STATUS AND TRENDS FOR ARCTIC CONSERVATION MEASURES

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ABSTRACT

This paper provides an update on the 2017 status of Arctic protected areas. It provides an overview of the status and trends of the extent of protected areas in the Arctic and an overview of area-based conservation measures including World Heritage Sites and wetlands. This paper uses the International Union for Conservation of Nature (IUCN) definition for protected areas 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. As of 2021, 20.77 per cent of the Arctic's terrestrial area and 5.24 per cent of its marine areas are protected. Protected area coverage of the Arctic's terrestrial ecosystems exceeded Aichi Biodiversity Target 11 which aimed for at least 17 per cent of terrestrial and inland water to be protected by 2020. The protected area coverage of marine areas fell short of the Aichi Target for 10 per cent of coastal and marine areas to be protected.

Key words: Arctic protected areas, Other Effective area-based Conservation Measures, OECM, Wetlands, Ramsar, EBSAs

INTRODUCTION

The Arctic[1] 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 (Aronsson et al., 2021; Christensen et al., 2021; Lento et al., 2019; Meltofte, 2013). These threats are intensified by climate change which presents by far the most serious threat to Arctic biodiversity (CAFF, 2013); and demonstrates that the challenges of biodiversity loss and climate change are interconnected, requiring comprehensive solutions and international cooperation (Smith & Young, 2022; CAFF, 2013). The establishment of new protected area networks and expansion of existing networks are recognised as key tools in addressing these crises (Smith et al., 2020; IPCC, 2019) and striving to maintain and conserve Arctic biodiversity and the functioning land and seascapes upon which species depend. Other Area-based Conservation Measures[2] (OECMs) which lie outside of traditional protected area networks are increasingly recognised as important tools lending further support towards achieving conservation goals and are included within the Arctic Council's 2015 Framework for a Pan-Arctic Network of Protected Areas (PAME, 2015a). There is no single agreed upon definition of the Arctic and for this paper, the Conservation of Arctic Flora and Fauna (CAFF) boundary is used to define the geographical extent of the Arctic. This covers 32.2 million km², 57 per cent (18.4 million km²) of which is marine and 43 per cent (14 million km²) terrestrial (Figure 1). It is important to note that some boreal forest is included within this boundary and is therefore included in the calculations presented in this paper (Figure 1).

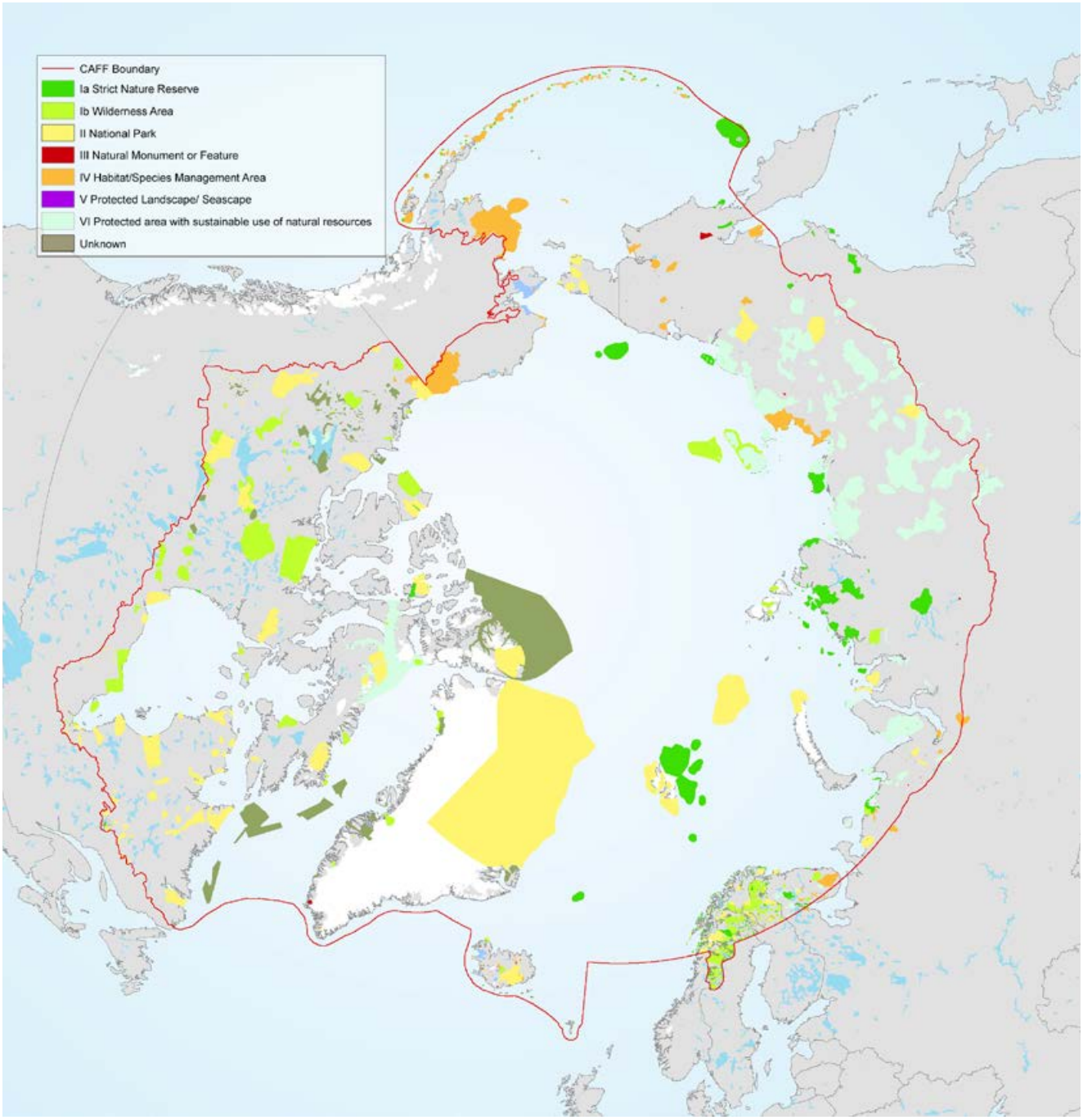

Figure 1. Protected areas in the Arctic classified by their IUCN Management Category, 2021. Due to scale not all protected areas are visible on maps in this report.

In the Arctic, both protected areas and OECMs are 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 (Meltofte, 2013). The importance of this role is increasing due to climate-driven ecological change, industrial development, and resource exploitation (Barry et al., 2017). In recent years, Arctic states have through the Arctic Council[3] released a range of recommendations and products focused on advancing the protection of large areas of ecologically important Arctic habitats, building upon existing and ongoing domestic and international processes, and implementing appropriate measures for their conservation (Box 1). For example, the Council has identified ecologically and culturally sensitive marine areas with regards to shipping (AMAP/CAFF/SDWG, 2013); released a Framework for a Pan-Arctic Network of Marine Protected Areas (PAME, 2015a), conducted work on modelling Arctic oceanographic connectivity (PAME, 2021); and launched an initiative to provide an overview

A Fishing Boat in Greenland © Tony Skerl

of the current range and understanding of international criteria used for identification of OECMs in the Arctic marine environment (CAFF/PAME, 2021) and with plans in preparation by CAFF to launch a similar initiative focused on the terrestrial environment. These priorities are also reflected in Strategic Goal 2 Healthy and resilient Arctic ecosystems in the Arctic Council Strategic Plan 2021–2030 (Arctic Council, 2021) which is focused on promoting pollution prevention, conservation and protection of Arctic biodiversity, ecosystems, and species habitats; and both strategies have a range of associated strategic actions designed to achieve this goal (Box 2).

The pathways through which the Arctic Council can influence conservation change are through identifying actions and key advice needed in response to issues of concern. These can help inform changes in programmes, regulation, and policy to improve monitoring programmes to better understand changes in Arctic biodiversity. It does so 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 forum for communication in times of geopolitical tension (Barry et al., 2020a).

Through cataloguing the extent of protected areas across the Arctic and the trends regarding protected area establishment (including protected areas recognised under international conventions; and additional areas important for marine biodiversity), this paper contributes to tracking progress towards meeting Arctic Council goals and Aichi Biodiversity Targets 1 and 11 adopted in 2010 by Parties to the United Nations Convention on Biological Diversity (CBD) (Leadley et al., 2014), which have been replaced by Targets 2 and 3 under section 1 of the Kunming–Montreal Global Biodiversity Framework (GBF) to reduce threats to biodiversity and "Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity (Target 2)" (CBD, 2022). This Target in turn contributes towards achieving the Sustainable Development Goals (SDG).

Box 1. Key Arctic Council recommendations and goals

The Arctic Council is an intergovernmental forum promoting cooperation, coordination and interaction among Arctic states, Indigenous peoples, and other Arctic inhabitants on issues of common importance. Member states include: Canada, Finland, Iceland, Kingdom of Denmark, Norway, Russia, Sweden, and the USA. Six organisations representing Arctic Indigenous peoples have status 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. All Council decisions require consensus of the eight Arctic states who are obliged to consult the Permanent Participants on all decisions but ultimately it is the Arctic states who are the final decision makers (Barry et al., 2020b).

Arctic Biodiversity Assessment (ABA) (Meltofte, 2013):

- Rec5: Advance the protection of large areas of ecologically important marine, terrestrial and freshwater habitats, taking into account ecological resilience in a changing climate.
- Rec6: 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. Such areas include calving grounds, den sites, feeding grounds, migration routes and mounting areas. This also means safeguarding important habitats such as wetlands and polynyas.
- Rec7: Develop and implement mechanisms that best safeguard Arctic biodiversity under changing environmental conditions, such as loss of sea ice, glaciers, and permafrost.

Arctic Marine Shipping Assessment (AMSA) (PAME, 2009):

- Rec2C: 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.
- Rec2D: Arctic states should, taking into account the special characteristics of the Arctic marine environment, explore the need to internationally designate areas for the purpose of environmental protection in the regions of the Arctic Ocean. This could be done through the use of appropriate tools, such as 'Special Areas' or Particularly Sensitive Sea Areas (PSSA) designation through the International Maritime Organization (IMO) and consistent with the existing international legal framework in the Arctic.

Arctic Marine Strategic Plan (AMSP) (PAME, 2015b):

- Goal 2 Strategic Action 10: Develop a pan-Arctic network of marine protected areas, based on the best available knowledge to strengthen marine ecosystem resilience, and contribute to human wellbeing, including traditional ways of life.

Arctic Ocean Review (AOR) (PAME, 2013):

- Rec13: Arctic states should advance conservation of Arctic marine ecosystems by considering management measures in ecologically significant areas of the Arctic Ocean that Arctic states might pursue at the IMO, building on the results of the AMSA Recommendation II(D) Report on Specially Designated Arctic Marine Areas.

Framework for a Pan-Arctic Network of Marine Protected Areas (PAME, 2015a)**:**

- Goal 1: To strengthen ecological resilience to direct human pressures and to climate change impacts, to promote the long-term protection of marine biodiversity, ecosystem function and special natural and cultural features in the Arctic.
- Goal 2: To support integrated stewardship, conservation, and management of living Arctic marine resources and species and their habitats, and the cultural and social economic values and ecosystem services they provide.
- Goal 4: To foster coordination and collaboration among Arctic states to achieve more effective MPA planning and management in the Arctic.

Box 2. Arctic Council Strategic Plan 2021–2030: Goal 2 – Healthy and resilient Arctic ecosystems

Promote pollution prevention, monitoring, assessment, conservation and protection of Arctic biodiversity, ecosystems, and species habitats, based on best available science, and respecting the importance of sustainable development for all current and future generations of Arctic inhabitants;

2.1. Promote protection of the vulnerable Arctic ecosystems based on best available science and traditional knowledge and local knowledge, providing for conservation of biodiversity in the region, and supporting responsible use of its natural resources;

2.5. Promote action on issues that are critical to maintaining the health of Arctic ecosystems, as well as Arctic inhabitants, and encourage cooperation among Arctic states on ecosystem approach to management in the Arctic to advance conservation and sustainable use based on best available science;

2.6. Support work on protection and restoration of wetlands and habitats that are vital for Arctic species;

2.7. Support international efforts on conserving nature and biodiversity and providing Arctic, including Indigenous, perspectives on such efforts.

ARCTIC PROTECTED AREAS (MARINE AND TERRESTRIAL) OVERVIEW

Key findings

The extent of marine and terrestrial protected areas in the Arctic has doubled since 1980 (Figure 2). While progress has been made, it has not been evenly distributed across ecosystems and this paper does not analyse how well the suite of protected areas meets 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, 2015a) of the Arctic. As of 2021, 20.77 per cent of the Arctic's terrestrial area and 5.24 per cent of the Arctic's marine areas are protected (Figure 2). Protected area coverage of the Arctic's terrestrial ecosystems exceeded Aichi Biodiversity Target 11 which aimed for at least 17 per cent of terrestrial and inland water to be protected by 2020. The protected area coverage of marine areas fell short of the Aichi Target for 10 per cent of coastal and marine areas to be protected. It is important to note that the terrestrial figures include some protected areas in the boreal forest. The current extent of protection on both land and sea falls short of GBF Target 3 to ensure that at least 30 per cent globally of land areas and of sea areas are conserved through effectively and equitably managed, ecologically representative, and well-connected networks of protected areas and OECMs. While neither Aichi Target 11 nor GBF Goal 3 specify exactly how these targets should be applied, using them for comparative analysis offers a useful tool to chart progress over time. While this paper addresses the coverage and extent of protected areas, Target 3 also requires that these networks of protected areas should be ecologically representative. Thus, while there is a need for a circumpolar analysis to consider the representativity and connectivity of the current network of protected areas in the Arctic, this lies outside the scope of this paper.

Status and trends

The first protected areas in the Arctic were established in Sweden and the United States at the beginning of the 20th century. The total Arctic area (marine and terrestrial) under protection remained low until the 1970s, when it began to increase with additions of large areas such as the Greenland National Park. Similarly, marine protected areas expanded significantly with the establishment by Canada of a number of new MPAs including the Tuvaijuittuq which covers 34 per cent of Arctic marine areas. By 1980, 5.6 per cent of the Arctic (marine and terrestrial) was classified under some degree of protection. This has steadily increased to the present when 11.96 per cent of the Arctic (marine and terrestrial), 3.87 million km², has protected status (Figure 2). Of the Arctic's marine areas, 5.24 per cent are protected and 20.77 per cent of its terrestrial areas fall within protected areas. The nature of protection and governance of these areas varies throughout the circumpolar region, and there are varying levels of protection within and among countries.

In 2021, over 88 per cent of all protected areas within the CAFF boundary had been assigned an IUCN Management Category. Protected areas falling into Category II, National Parks cover the largest total area while those in Category III, Natural Monuments or Features are the smallest. For marine and terrestrial areas, Category II is the most prevalent (see following sections for more detail). Figure 3a shows the extent of protected areas falling under each IUCN Management Category and Figure 3b the distribution of protected areas by their IUCN Management Category.

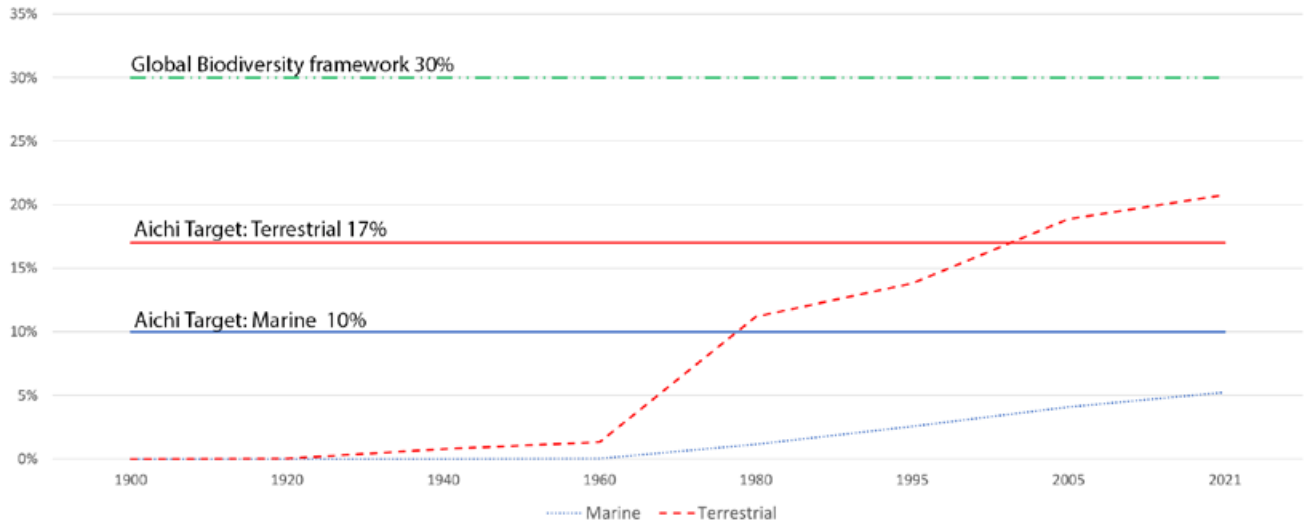

Figure 2. Trends in terrestrial and marine protected area coverage within the Arctic, 1900—2021, including the Aichi and GBF targets for protection of marine and terrestrial ecosystems.

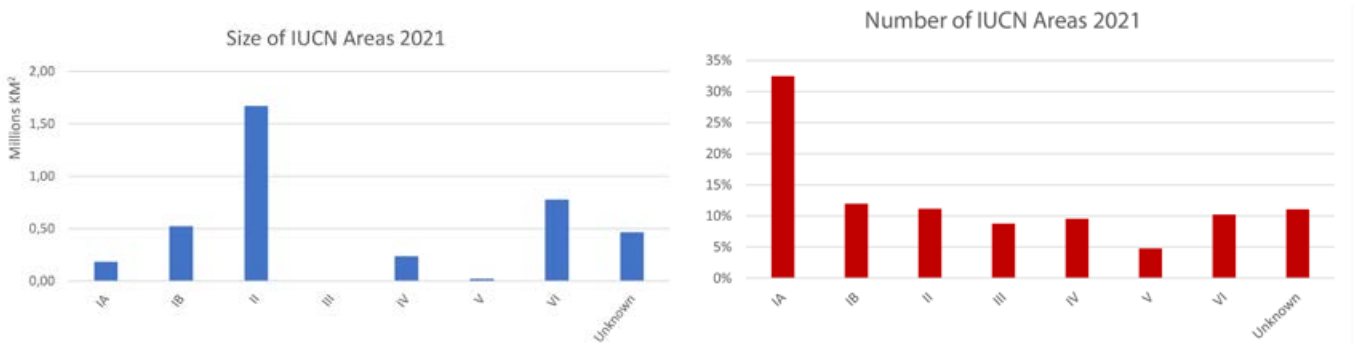

Figure 3. A) Extent of protected areas (marine and terrestrial) across each of the six IUCN Management Categories, 2021; **B)** Distribution of protected areas (marine and terrestrial) across each of the six IUCN Management Categories, 2021.

PROTECTED AREAS RECOGNISED UNDER INTERNATIONAL CONVENTIONS

Within the Arctic, there are 115 areas recognised under global international conventions. These include 12 World Heritage Sites (WHS)[4] (three of which have a marine component); 81 Ramsar Sites; and 22 protected areas under the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR,) which together cover 1.25 per cent (404,258 km²) of the CAFF area (Figure 4). Between 1985 and 2020, the total area covered by Ramsar Sites[5] almost doubled, while the total area designated as World Heritage Sites increased by about 50 per cent in the same time period (Figure 5).

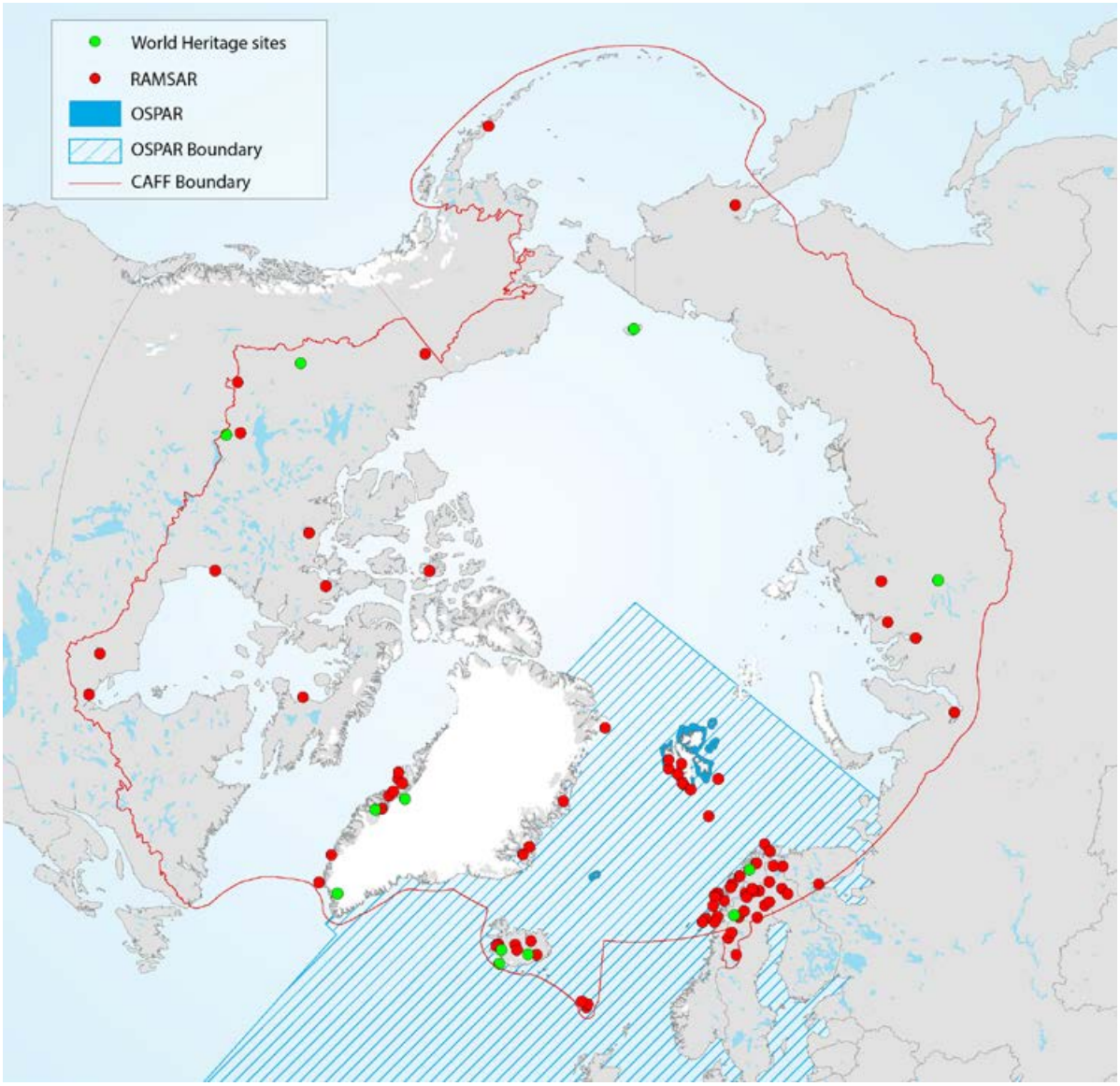

Figure 4. Distribution of Ramsar, OSPAR and World Heritage Sites within the Arctic, 2021. (Source: Ramsar, 2022; UNESCO, 2022).

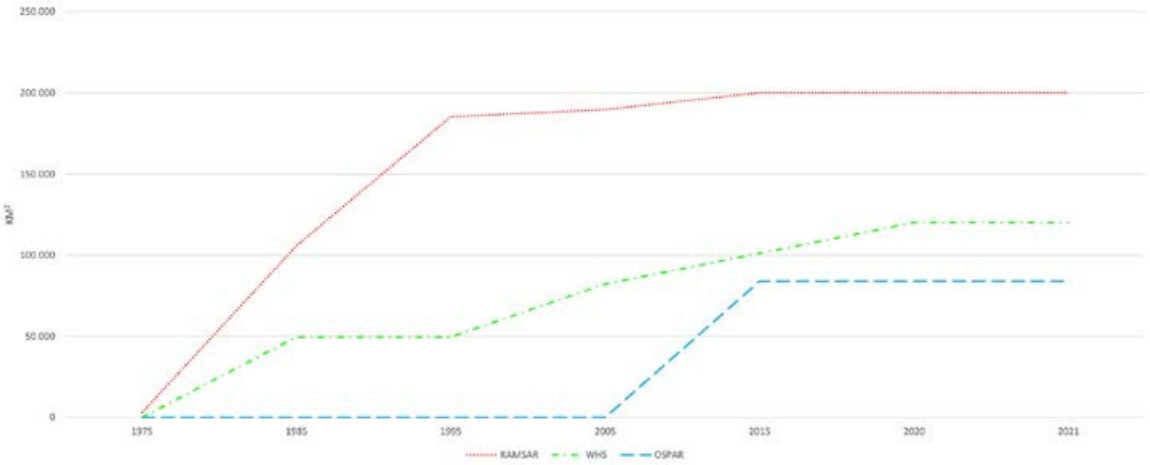

Figure 5: Changes in the total area of Ramsar, World Heritage Sites (WHS) and OSPAR protected areas within the CAFF boundary, 1975–2021 (Source: Ramsar, 2022; UNESCO, 2022; OSPAR, 2022),

MARINE PROTECTED AREAS

The extent of protected areas in the Arctic's marine environment (Figure 6) has increased almost five-fold since 1980 (Figure 7a). In 2021, over 5 per cent of the Arctic marine area (935,778 km²) was protected, which, when considered at a pan-Arctic scale, fell short of the Aichi Biodiversity Target 11 goal of 10 per cent of coastal and marine areas to be protected by 2020 (Figure 7a).

The marine protected areas are dominated by several very large areas with only 5.2 per cent of the 484 marine protected areas assigned an IUCN Management Category. Protected areas falling into Category IV, Habitat/Species Management Areas, cover the largest area overall. Figure 7b shows the percentage of protected areas in each IUCN Management Category in 2021.

Figure 6. Marine protected areas in the Arctic classified according to their IUCN Management Category, 2021.

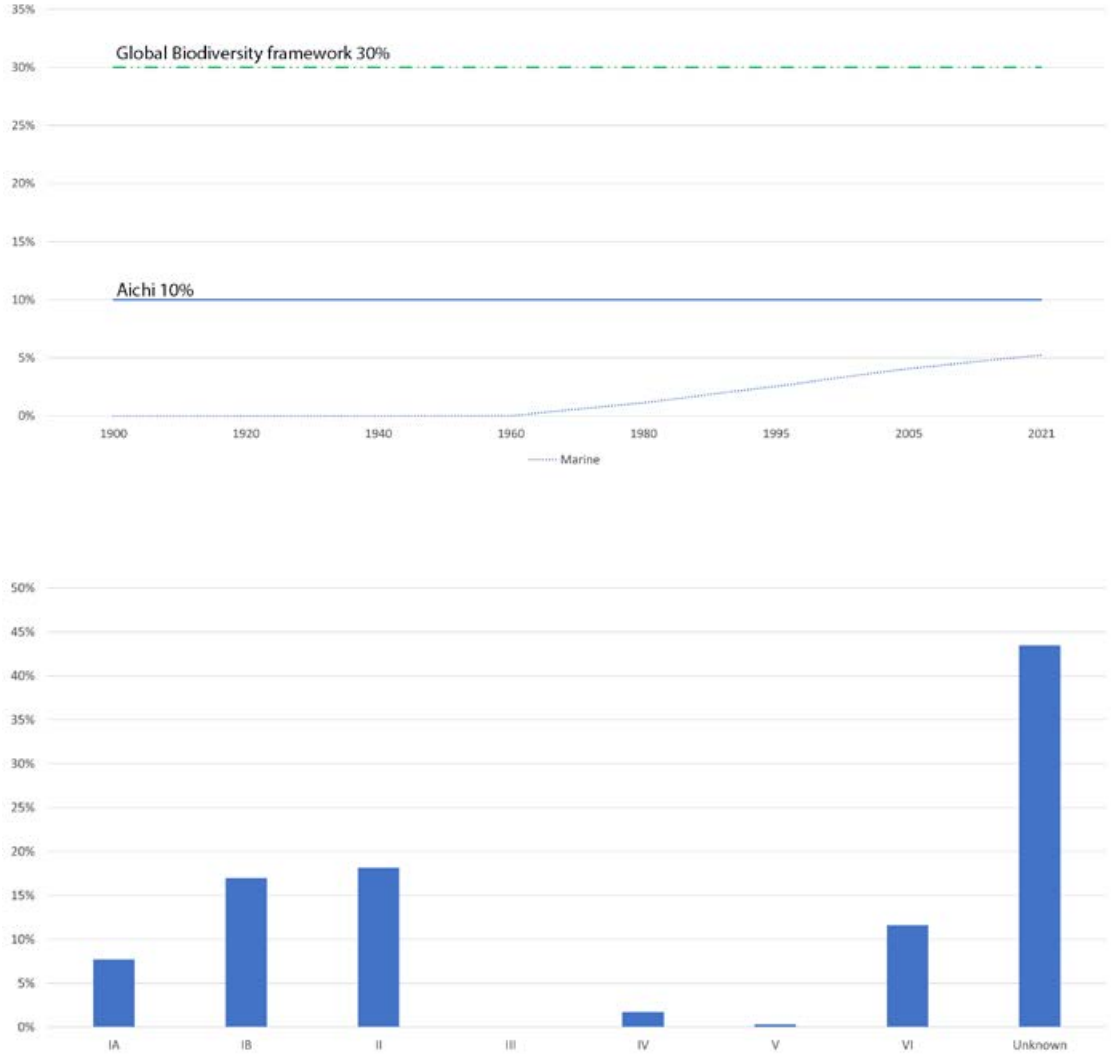

Figure 7. A) Trend in marine protected area coverage in the Arctic, 1900–2021; **B)** Distribution of marine protected areas across each of the six IUCN Management Categories, 2021.

OTHER AREA-BASED MEASURES IMPORTANT FOR ARCTIC BIODIVERSITY

In 2018, the CBD adopted a definition of OECMs, providing key elements for their identification and use across all ecosystems, complementing the IUCN definition of a protected area (Day, et al., 2019). Both measures contribute towards the long-term conservation of biodiversity with the difference being that the primary objective of a protected area is conservation, while an OECM may have many objectives (IUCN-WCPA, 2019). While this report focuses on protected areas, the Arctic Council has initiated a project to provide an overview of the current range and understanding of international criteria used for identification of OECMs in the Arctic marine environment; and to facilitate the exchange of information among Arctic Council members on the range of information and application of OECMs in the marine Arctic. Work is also underway to prepare a similar initiative focused on the Arctic terrestrial environment. Several Arctic states are currently identifying OECMs, and it is envisioned that future reports from the Arctic Council will include a status of OECMs in the Arctic (CAFF, 2021).

Area-based management tools are approaches that enable the application of management measures to a specific area to achieve a desired policy outcome. A wide variety exist, each with their own purpose, mandate and authority. For example, Particularly Sensitive Sea Areas (PSSA) are areas identified as needing special protection through action by the International Maritime Organization (IMO) to prevent, reduce or eliminate the threat or identified vulnerability from shipping. Another example Ecologically or Biologically Significant marine Areas (EBSA) are marine areas that support the healthy functioning of oceans and the services it provides. In

2008, the Parties to the CBD adopted scientific criteria for identifying EBSAs which supports the CBD's role in the work of the UN General Assembly with regards to marine protected areas beyond national jurisdiction (CBD, 2008). It does so through providing scientific and technical information and advice relating to marine biodiversity, including the application of ecosystem and precautionary approaches. In 2014, CBD workshops for the Arctic and the North-West Atlantic workshop identified EBSAs for the Arctic and confirmed that these areas fulfil the EBSA criteria (CBD, 2014a; 2014b). Fourteen EBSAs were identified, covering 4.2 million km², or 22.9 per cent of the Arctic marine area (Figure. 8). Less than 2.4 per cent of EBSAs lie within protected areas.

While there are currently no PSSAs designated within the Arctic, in 2013, the Arctic Council identified "Areas of heightened ecological and cultural significance" using IMO criteria for PSSA, which are similar to the EBSA criteria (AMAP/CAFF/SDWG, 2013). The term "areas of heightened ecological and cultural significance" comes from the Arctic Marine Shipping Assessment (PAME, 2009) which recommended "*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*". Through this process, 98 areas of heightened ecological and cultural significance were identified covering a vast area of approximately 14 million km² or 76 per cent of the Arctic marine area (Figure 8). 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 36 per cent (1.4 million km²) of these "areas of heightened ecological importance" lie within protected areas.

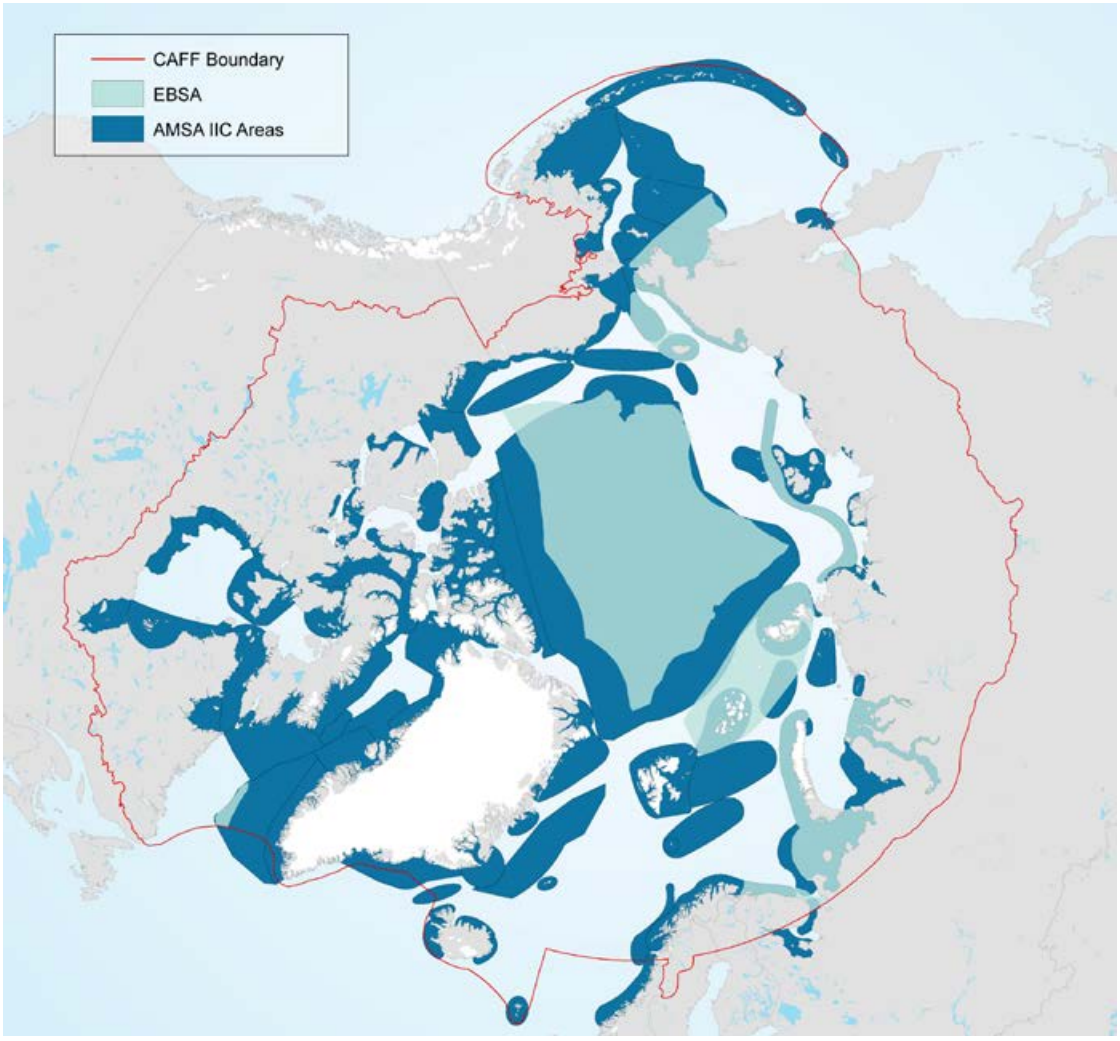

Figure 8. EBSAs (Source: CBD, 2022) and marine "areas of heightened ecological and cultural significance" (Source: AMAP/CAFF/SDWG, 2013).

Terrestrial protected areas

The extent of terrestrial protected areas within the Arctic (Figure 9) has almost doubled since 1980 (Figure 11). In 2021, 21 per cent (2.96 million km²) of the terrestrial area was protected. Protected area coverage exceeded Aichi Biodiversity Target 11, which aimed for at least 17 per cent of terrestrial and inland water to be protected by 2020 (Figure 10a). 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. Ninety-nine per cent of terrestrial protected areas have been assigned an IUCN Management Category. Protected areas in Category V (31.1 per cent), Protected Landscape/Seascapes, cover the largest area overall, while those in Category Ia, Strict Nature Reserves, cover 5.4 per cent of the total protected area. Figure 10b shows the distribution of protected areas across IUCN Management Categories in 2021.

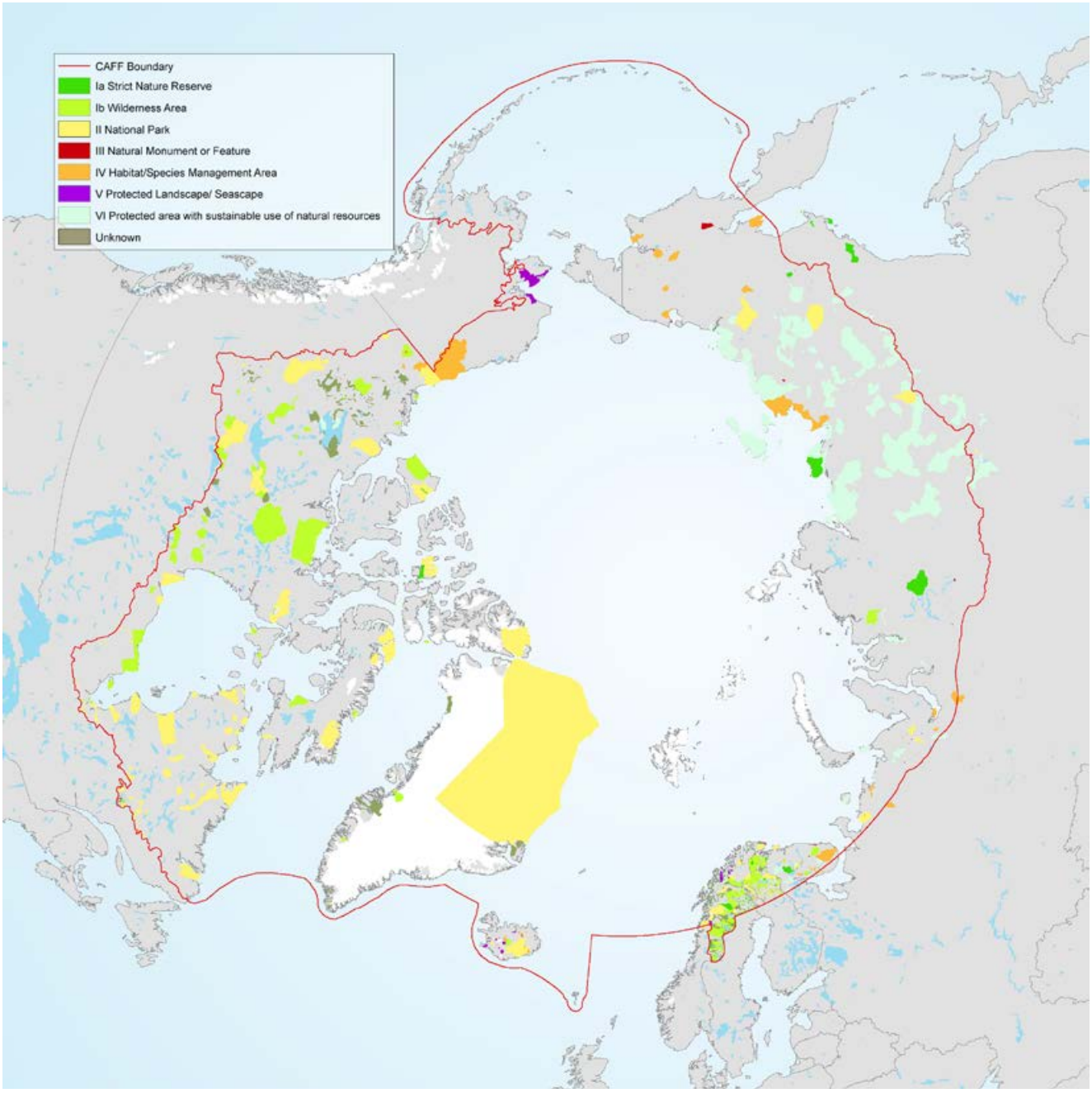

Figure 9: Terrestrial protected areas within the Arctic classified according to their IUCN Management Category, 2021.

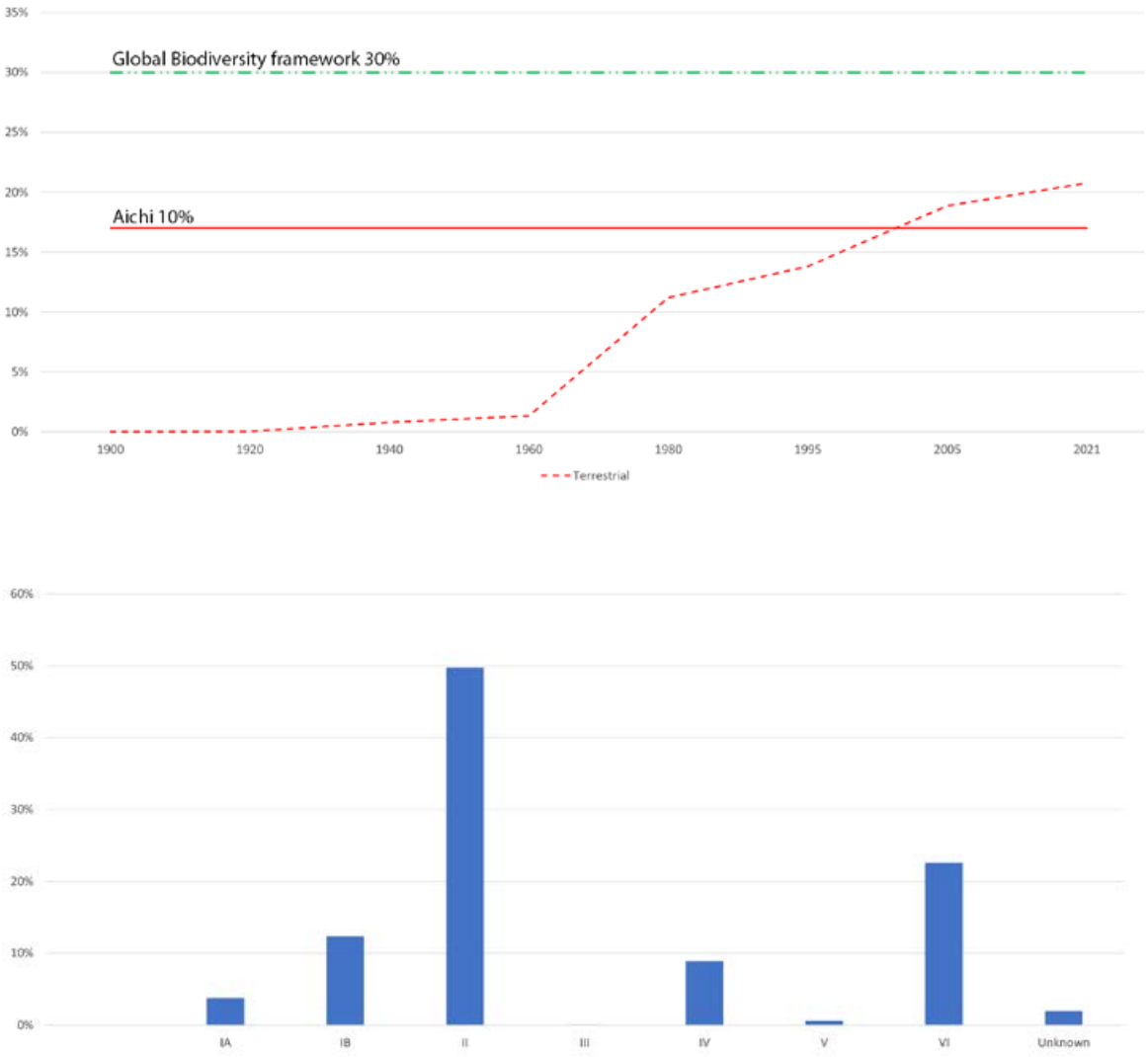

Figure 10: A) Trend in terrestrial protected area coverage in the Arctic, 1900–2021; B) Distribution of terrestrial protected areas across each of the six IUCN Management Categories, 2021.

Wetlands

Globally wetlands cover over 12.1 million km² of the Earth's surface (Ramsar, 2018) with 25 per cent found in the Arctic (Kåresdotter et al., 2021). These wetlands are globally important as wildlife habitats and migration pathways, and through the role they play in maintaining healthy ecosystems, biodiversity, carbon storage, water quality and other ecosystem services (CAFF, 2021). Therefore, effective management of the Arctic's wetlands, including conservation and restoration efforts, holds enormous potential to contribute to climate adaptation and mitigation, and conservation of biodiversity (CAFF, 2021). Almost all Arctic wetlands are found in permafrost areas, making them vulnerable to future temperature increases, with 18 per cent lying within protected areas and 82 per cent outside any protections that might contribute towards their conservation. Figure 11 highlights wetlands based on peat and mineral soils, where peatlands are found to be less protected (14.5 per cent) than other wetland areas (24.9 per cent of wetland areas in mineral soils). Protected peatlands are largely distributed towards the lower latitudes of the Arctic, while wetlands in mineral soils, in general are found at higher latitudes. As a consequence, if global warming is not kept in line with the climate scenario which predicts global average warming levels of 0.9 to 2.3°C by 2100, protected peatlands are projected to experience higher temperature increases in the future (Kåresdotter et al., 2021).

Comparing the RCP4.5 and RCP8.5 scenarios, protected wetland areas subject to high risk (risk ranking indices 4 and 5) increase from around 13/14 per cent (mineral/peat) to 16/35 per cent between 2050 and 2100. If the scenario RCP8.5 becomes a reality with global average warming levels of 3.2–5.4°C by 2100 then as

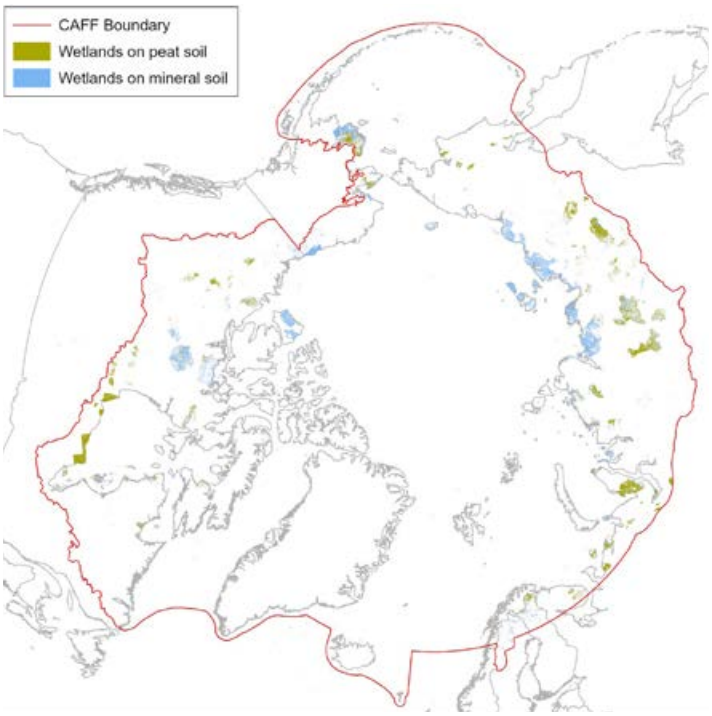

Figure 11: Wetlands based on peat and mineral soils, where peatlands (brown) are found to be less protected (14.5 per cent) than other wetland areas (24.9 per cent of wetland areas in mineral soils).

much as 45 per cent of Arctic wetlands would likely become highly vulnerable to regime shifts with negative impacts on human health, infrastructure, economics, and biodiversity (Kåresdotter et al., 2021). If, however, the RCP2.6 scenario could be realised, the risk for all protected wetlands is significantly lower, especially for peatlands (9 to 10 per cent in all years). This could be explained by the fact that this scenario affects temperature increases mostly in lower latitudes where peatlands are more prevalent. Although protection measures might not be able to limit temperature changes, wetlands will still constitute areas of special importance, and with less disturbances from other sources they are more likely to continue to provide important ecosystem services, even with changes occurring. As such, an important measure could be to increase wetland areas under protection. However, the best chance to limit potentially devastating impacts would be to limit future temperature increases.

CONCLUSIONS

The Kunming–Montreal GBF (CBD, 2022) contains a range of action-oriented targets for 2030 (see Supplementary Online Material 1), which will have significant impacts on how protected areas as a tool are used and reported upon within the Arctic. Similarly, the agreement on an international legally binding instrument under the United Nations Convention on the Law of the Sea (UNCLOS) on the conservation and sustainable use of marine Biodiversity of areas Beyond National Jurisdiction (BBNJ) will have significant impacts on how states deal with conservation measures for Arctic biodiversity. Complicating efforts to ensure a more robust framework to conserve Arctic biodiversity is uncertainty regarding how the mandate of the CBD will interact with the BBNJ agreement. Indications as to how Arctic states may respond to the new agreement can be discerned in the Reykjavík Declaration (Arctic Council, 2021) which specifies several areas of work directly relevant to marine biodiversity, notably Goal 3 and associated actions designed to achieve a healthy Arctic marine environment (see Supplementary Online Material 2) through promoting "*the conservation and sustainable use of the Arctic marine environment for the benefit of all current and future generations of Arctic inhabitants, encourage safety at sea, prevention of marine pollution and cooperate to improve knowledge of the Arctic marine environment, monitor and assess current and future impacts on Arctic marine ecosystems, work together to enhance cooperation on marine issues and promote respect for the rule of law and existing legal frameworks applicable to Arctic waters*" (Arctic Council, 2021, page 14).

Building upon activities described in this paper, work is already underway to develop an overview of the current range and understanding of international criteria used for identification of OECMs in the Arctic (CAFF/PAME, 2021). This will also facilitate a dialogue about how Arctic Council members are interpreting and applying the OECM definition and criteria in the Arctic. The role of Indigenous sustainable management practices, including Indigenous protected and conserved areas, and other Indigenous stewardship measures, and their contribution to effective marine stewardship will also be explored in the Arctic context, and could be expanded upon in future work by the Arctic Council. Key strategic steps in guiding how states may address Arctic biodiversity issues and conservation measures include development of a new Action Plan for Biodiversity 2023–2030 which is being developed to align with the Kunming–Montreal Global Biodiversity Framework to facilitate reporting on how the Arctic is responding to global biodiversity goals and targets and supporting achievement of the SDG.

While the various instruments and processes mentioned in this paper are being developed or implemented, the Arctic continues to face growing ecological challenges. At this critical juncture, ensuring a robust framework for the conservation of Arctic biodiversity and ecosystems is ever more urgent. The current framework for the protection of BBNJ´s in the Arctic was perceived as

North deer on snowy meadow in winter, Inari, Finland © Francesco Ungaro

insufficient to tackle the challenges posed by the impacts of climate change and increasing human activity (Prip, 2022) and it remains to be seen whether the current efforts at the regional and global scale will be sufficient to ensure adequate conservation measures are put in place. Complicating the situation is the increasing geopolitical importance of the Arctic and the resultant increase in military activities in the region; and the impacts of broader conflicts, as can be seen in the suspension of the work of the Arctic Council due to the war in Ukraine. How this suspension of cooperation between Russia and the other Arctic states will impact upon Arctic conservation remains to be seen, but the impact on scientific cooperation across the region may have long-term consequences for our ability to understand what is happening in the Arctic and formulate proactive measures in response.

ENDNOTES

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

[2] An OECM is a geographically defined area other than a protected area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values' (CBD Decision 14/8, 2018).

[3] The Arctic Council is the primary intergovernmental forum promoting cooperation, coordination and interaction among Arctic states, Indigenous communities, and peoples. 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 organisations 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. 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, 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 (Barry et al., 2021).

[4] World Heritage Sites are cultural and/or natural sites considered to be of 'Outstanding Universal Value', which have been inscribed on the World Heritage List by the World Heritage Committee (UNESCO, 2022).

[5] 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, 2022).

SUPPLEMENTARY ONLINE MATERIAL

1. Action-oriented targets from the Kunming-Montreal GBF
2. Extracts from Reykjavík Declaration

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RESUMEN

Este documento ofrece una actualización de la situación de las áreas protegidas del Ártico en 2017. Ofrece una visión general del estado y las tendencias de la extensión de las áreas protegidas en el Ártico y una visión general de las medidas de conservación basadas en áreas, incluidos los sitios del Patrimonio Mundial y los humedales. Este documento utiliza la definición de áreas protegidas de la Unión Internacional para la Conservación de la Naturaleza (UICN), que incluye una amplia gama de categorías de gestión, desde reserva natural estricta hasta protección con uso sostenible. En consecuencia, el nivel de protección y gobernanza de estas áreas varía en toda la región circumpolar. En 2021, el 20,77% de la superficie terrestre del Ártico y el 5,24% de sus zonas marinas estaban protegidas. La cobertura de áreas protegidas de los ecosistemas terrestres del Ártico superó la Meta 11 de Aichi para la Diversidad Biológica, que pretendía que al menos el 17% de las aguas terrestres e interiores estuvieran protegidas para 2020. La cobertura de las zonas marinas protegidas no alcanzó la Meta de Aichi de proteger el 10% de las zonas costeras y marinas.

RÉSUMÉ

Ce document fait le point sur l'état des zones protégées de l'Arctique en 2017. Il donne un aperçu de l'état et des tendances de l'étendue des zones protégées dans l'Arctique et une vue d'ensemble des mesures de conservation basées sur les zones, y compris les sites du patrimoine mondial et les zones humides. Ce document utilise la définition de l'Union internationale pour la conservation de la nature (UICN) pour les zones protégées, qui comprend un large éventail de catégories de gestion - de la réserve naturelle stricte à la protection avec utilisation durable. Par conséquent, le niveau de protection et de gouvernance de ces zones varie dans la région circumpolaire. En 2021, 20,77 % des zones terrestres et 5,24 % des zones marines de l'Arctique seront protégées. La couverture des écosystèmes terrestres de l'Arctique par des zones protégées a dépassé l'objectif 11 d'Aichi pour la biodiversité, qui prévoyait qu'au moins 17 % des zones terrestres et des eaux intérieures soient protégées d'ici à 2020. La couverture des zones marines protégées n'a pas atteint l'objectif d'Aichi, qui prévoit la protection de 10 % des zones côtières et marines.