR. *EPPR Strategic Plan of Action*; Arctic Council Secretariat: Tromsø, Norway, 2016; pp. 1–5.
17. PAME. *Arctic Marine Strategic Plan 2015–2025: Protecting Marine and Coastal Ecosystems in a Changing Arctic*; PAME International Secretariat: Akureyri, Iceland, 2015; pp. 1–20.
18. SDWG. *The Human Face of the Arctic: Strategic Framework 2017*; SDWG Secretariat: Ottawa, ON, Canada, 2017; pp. 1–28.
19. Meltofte, H. (Ed.) *Arctic Biodiversity Assessment: Status and Trends in Arctic Biodiversity*; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–678.
20. Barry, T. *Actions for Biodiversity 2013–2021: Implementing the Recommendations of the ABA. Progress Report 2017*; CAFF International Secretariat: Akureyri, Iceland, 2017; pp. 1–10.
21. Barry, T. *Actions for Biodiversity 2013–2021: Implementing the Recommendations of the ABA. Progress Report 2019*; CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–10.
22. Smieszek, G. Evaluating institutional effectiveness: The case of the Arctic Council. *Polar J.* **2019**, *9*, 3–26. [CrossRef]
23. Smieszek, G. Steady as She Goes? Structure Change Agents and the Evolution of the Arctic Council. *Yearb. Polar Law* **2019**, *11*, 39–80. [CrossRef]

24. Koivurova, T. *The Limits and Possibilities of the Arctic Council in a Rapidly Changing Scene of Arctic Governance*; Cambridge University Press: Cambridge, UK, 2019; pp. 146–156.
25. Haavisto, P. *Review of the Arctic Council Structures*; Publisher: Arctic Council, Norway, 2001; pp. 1–55.
26. Johnston, R. *Environmental Governance through the Arctic Council: The Arctic Council as Initiator of Norms of International Environmental Law*; PCRC Working Paper No. 1; PCRC: Kobe University, Japan, 2016; pp. 1–23.
27. Duyck, S. What Role for the Arctic in the UN Paris Climate Conference (COP-21). *Arct. Yearb.* **2015**, *2015*, 1–9.
28. Chapin, S., III; Sommerkorn, M.; Robards, M.; Hillmer-Pegram, K. Ecosystem stewardship: A resilience framework for arctic conservation. *Glob. Environ. Chang.* **2015**, *34*, 207–217. [CrossRef]
29. Koivurova, T. Governance of protected areas in the Arctic. *Utrecht Law Review* **2009**, *5*, 44–60. [CrossRef]
30. WWF Arctic Programme. *WWF Arctic Council Conservation Scorecard*; WWF: Ottawa, ON, Canada, 2017; pp. 1–76.
31. WWF Arctic Programme. *WWF Arctic Council Conservation Scorecard: Country Profiles*; WWF: Ottawa, ON, Canada, 2019; pp. 1–16.
32. WWF Arctic Programme. *WWF Arctic Council Conservation Scorecard 2019: Methodology*; WWF: Ottawa, ON, Canada, 2019; pp. 1–16.
33. Arctic Council. *Amarok: The Arctic Council tracking tool*; Maxi-Report; Arctic Council Secretariat: Tromsø, Norway, 2019; pp. 1–294.
34. CAFF. *CAFF Framework Document*; CAFF International Secretariat: Akureyri, Iceland, 1996; pp. 1–8.
35. CAFF. *Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Convention on Biological Diversity*; CAFF International Secretariat: Akureyri, Iceland, 2009; pp. 1–2.
36. CAFF. *Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Association of Early Polar Career Scientists*; CAFF International Secretariat: Akureyri, Iceland, 2009; pp. 1–2.
37. CAFF. *Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Convention on Migratory Species*; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–2.
38. CAFF. *Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the East Asian Australasian Flyway Partnership*; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–2.
39. CAFF. *Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Ramsar Convention on Wetlands*; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–2.
40. CAFF. *Resolution of Cooperation between the Secretariats of the Conservation of Arctic Flora and Fauna and the Global Biodiversity Information Facility*; CAFF International Secretariat: Akureyri, Iceland, 2016; pp. 1–2.
41. CAFF. *Memorandum of Cooperation between the Polar Bear Agreement (PBA) and the Conservation of Arctic Flora and Fauna Working Group (CAFF)*; CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–4.
42. CAFF. *Arctic Biodiversity Trends 2010–Selected Indicators of Change*; CAFF International Secretariat: Akureyri, Iceland, 2010; pp. 1–124.
43. UN Convention on Biological Diversity (CBD). *Decision X/13 New and Emerging Issues*; UN Convention on Biological Diversity (CBD): Montreal, QC, Canada, 2010.
44. UN Convention on Biological Diversity (CBD). *Decision XI/6/D. Collaboration on Arctic Biodiversity*; UN Convention on Biological Diversity (CBD): Montreal, QC, Canada, 2012.
45. CAFF. *Arctic Biodiversity status and trends, report submitted to the Tenth Meeting of the Parties to the Convention on Biological Diversity 2010*; CAFF International Secretariat: Akureyri, Iceland, 2010.
46. Böhm, M.; McRae, L.; Deinet, S.; Gill, M.; Collen, B. *Tracking Trends in Arctic Vertebrate Populations through Space and Time*; CAFF Assessment Series No. 8; Conservation of Arctic Flora and Fauna: Akureyri, Iceland, 2012; pp. 1–42.
47. Environment Canada. *Canada's 5th National Report to the Convention on Biological Diversity*; Environment Canada: Ottawa, ON, Canada, 2014; pp. 1–112.
48. Prip, C. The Arctic Council and biodiversity-need for a stronger management framework? *Nord. Miljörättslig Tidskr. Nordic Environ. Law J.* **2016**, *2*, 1–19.
49. Barry, T.; Price, C. Arctic biodiversity: From science to policy. *J. Environ. Stud. Sci.* **2015**, *5*, 283–287. [CrossRef]
50. Kankaanpää, P.; Smieszek, M. (Eds.) *Assessments in Policy-Making: Case Studies from the Arctic Council. Preparatory Action, Strategic Environmental Impact Assessment of Development of the Arctic*; Arctic Centre, University of Lapland: Lapland, Finland, 2014; pp. 74–76.

51. Rottem, S.V. *The Arctic Council: Vision, Structure, and Participation*; Fridtjof Nansen Institute: Lysaker, Norway, 2016; pp. 1–19.
52. CAFF. *Arctic Flora and Fauna: Status and Conservation*; CAFF: Akureyri, Iceland, 2001; pp. 1–266.
53. Arctic Council. *The Salekhard Declaration: The Fifth Ministerial Meeting of The Arctic Council*; Arctic Council Secretariat: Tromsø, Norway, 2006; p. 7.
54. Arctic Council. *Tromsø Declaration: The Sixth Ministerial Meeting of the Arctic Council*; Arctic Council Secretariat: Tromsø, Norway, 2009; p. 7.
55. Arctic Council. *Nuuk Declaration: The Seventh Ministerial Meeting of the Arctic Council*; Arctic Council Secretariat: Tromsø, Norway, 2011; pp. 1–7.
56. Arctic Council. *Kiruna Declaration. The Eight Ministerial Meeting of the Arctic Council*; Arctic Council Secretariat: Tromsø, Norway, 2013; pp. 1–9.
57. Fenge, T. The Arctic Council: Past, Present, and Future Prospects with Canada in the Chair from 2013 to 2015. *North. Rev.* **2013**, *37*, 7–35.
58. CAFF. *Circumpolar Biodiversity Monitoring Program Strategic Plan 2018–2021*; CAFF Monitoring Series Report No. 29; CAFF International Secretariat: Akureyri, Iceland, 2018; pp. 1–25.
59. Christensen, T.; Payne, J.; Doyle, M.; Ibarguchi, G.; Taylor, J.; Schmidt, N.M.; Gill, M.; Svoboda, M.; Aronsson, M.; Behe, C.; et al. *The Arctic Terrestrial Biodiversity Monitoring Plan*; CAFF Monitoring Series Report Nr. 7; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–164.
60. Culp, J.M.; Goedkoop, W.; Lento, J.; Christoffersen, K.S.; Frenzel, S.; Gudbergsson, G.; Liljaniemi, P.; Sandoy, S.; Svoboda, M.; Brittain, J.; et al. *The Arctic Freshwater Biodiversity Monitoring Plan*; CAFF Monitoring Series Report Nr. 7; CAFF International Secretariat: Akureyri, Iceland, 2012; pp. 1–151.
61. Jones, T.; McLennan, D.; Behe, C.; Arenes, M.; Wesseberg, S.; Sergienko, L.; Harris, C.; Harcharek, Q.; Christensen, T. *Arctic Coastal Biodiversity Monitoring Plan*; Conservation of Arctic Flora and Fauna International Secretariat: Akureyri, Iceland, 2019; pp. 1–72.
62. Gill, M.; Crane, K.; Hindrum, R.; Arneberg, P.; Bysveen, I.; Denisenko, N.V.; Gofman, V.; Grant-Friedman, A.; Gudmundsson, G.; Hopcroft, R.R.; et al. *Arctic Marine Biodiversity Monitoring Plan*; CAFF Monitoring Series Report No.3; CAFF International Secretariat: Akureyri, Iceland, 2011; pp. 1–138.
63. CAFF. *State of the Arctic Marine Biodiversity Report*; CAFF International Secretariat: Akureyri, Iceland, 2017; pp. 1–200.
64. CAFF. *Arctic biodiversity assessment: Status and trends in Arctic biodiversity: Synthesis*; CAFF International Secretariat: Akureyri, Iceland, 2013; pp. 1–132.
65. Dr. Hans Meltofte, Aarhus University, Denmark.
66. Ministerråd, N. *Arctic Human Development Report: Regional Processes and Global Linkages*; Nordic Council of Ministers: Copenhagen, Denmark, 2015; pp. 1–507.
67. Stefansson Arctic Institute. *Arctic Human Development Report*; Stefansson Arctic Institute: Akureyri, Iceland, 2004; pp. 1–235.
68. Arctic Biodiversity Congress. 2014. Available online: https://www.arcticbiodiversity.is/index.php/congress2014 (accessed on 19 April 2020).
69. The CAFF Board consists of National Representatives from the Environment Ministries/Agencies from each Arctic Council Member State, Including Representatives of Indigenous Peoples' Organizations that Are Permanent Participants to the Council, and Arctic Council Observer Countries and Organizations. Available online: https://caff.is/about-caff (accessed on 1 May 2020).
70. Barry, T.; Christensen, C. *Circumpolar Biodiversity Monitoring Programme (CBMP) 2017–2019 Progress Report to the 2019 Arctic Council Ministerial*; CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–16.
71. Provencher, J.; Yong, D.-L.; Black, A.; Mikander, N.; Syroechkovskiy, E.; Braa, A.; Lanctot, R.; Ekker, M.; Gilchrist, G.; Crockford, N.; et al. *Arctic Migratory Birds Initiative Mid-Term Evaluation*; CAFF International Secretariat: Akureyri, Iceland, 2017; pp. 1–60.
72. Barry, T.; Helgasson, H.; Larusson, K.F. *Arctic Biodiversity Data Service (ABDS) 2015–2017 Progress Report to the 2019 Arctic Council Ministerial*; CAFF International Secretariat: Akureyri, Iceland, 2017; pp. 1–6.
73. Barry, T.; Helgasson, H.; Larusson, K.F. *Arctic Biodiversity Data Service (ABDS) 2017–2019 Progress Report to the 2019 Arctic Council Ministerial*; CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–6.
74. CAFF. *Memorandum to Senior Arctic Officials: Sustainable Development Goals, Arctic Biodiversity*; CAFF International Secretariat: Akureyri, Iceland, 2018; pp. 1–5.

75. Stokke, O.S. Regime interplay in Arctic shipp.ing governance: Explaining regional niche selection. *Int. Environ.* **2013**, *13*, 65–85.
76. AMAP; CAFF; IASC. *Arctic Climate Impact Assessment*; Cambridge University Press: New York, NY, USA, 2006; pp. 1–1020.
77. CAFF. *Arctic Migratory Birds Initiative (AMBI): Workplan 2019–2023*; CAFF Strategies Series No. 30; Conservation of Arctic Flora and Fauna: Akureyri, Iceland, 2019; pp. 1–56.
78. Supreme Audit Institutions of Denmark, Norway, The Russian Federation, Sweden and the USA. *The Arctic Council: Perspectives on a Changing Arctic, the Council's Work, and Key Challenges. A Joint Memorandum of a Multilateral Audit on the Arctic States' National Authorities' Work with the Arctic Council*; Arctic Council: Tromsø, Norway, 2020; pp. 1–37.
79. AMAP/CAFF/SDWG. *Identification of Arctic Marine Areas of Heightened Ecological and Cultural Significance: Arctic Marine Shipping Assessment (AMSA) IIC*; Arctic Monitoring and Assessment Programme (AMAP): Oslo, Norway, 2013; pp. 1–114.
80. CAFF and PAME. *Arctic Invasive Alien Species: Strategy and Action Plan*; CAFF International Secretariat and PAME International Secretariats: Akureyri, Iceland, 2017; pp. 1–20.
81. PAME. *Framework for a Pan-Arctic Network of Marine Protected Areas*; PAME International Secretariat: Akureyri, Iceland, 2020; pp. 1–52.
82. CAFF and IASC. *CAFF-IASC 2018 Fellowship Report*; CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–6.
83. Arctic Youth Summit. Available online: https://www.caff.is/youth-summit (accessed on 15 April 2020).
84. Arctic Youth Network. Available online: https://arcticyouthnetwork.org/ (accessed on 19 April 2020).
85. CAFF. Arctic Biodiversity Congress 2018. Available online: https://www.arcticbiodiversity.is/index.php/congress (accessed on 9 April 2020).
86. CAFF. *Mainstreaming Biodiversity in Arctic Mining: Challenges and Proposed Solutions*; CAFF International Secretariat: Akureyri, Iceland, 2019; pp. 1–32.
87. Merkel, F.R. Evidence of population Decline in Common Eiders Breeding in Western Greenland. *Arctic* **2004**, *57*, 27–36. [CrossRef]
88. Merkel, F.R. Evidence of Recent Population Recovery in Common Eiders Breeding in Western Greenland. *J. Wildl. Manag.* **2010**, *74*, 1869–1874. [CrossRef]
89. CAFF. *Circumpolar Eider Conservation Strategy and Action Plan*; CAFF International Secretariat: Akureyri, Iceland, 1997; pp. 1–25.
90. Frederiksen, M.; Linnebjerg, J.F.; Merkel, R.M.; Wilhelm, S.I.; Robertson, G.J. Quantifying the relative impact of hunting and oiling on Brünnich's guillemots in the North-west Atlantic. *Polar Res.* **2019**, *38*, 3378. [CrossRef]
91. Levy, M. Assessing the Effectiveness of International environmental institutions. *Glob. Environ. Chang.* **1996**, *6*, 395–397. [CrossRef]
92. Young, O.R.; Levy, M.A. The Effectiveness of International Environmental Regimes. In *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioral Mechanisms*; Young, O.R., Ed.; MIT Press: Cambridge, MA, USA, 1999; pp. 1–32.
93. Oberthür, S.; Stokke, O.S. *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*; MIT Press: Cambridge, MA, USA, 2011; pp. 1–353.
94. Pressman, J.; Wildavsky, A. *Implementation: How Great Expectations in Washington Are Dashed in Oakland; Or, Why It's Amazing that Federal Programs Work at All, this being a saga of the Economic Development Administration as Told by Two Sympathetic Observers Who Seek to Build Morals on a Foundation of Ruined Hopes*; University of California Press: Berkeley, CA, USA, 1984.
95. Hupe, P.L. The Thesis of Incongruent Implementation: Revisiting Pressman and Wildavsky. *Public Policy Adm.* **2011**, *26*, 63–80. [CrossRef]

96. Balton, D.; Fran, U. *A Strategic Plan for the Arctic Council: Recommendations for Moving Forward*; The Arctic Initiative of the Belfer Center for Science and International Affairs of Harvard University and the Polar Institute of the Woodrow Wilson International Center for Scholars: Washington, DC, USA, 2019.
97. Young, O.R. Is it a time for a reset in Arctic governance? *Sustainability* **2019**, *11*, 4497. [CrossRef]