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Bio-Prospecting in the Arctic: An Overview of the Interaction Between the Rights of Indigenous Peoples and Access and Benefit Sharing

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BIO-PROSPECTING IN THE ARCTIC: AN OVERVIEW OF THE INTERACTION BETWEEN THE RIGHTS OF INDIGENOUS PEOPLES AND ACCESS AND BENEFIT SHARING

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Abstract: The exploration and exploitation of marine genetic resources for commercial purposes is growing at an unprecedented rate in the Arctic region. Currently, there is no explicit legal framework that governs the participation of Arctic indigenous peoples in this industry or requires that the benefits derived from the scientific use of marine genetic resources are shared with these groups. This Article analyzes to what extent the principles of free, prior, and informed consent and of fair and equitable benefit sharing are considered in relevant international instruments. The United Nations Convention on the Law of the Sea is not sufficient to frame this international issue. Therefore, this Article pays special attention to the scope of indigenous people's rights as outlined in the International Labour Organization's Convention (No. 169) Concerning Indigenous Peoples and the United Nations Declaration on the Rights of Indigenous Peoples. This Article incorporates those principles of consent and benefit sharing into the international framework governing the use of biodiversity materials, through the Convention on Biological Diversity and the Nagoya Protocol.

INTRODUCTION

Apart from its own particular climate conditions, the Arctic region is characterized by its seasonally ice-covered ocean.[1] The permanent ice does

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[1] *See* Catherine Larose et al., *The Dynamic Arctic Snow Pack: An Unexplored Environment for Microbial Diversity and Activity*, 2 BIOLOGY 317, 318 (2013). Although various criteria can be used to denote the geographical extent of the Arctic region, the definition used in this Article corresponds to the area that falls within the Arctic Circle, identified by parallel of latitude 66 degrees, 32 minutes North, and includes the territories of the United States, Canada, Russia, Norway, and Greenland (an autonomous territory still dependent on Denmark), all of which have Arctic Ocean coastlines. *See id*. The Arctic Circle also includes Iceland, Sweden and Finland, which do not have Arctic Ocean coastlines. NAJA BENTZEN & MARC HALL, EUR. PARLIAMEN-

not preclude the presence of unique ecosystems and a highly resistant animal and plant life.[2] The Arctic is rich in natural resources and is home to unique genetic material present in polar ecosystems.

The change of climate conditions, together with technology development and knowledge acquired through marine scientific explorations, led to the emergence of a new activity in the Arctic region: bio-prospecting. The aim of bio-prospecting, a type of applied scientific research, is to explore and to find commercial purposes for useful natural components in organisms.[3] This includes discovering components that have potential uses in the food, industrial, and pharmaceutical sectors, among others.

There is, however, no universal definition of bio-prospecting. The definition of bio-prospecting put forth by the Executive Secretary of the Convention on Biological Diversity ("CBD") implies that bio-prospecting is the exploration and information gathering of genetic and biochemical material to develop commercial products.[4] Alternatively, David Leary suggests a wider definition to cover the complete process, starting with academic and publicly funded research and continuing through the development and commercialization of products.[5]

TARY RESEARCH SERVS., BRIEFING: ARCTIC CONTINENTAL SHELF CLAIMS: MAPPING INTERESTS IN THE CIRCUMPOLAR NORTH 2 (Jan. 2017), http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595870/EPRS_BRI(2017)595870_EN.pdf[https://perma.cc/P8GY-DM4U]; *see* ARCTIC MONITORING AND ASSESSMENT PROGRAMME, AMAP ASSESSMENT 2009: HUMAN HEALTH IN THE ARCTIC 1–2 (2009) [hereinafter AMAP ASSESSMENT] (describing the various definitions of the Arctic region).

[2] *See* Larose et al., *supra* note 1, at 318. Nevertheless, geostrategic interest in the Arctic is mainly due to the existence of large resources, including roughly thirteen percent of the world's oil reserves and as much as thirty percent of the world's gas reserves. Donald L. Gautier et al., *Assessment of Undiscovered Oil and Gas in the Arctic*, 324 SCIENCE 1175, 1175 (2009). In addition, there are significant deposits of tin, manganese, gold, nickel, zinc, lead, platinum, and even uranium and other various rare materials in the Arctic. *See* AMAP ASSESSMENT, *supra* note 1, at xiv.

[3] Tullio Scovazzi, *The Concept of Common Heritage of Mankind and the Genetic Resources of the Seabed Beyond the Limits of National Jurisdiction*, AGENDA INT'L, Jan. 2007, at 11, 16. As Tullio Scovazzi observes:

> [T]here is an inextricable factual link between marine scientific research (either pure or applied) and bioprospecting. It is impossible to establish a clear-cut distinction between one activity and the other and between one purpose and the other. A research endeavour organized with the intent to increase human knowledge may well result in the discovery of commercially valuable information and vice versa.

Id. at 18 (internal citation omitted).

[4] Conference of the Parties to the Convention on Biological Diversity*, Progress Report on the Implementation of the Programmes of Work on the Biological Diversity of Inland Water Ecosystems, Marine and Coastal Biological Diversity, and Forest Biological Diversity*, ¶ 6, U.N. Doc. UNEP/CBD/COP/5/INF/7 (Apr. 20, 2000).

[5] David Leary et al., *Marine Genetic Resources: A Review of Scientific and Commercial Interest*, 33 MARINE POL'Y 183, 184 (2009) [hereinafter *Marine Genetic Resources*] ("the term 'bioprospecting' is more accurately defined as including the entire research and development

Every year, an increasing number of patents associated with the genes of Arctic marine organisms are approved.[6] This increase stems from a heightened interest in the exploration and exploitation of marine genetic resources, as well as an increase in the traditional knowledge of marine life possessed by Arctic indigenous populations.[7] Unlike bio-prospecting in other areas of the planet, however, this activity in the Arctic region is carried out without any explicit regulations governing the participation of the local and indigenous peoples.

The Arctic has a stable population of around four million people, about ten percent are members of indigenous communities.[8] In their isolation, these groups have evolved in a highly variable environment and their resili-

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process"); *see also* DAVID K. LEARY, INTERNATIONAL LAW AND THE GENETIC RESOURCES OF THE DEEP SEA 157–58 (Vaughan Lowe ed., 2007) [hereinafter INTERNATIONAL LAW AND GENETIC RESOURCES] ("bioprospecting will be taken to refer to the much broader process of collection of genetic material from the deep sea, subsequent research and product development, and ultimately commercialisation").

[6] Jesús M. Arrieta et al., *What Lies Underneath: Conserving the Oceans' Genetic Resources*, 107 PROC. NAT. ACAD. SCI. 18,318, 18,318 (2010).

[7] Arctic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas, *Report of the Arctic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas*, annex VI, VII, U.N. Doc. UNEP/CBD/EBSA/WS/2014/1/5 (May 20, 2014), https://www.cbd.int/doc/meetings/mar/ebsaws-2014-01/official/ebsaws-2014-01-05-en.pdf [https://perma.cc/3YVB-E7E4]; MARJO VIERROS ET AL., CONVENTION ON BIOLOGICAL DIVERSITY, TRADITIONAL KNOWLEDGE RELATING TO ARCTIC MARINE SPECIES AND HABITATS (2014), https://www.cbd.int/doc/meetings/mar/ebsaws-2014-01/other/ebsaws-2014-01-submission-unutk-en.pdf [https://perma.cc/5495-TPMK]; EUR. NETWORKING GRP. FOR INTEGRATED MAR. POLICY, EUR. COMM'N, FINAL REPORT: STUDY ON ARCTIC LAY AND TRADITIONAL KNOWLEDGE 18 (2012), https://webgate.ec.europa.eu/maritimeforum/sites/maritimeforum/files/Report%203_%20Final_2nd%20Release_11_06_2014_NO%20POLICY%20RECOMMENDATIONS.pdf [https://perma.cc/X5G6-9AAD]; Arrieta et al, *supra* note 6, at 18,318; David K. Leary, *Bi-polar Disorder? Is Bioprospecting an Emerging Issue for the Arctic as Well as for Antarctica?*, 17 REV. OF EUR. COMMUNITY & INT'L ENVTL. L. 41, 45 (2008) [hereinafter *Bi-Polar Disorder*].

[8] AMAP ASSESSMENT, *supra* note 1, at 2. The Saami people live in Northern Europe, and although numbers vary, between 50,000 and 60,000 live in Norway, between 15,000 and 20,000 live in Sweden, about 8000 live in Finland, and around 2000 live in Russia. *The Indigenous World*, 2016 Y.B. INDIGENOUS WORLD (Int'l Work Grp. for Indigenous Affs.) 29, http://www.iwgia.org/iwgia_files_publications_files/0740_THE_INDIGENOUS_ORLD_2016_final_eb.pdf [https://perma.cc/KX7L-KVAX] [hereinafter *The Indigenous World 2016*]. In 2005 it was estimated that in North America, around 60,000 Inuit people lived in Canada, around 100,000 lived in Alaska, and 50,000 lived in Greenland. *Id.*; *The Indigenous World*, 2015 Y.B. INDIGENOUS WORLD (Int'l Work Grp. for Indigenous Affs.) 40, http://www.iwgia.org/iwgia_files_publications_files/0716_THE_INDIGENOUS_ORLD_2015_eb.pdf [https://perma.cc/R49A-2TD9]; *The Indigenous World*, 2007 Y.B. INDIGENOUS WORLD (Int'l Work Grp. for Indigenous Affs.) 57, http://www.iwgia.org/iwgia_files_publications_files/0083_NY-THE_INDIGENOUS_ORLD-2007.pdf [https://perma.cc/N7FN-ZYK8]. Approximately 260,000 individuals of Chukchi, Even, Evenki, Nenets and Yukaghir origin, among others, live in the extreme northern part of the Russia. *See The Indigenous World 2016*, *supra*, at 42. Russia recognizes these individuals as "indigenous small-numbered peoples of the North," made up of some forty different indigenous groups. *Id.*

ence and ability to adapt to changing environmental conditions is well known.[9] This ability is unfortunately weakening, and traditional responses are no longer enough because the changes are occurring at an unprecedented speed and scope.[10] Due to their intimate connection with the natural environment, climate change has profound impact on the welfare of these communities.[11]

This Article describes the applicable international rules for bio-prospecting that govern the intersection of the principles of free, prior, and informed consent of Arctic indigenous peoples, benefit sharing of commercial benefits, and access to marine genetic resource.[12] Part I introduces bio-prospecting activities in the areas inhabited by Arctic indigenous peoples and examines their legal status within the 1982 United Nations Convention on the Law of the Sea ("UNCLOS"), and ultimately finds that the instrument that does not directly address the issue.[13] The remainder of the Article then analyzes to what extent these principles are considered in relevant international instruments. Part II pays special attention to the scope and boundaries of indigenous people's rights concerning free, prior, and informed consent before having access to marine genetic resources within the framework of international human rights' regulation.[14] Notably, Part II considers the International Labour Organization's ("ILO") Indigenous and Tribal Peoples Convention and the United Nations Declaration on the Rights of Indigenous Peoples ("UNDRIP").[15] Next, in Part III, the Article deals with the international regulatory framework governing the use of biodiversity through two instruments that represent a great step forward for a fair and equitable share in the benefits: the Convention on Biological Diversity of 1992 and the Nagoya Protocol

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[9] *See* Annika E. Nilsson et al., *The Arctic Resilience Report: Background, Aims, and Scope*, *in* ARCTIC RESILIENCE INTERIM REPORT 2013, at 3, 3 (Stockholm Env't Inst. & Stockholm Resilience Ctr. eds., 2013), https://www.sei-international.org/mediamanager/documents/Publications/ArcticResilienceInterimReport2013-LowRes.pdf [https://perma.cc/H2KE-5ND6]; STEFANSSON ARCTIC INST., ARCTIC HUMAN DEVELOPMENT REPORT 10 (Niels Einarsson et al. eds., 2004), http://www.svs.is/static/files/images/pdf_files/ahdr/English_version/AHDR_first_12pages.pdf [https://perma.cc/4NKB-EM6W].

[10] *See* Victoria Tauli-Corpuz & Aqqaluk Lynge, U.N. Econ. & Soc. Council, Permanent Forum on Indigenous Issues, *Impact of Climate Change Mitigation Measures on Indigenous Peoples and on Their Territories and Lands*, ¶¶ 4–5, U.N. Doc. E/C.19/2008/10 (Mar. 20, 2008), http://www.un.org/esa/socdev/unpfii/documents/E.C.19.2010.7%20EN.pdf [https://perma.cc/6DT5-DEPT].

[11] *See id.*

[12] This Article's discussion excludes the issues raised by property law and intellectual property rights.

[13] United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS]; *see infra* notes 17–72 and accompanying text.

[14] See *infra* notes 73–110 and accompanying text.

[15] *See* Int'l Labour Organisation, Convention (No. 169) Concerning Indigenons and Tribal Peoples in Independent Countries, Jun. 27, 1989, 1650 U.N.T.S. 383 [hereinafter ILO Convention]; G.A. Res. 61/295, annex (Sept. 17, 2007).

on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization of 2010.[16]

I. BIO-PROSPECTING ACTIVITIES INVOLVING ARCTIC MARINE GENETIC RESOURCES, ARCTIC MARINE ECOSYSTEMS, AND THE LIMITED COVERAGE OF THE LAW OF THE SEA

Bioprospecting activities, and in particular marine bioprospecting in the Arctic Ocean for the development of novel products, are receiving increasing attention despite the difficulties associated with trying to use and access resources in such a remote region. This section briefly presents bioprospecting activities of marine genetic resources in the Arctic Ocean. Furthermore, this section discusses in greater detail the limitations of the UNCLOS provisions that concern this activity.

A. Bio-Prospecting Activities Involving Arctic Marine Genetic Resources

The Arctic marine ecosystems are essential components of global biodiversity. The Arctic Ocean is a highly dynamic environment where the presence, formation, and melting of marine ice has a huge effect on the biogeochemical cycle of organic carbon and other elements. The biodiversity of Arctic ecosystems is shaped by environmental factors, such as erosion at the coastlines, run-off from rivers, and species migration[17] that affects the ecosystems' structure and function, and influences physical conditions and the distribution of marine organisms.[18]

Scientific and commercial interest in the Arctic is linked to the region's features. Sea ice provides for varied microbial communities and meiofauna because of its unique characteristics.[19] The ice is home to a great number of diverse viruses, bacteria, and archaea. There are species of marine bacteria with great potential for breaking down hydrocarbons, cryo-tolerant microbial communities, and algae. The marine ice also supports over twenty spe-

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[16] *See infra* notes 111–153 and accompanying text. *See generally* Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79; Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity, Oct. 29, 2010, U.N. Doc. UNEP/CBD/COP/DEC/X/1 (Oct. 29, 2010), https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf [https://perma.cc/XG7A-SK36] [hereinafter Nagoya Protocol] (supplemental agreement to the CBD designed specifically to implement procedures that will achieve the goal of fair and equitable benefit sharing arising from the use of genetic resources).

[17] Christine Michel et al., *Marine Ecosystems*, *in* Conservation of Arctic Flaura & Fauna (CAFF), Arctic Council, Arctic Biodiversity Assessment: Status and Trends in Arctic Biodiversity 379, 387 (Hans Meltofte et al. eds., 2013), http://arcticlcc.org/assets/resources/ABA2013Science.pdf [https://perma.cc/XS8Y-7R8S].

[18] *Id.*

[19] *Id.* at 389.

cies of crustaceans, nematodes, acyls, rotifers, and Cnidarians.[20] Organisms in the marine ice survive at extreme temperatures and under great hydrostatic pressure, raising expectations regarding the exploration and utilization of their unique metabolic, physiological, and taxonomic characteristics.[21]

The Arctic snow layer is also an important factor in the way the Arctic ecosystems function. It is in itself a dynamic habitat that serves as a transmission medium between microorganisms, plants, animals, nutrients, the atmosphere, and the ground. This snow layer also acts as an energy source by storing and releasing energy. The best-known effect is the surface albedo, which absorbs solar energy and reduces the temperature of the snow. Snowpack depth affects the temperature of the ground and subsoil; the thick snow cover also influences the metabolic activity of the organisms that survive in the ecosystem.[22] For example, the snowpack acts as insulation, protecting ground-level organisms such as vegetation and animals against frost damage.[23] Furthermore, the permanent snow cover acts as a reservoir and a means of transporting liquid water.

Climate change in the Arctic region is dramatically modifying the function of the Arctic ecosystems. The increase in ground temperature, aggravated by the warming of the Atlantic waters that flow into the Arctic Ocean, has led to an increase in the temperature of the marine ice.[24] These changes resulted in a reduction in the area covered by marine ice, a thinning of the marine ice, and the warming of the surface layer of the ocean—all changes that alter the way living organisms function.[25]

Although it appears that the Arctic ecosystems have to some extent been adapting, the long-term response in such changing environments is unknown. Arctic biodiversity, unique in richness and complexity, may see changes to the structure of microbial communities that are unable to cope with the warmer temperatures.[26] Global warming may lead to the disap-

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[20] *Id.* at 390.

[21] *See Marine Genetic Resources*, *supra* note 5, at 187. According the International Hydrographic Organization, hydrostatic pressure is "pressure at a given depth due to the weight of the water column above that depth." INT'L HYDROGRAPHIC ORG., HYDROGRAPHIC DICTIONARY 184 (5th ed. 1994) [hereinafter HYDROGRAPHIC DICTIONARY], http://www.iho.int/iho_pubs/standard/S-32/S-32-eng.pdf [https://perma.cc/7FX9-3MC8].

[22] *See* Larose et al., *supra* note 1, at 318, 322.

[23] *Id.* at 318.

[24] *See* AMAP ASSESSMENT, *supra* note 1, at 9.

[25] *See id.* at 9–10. From 1979 to 2006, the extent of sea ice cover has been declining. Mark C. Serreze et al., *Perspectives on the Arctic's Shrinking Ice Cover*, 315 SCIENCE 1533, 1533–34 (2007). Decline is most rapid in September when ice cover shrinks at a rate of 2.9% per decade. *Id.*

[26] *See* Larose et al., *supra* note 1, at 317, 325; Michel, *supra* note 17, at 390. For example, species of psychrophilic and psychrotolerant microbial communities that live in the marine ice of the Arctic and surrounding waters may be impacted. *See* Larose et al., *supra* note 1, at 317, 325; Michel, *supra* note 17, at 390.

pearance of some species in favor of other microbe communities in a way that affects a full range of ecological processes and interactions.[27]

Climate change also allows greater access to Arctic genetic resources.[28] In spite of the little discussion about Arctic bio-prospecting, biotechnology companies have focused on the Arctic in recent years.[29] Companies from North America, Norway, Iceland, Finland, Sweden, Denmark, and the United Kingdom are actively developing new biotechnologies based on genetic resources found in the Arctic.[30] According to a 2008 Report, more than thirty patents and patent applications that involve Arctic genetic resources had already been filed.[31] Using genetic resources from the Arctic's marine environment and microorganisms, biotechnology research has targeted a few key areas, such as industrial processes, food technology, pollution control technologies, pharmaceutical and medical products, and health-related advancements.[32]

B. Bio-Prospecting Activities in the Arctic Ocean and the United Nations Convention on the Law of the Sea

The 1982 United Nations Convention on the Law of the Sea ("UNCLOS" or "the Convention"), in force since 1994, constitutes a comprehensive international framework for the legal regulation of the sea.[33] As such, UNCLOS focuses on the delimitation of sea spaces and their distribution for the exercise of different countries' powers over uses and resources.[34] UNCLOS does not, however, provide a specific legal status that protects the ice seas or ice islands. There are few UNCLOS provisions that implicate ice seas and ice islands. For example, Article 234 of UNCLOS ("the Arctic exception" or "Article 234") allows countries to pass laws and regulate "for the prevention, reduction and control of marine pollution" in those ice-

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[27] *See* CONSERVATION OF ARCTIC FLORA & FAUNA (CAFF), ARCTIC BIODIVERSITY ASSESSMENT: REPORT FOR POLICY MAKERS 8 (2013), https://www.innovation.ca/sites/default/files/Rome 2013/files/Arctic%20Council%20-%20Biodiversity%20Assessment.pdf [https://perma.cc/93DT-596J]; Larose et al., *supra* note 1, at 317, 325.

[28] *See* DAVID LEARY, UNU-IAS REPORT: BIOPROSPECTING IN THE ARCTIC 8 (2008) , http://collections.unu.edu/eserv/UNU:3077/Bioprospecting_in_the_Arctic.pdf [https://perma.cc/3TFQ-EEL8].

[29] *See id.* at 8, 24; *Bi-Polar Disorder*, *supra* note 7, at 45.

[30] *See* UNU-IAS REPORT, *supra* note 28, at 21. The marine biotechnology sector in Norway is one of the most successful and active in the Arctic region. *Id.* at 17–18.

[31] *Id.* at 22.

[32] *See* David Leary, *From Hydrocarbons to Psychrophiles: The Scramble for Arctic Resources*, *in* POLAR OCEANS GOVERNANCE IN AN ERA OF ENVIRONMENTAL CHANGE 125, 142–43 (Tim Stephens & David L. VanderZwaag eds., 2014) [hereinafter *Scramble for Arctic Resources*]; *see also* INTERNATIONAL LAW & GENETIC RESOURCES, *supra* note 5, at 157–58.

[33] *See* UNCLOS, *supra* note 13.

[34] *See id.*

covered areas.[35] Paragraph 6 of Article 234 allows coastal nations, after receiving approval, to adopt special regulations to prevent pollution from sea vessels.[36] Countries may adopt regulations if navigation is obstructed, or made exceptionally more dangerous, by extreme climate conditions and ice coverage for most of the year, or if the ecological balance of the area could sustain "major harm . . . or irreversible disturbance" caused by marine pollution.[37] Also, the particular geological, biological, oceanographic and climatological conditions in the Arctic make the region especially vulnerable from an environmental perspective. This vulnerability might, at least in part, bring the Arctic under the scope of the concept of a special protection area set out in Article 211 of UNCLOS.[38]

The management of Arctic resources has led to a certain jurisdictionalization because of the territorial claims of the Arctic coastal countries.[39] UNCLOS articulates a system in Article 76, which defines the concept of the continental shelf and provides relevant geological criteria for the establishment of the outer limits of the shelf beyond two hundred nautical miles, up to the limit of three hundred fifty nautical miles or one hundred nautical miles from the 2500-meter isobath—an imaginary line connecting all the points of that same depth.[40] Within ten years of ratifying UNCLOS, a coastal nation may claim to extend the boundary of the continental shelf by submission to the Commission on the Limits of the Continental Shelf ("CLCS"). The CLCS is a U.N. body that reviews the submissions from countries seeking to expand their their territorial reach for sufficient scien-

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[35] *Id.* at art. 234.

[36] *See* UNCLOS, *supra* note 13, at art. 211(6); Ingvild Ulrikke Jakobsen, *The Adequacy of the Law of the Sea and International Environmental Law to the Marine Arctic: Integrated Ocean Management and Shipping*, 22 MICH. ST. INT'L L. REV. 291, 313 (2013).

[37] *See id.* Article 234, however, is open to various interpretations and is not without ambiguity. *See* Kristin Bartenstein, *The "Arctic Exception" in the Law of the Sea Convention: A Contribution to Safer Navigation in the Northwest Passage?*, 42 OCEAN DEV. & INT'L L. 22, 27–28 (2011) (explaining that "few reliable interpretations have been made" of Article 234); Jakobsen *supra* note 36, at 315 ("Article 234 raises . . . many questions such as its geographical application"); D.M. McRae & D.J. Goundre, *Environmental Jurisdiction in Arctic Waters: The Extent of Article 234*, 16 U.B.C. L. REV. 211, 227 (1982) (concluding that Article 234 "is not free from ambiguity"); E.J. Molenaar, *Arctic Marine Shipping: Overview of the International Legal Framework, Gaps, and Options*, 18 J. TRANSNAT'L L. & POL'Y 289, 307–08 (2009) (discussing the various views of the Arctic states regarding how to interpret and apply Article 234).

[38] *See* UNCLOS, *supra* note 13, at art. 211; Jon M. Van Dyke & Sherry P. Broder, *Particularly Sensitive Sea Areas—Protecting the Marine Environment in the Territorial Seas and Exclusive Economic Zones*, 40 DENV. J. INT'L L. & POL'Y 472, 475 (2012); *see* Bartenstein, *supra* note 37, at 32; Jakobsen, *supra* note 36 at 313; McRae & Goundre, *supra* note 37, at 218.

[39] Nathalie Ros, *L'Arctique Face au Changement Climatique,* 2 J. DU DROIT INT'L 363, 363–403 (2013). Jurisdictionalism is a label for the growing trend of coastal nations making claims on maritime spaces, a practice that leads to the territorialization of seas by coastal nations trying to extend their sovereignty. *Id.*

[40] *See* UNCLOS, *supra* note 13, at art. 76.

tific evidence regarding the continuity of that country's reach on to the continental shelf.[41] With the exception of the United States, which has not yet ratified UNCLOS, Arctic countries have used Article 76 to extend their power over Arctic resources and use of the Arctic area.[42]

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[41] *See id.* at arts. 4, 76, Annex II. To claim a continental shelf beyond two hundred nautical miles, a State must submit evidence to the Commission on Limits of the Continental Shelf ("CLCS") measuring the outer bounds of its continental shelf by drawing a line that references either "the outermost fixed points at each of which the thickness of sedimentary rocks is at least [one] percent of the shortest distance from such point to the foot of the continental slope," or a line referencing "fixed points not more than [sixty] miles from the pool of the continental slope." *Id.* at art. 76(4)(a)(i)–(ii). Various studies have focused on the aspirations of expanded territorial sovereignty in the Arctic. *See generally* DONAT PHARAND, THE LAW OF THE SEA OF THE ARCTIC, WITH SPECIAL REFERENCE TO CANADA 145–46, 168–69 (1973) (commenting on the problems faced by the legal status of international law of the seas); Joaquín Alcaide Fernández & Claudia Cinelli, *La "Cuestión Artica" y el Derecho Internacional*, 61 REV. ESPAÑOLA DE DERECHO INT'L 381, 382 (2009); Claudia Cinelli, *The Delimitation Process in the Central Arctic Seabed: Sovereign Rights or a Condominium or Res Communis Omnium?* (Eur. Soc'y of Int'l L. Conf. Paper No. 2, 2012) (discussing current actions and challenges for countries utilizing the CLCS), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2193744 [https://perma.cc/U985-M8EC]; Donat Pharand, *Canada's Arctic Jurisdiction in International Law*, 7 DALHOUSIE L.J. 315, 316, 330 (1982).

[42] *See* NOR. ROYAL MINISTRY OF FOREIGN AFFAIRS, CONTINENTAL SHELF SUBMISSION OF NORWAY IN RESPECT OF AREAS IN THE ARCTIC OCEAN, THE BARENTS SEA AND THE NORWEGIAN SEA: EXECUTIVE SUMMARY 6 (2006), http://www.un.org/depts/los/clcs_new/submissions_files/nor06/nor_exec_sum.pdf [https://perma.cc/8UE9-43L8]; GEOLOGICAL SURVEY OF DEN. & GREEN., PARTIAL SUBMISSION OF THE GOVERNMENT OF THE KINGDOM OF DENMARK TOGETHER WITH THE GOVERNMENT OF GREENLAND TO THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF TO THE NORTH-EASTERN CONTINENTAL SHELF OF GREENLAND: EXECUTIVE SUMMARY 5 (2013) http://www.un.org/depts/los/clcs_new/submissions_files/dnk76_14/dnk2014_es.pdf [https://perma.cc/S6AR-HUA5]; GEOLOGICAL SURVEY OF DEN. & GREEN., PARTIAL SUBMISSION OF THE GOVERNMENT OF THE KINGDOM OF DENMARK TOGETHER WITH THE GOVERNMENT OF GREENLAND TO THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF TO THE NORTHERN CONTINENTAL SHELF OF GREENLAND: EXECUTIVE SUMMARY 5 (2012) http://www.un.org/depts/los/clcs_new/submissions_files/dnk68_13/DNK2013_ES.pdf [https://perma.cc/VYY6-3J6B]; GEOLOGICAL SURVEY OF DEN. & GREEN., PARTIAL SUBMISSION OF THE GOVERNMENT OF THE KINGDOM OF DENMARK TOGETHER WITH THE GOVERNMENT OF GREENLAND TO THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF TO THE SOUTHERN CONTINENTAL SHELF OF GREENLAND: EXECUTIVE SUMMARY 5 (2012) http://www.un.org/depts/los/clcs_new/submissions_files/dnk61_12/DNK2012_EX_SUM_S_GREENLAND.pdf [https://perma.cc/3GZW-JXAS]; MINISTRY OF NAT. RES. & ENV'T OF THE RUSS. FED'N ET AL., PARTIAL REVISED SUBMISSION OF THE RUSSIAN FEDERATION TO THE COMMISSION ON THE LIMITS OF THE CONTINENTAL SHELF IN RESPECT OF THE CONTINENTAL SHELF OF THE RUSSIAN FEDERATION IN THE ARCTIC OCEAN: EXECUTIVE SUMMARY 6 (2015) http://www.un.org/depts/los/clcs_new/submissions_files/rus01_rev15/2015_08_03_Exec_Summary_English.pdf [https://perma.cc/RXL6-ZA59]; *Outer Limits of the Continental Shelf Beyond 200 Nautical Miles from the Baselines: Submission by the Russian Federation, Arctic Ocean*, U.N. DIV. FOR OCEAN AFFAIRS & THE LAW OF THE SEA (June 30, 2009), http://www.un.org/depts/los/clcs_new/submissions_files/submission_rus.htm [https://perma.cc/VBS7-5RR2]. Canada also intends to make a future partial submission in respect of areas in the Arctic Ocean. *See* CAN. DEP'T OF FOREIGN AFFAIRS, TRADE, & DEV., PRELIMINARY INFORMATION CONCERNING THE OUTER LIMITS OF THE CONTINENTAL SHELF OF CANADA IN THE ARCTIC OCEAN 1 (2013), http://www.un.org/depts/los/clcs_new/submissions_files/preliminary/can_pi_en.pdf [https://perma.cc/RTR4-FVXL]. The United States considers certain elements of the agreement to be binding customary law. *See* Bartenstein, *supra* note 37, at 23.

Although global in nature, UNCLOS does not deal in detail with exploration and exploitation of marine genetic resources. The Convention does, however, provide a legal framework that determines coastal nations' sovereign rights and jurisdiction over various maritime areas. The governing section of UNCLOS for marine genetic resources depends on the maritime area in which they are found.[43] One type of maritime area is the Exclusive Economic Zone ("EEZ").[44] In the EEZ a country has sovereign rights to exploit and explore all natural resources within the superjacent waters to the seabed and subsoil.[45] A coastal nation also has the jurisdiction to authorize other nations to conduct scientific research and protect the marine environment within the EEZ.[46]

When natural resources are found on the continental shelf, another maritime area of UNCLOS, the coastal nation has the exclusive sovereign right to explore and exploit the natural resources within the parameters of Article 77.[47] Article 77 defines natural resources as "mineral and other non-living resources" residing in the seabed and subsoil together with "living organisms belonging to sedentary species."[48] Article 68 exempts sedentary species, as defined in Article 77, from the EEZ provisions.[49]

Therefore, if genetic resources are within the EEZ and not considered sedentary species the EEZ's regime is to be applied. If the genetic resources are considered sedentary species, however, and the genetic resources are located within the continental shelf to two hundred nautical miles, or the extended continental shelf via Article 76, the legal regime of the continental shelf will be applied.[50]

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[43] *See* Craig H. Allen, *Protecting the Oceanic Gardens of Eden: International Law Issues in Deep-Sea Vent Resource Conservation and Management*, 13 GEO. INT'L ENVTL. L. REV. 563, 586, 614 (2001).

[44] *See* UNCLOS, *supra* note 13, at arts. 55, 56, 57. According to Article 55, "the exclusive economic zone [("EEZ")] is an area beyond and adjacent to the territorial sea subject to the specific legal regime established in [Part V]" of UNCLOS. *Id.* at art. 55. A coastal nation has full sovereignty over the area considered "territorial sea" in accordance with Article 3. *Id.* at art. 3.

[45] *Id.* at art. 56. Superjacent waters means "the waters lying immediately above the seabed or deep ocean floor up to the surface." HYDROGRAPHIC DICTIONARY, *supra* note 21, at 235.

[46] UNCLOS, *supra* note 13, at art. 56.

[47] *Id.* at art. 77.

[48] *Id.* at art. 77(4). Sedentary species are defined as "organisms which, at the harvestable stage, are either immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or physical soil." *Id.*

[49] *Id.* at arts. 68, 77.

[50] *Id.* at arts. 56(3), 76, 77. As Leary and others suggest, deciding that some species are sedentary is a complex issue because it very is difficult to confirm beyond any doubt that they fall within the definition of "sedentary species." *See* INTERNATIONAL LAW AND GENETIC Resources, *supra* note 5, at 34–40, 93–94; Allen, *supra* note 43, at 621. If a species is a sedentary one and it is located within the coastal State's EEZ and within its continental shelf, then the State has sovereign rights to explore and exploit it and can even prohibit the exploitation of the species for environmental protection reasons. *See* INTERNATIONAL LAW AND GENETIC RESOURCES, *supra* note 5, at

C. UNCLOS's Application to the Arctic Region

In the Arctic region, biotechnology activity is focused on the marine genetic resources found within the jurisdictional waters and continental shelf of coastal countries.[51] In these areas, both the principle of access and fair and equitable benefit sharing and the principle of free, prior, and informed consent fully apply, even if not expressly mentioned in the text.[52]

According to Article 8(j) of the Convention on Biological Diversity ("CBD"), the principle of access and benefit sharing is closely connected to the idea that parties seeking to use marine resources should obtain the approval and involvement of local holders or providers of knowledge and resources, and share the benefits arising out of the use of these resources.[53] Article 15 of the CBD also emphasizes the need to obtain the prior informed consent seeking access to the resources before they are collected.[54] Prior informed consent refers to the consent of the relevant competent national authority in the provider country as well as the consent of relevant stakeholders, in this case indigenous and local communities.[55]

Within the jurisdiction of the continental shelf, express consent is required by UNCLOS for any activity related to marine genetic resources that are considered sedentary species.[56] Therefore, coastal nations have the exclusive right to authorize and regulate exploration and exploitation of natural resources on the continental shelf.[57] Furthermore, no country may undertake marine genetic research on the continental shelf or EEZ without the coastal country's express consent, subject to any conditions set by that coastal country.[58] Prior consent is also required when activities in the seabed and ocean floor beyond the limits of national jurisdiction—defined in

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34–40, 93–94. Although this aspect falls outside the scope of this Article, it is worth mentioning that some believe there is a need to reformulate this rule because of the recent technological developments concerning marine genetic resources in the extended continental shelf and their link to the notion of sedentary species. *See* Allen, *supra* note 43, at 621–23; Petra Drankier et al., *Marine Genetic Resources in Areas Beyond National Jurisdiction: Access and Benefit-Sharing*, 27 INT'L J. MARINE & COASTAL L. 375, 432–33 (2012).

[51] *See* Allen, *supra* note 43, at 565–66.

[52] *See* UNCLOS, *supra* note 13, at arts. 142, 143, 245; Angelica Bonfanti & Seline Trevisanut, *Trips on the High Seas: Intellectual Property Rights on Marine Genetic Resources*, 37 BROOK. J. INT'L L. 188, 206 (2011).

[53] *See* Convention on Biological Diversity, *supra* note 16, at art. 8(j).

[54] *See id.* at art. 15.

[55] SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, BONN GUIDELINES ON ACCESS TO GENETIC RESOURCES AND FAIR AND EQUITABLE SHARING OF THE BENEFITS ARISING OUT OF THEIR UTILIZATION 9 (2002), https://www.cbd.int/doc/publications/cbd-bonn-gdls-en.pdf [https://perma.cc/C56G-PCGP] [hereinafter BONN GUIDELINES].

[56] UNCLOS, *supra* note 13, at art. 77; *see id.* at art. 246.

[57] *Id.* at art. 246

[58] *Id.* at art. 81.

UNCLOS as "the Area"—may result in exploitation of resources under the jurisdiction of that coastal country.[59]

The majority of Arctic marine genetic resources, however, are to be found in the so-called Arctic Donut Hole (at the center of the Arctic Ocean), an area beyond the limits of any country's national jurisdiction, which includes the high seas as well as the seabed and ocean floor and subsoil thereof. In principle, there is no application of free, prior, and informed consent in areas beyond national jurisdiction since no country may exercise sovereignty.

The application of the principle of access and fair and equitable sharing of benefits involving bio-prospecting activities is less straightforward than that of consent because this is an issue not specifically addressed by UNCLOS.[60] Countries take different positions on what legal regime should apply to genetic resources found in areas beyond any one country's national jurisdiction.[61] Part XI of UNCLOS establishes the regime for the Area, and Article 135 explains that the obligations and rights in Part XI will not affect the legal status of superjacent waters to the Area.[62] The regime for the high seas, established by Part VII of UNCLOS, allows countries to enjoy the freedom to conduct marine scientific research in the high seas, beyond the EEZ.[63] Therefore, when these resources are to be found in the water column and are consequently subject to regulations applicable to the high seas, they can be exploited in accordance with the regime laid out in Part VII of UNCLOS.[64]

Indeed, it is worth noting that UNCLOS only mentions equitable benefit sharing with regard to the resources found in the Area and regulated in Part XI of UNCLOS, which grants authority over the exploitation of marine resources to the International Seabed Authority ("the Authority").[65] This Part of UNCLOS also calls for the "equitable sharing of financial and other economic benefits derived from activities in the Area through any appropriate mechanism, on a non-discriminatory basis."[66] However, owing to the timing of UNCLOS' negotiation, PART XI regulation only applies to "solid,

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[59] *Id.* at art. 1(1); *see id.* at art. 142(2).

[60] *See* Bonfanti & Trevisanut, *supra* note 52, at 190; Drankier et al., *supra* note 50, at 399, 404, 407–08.

[61] *See* Scovazzi, *supra* note 3, at 20–21.

[62] *See* UNCLOS, *supra* note 13, at art. 135.

[63] *Id.* arts. 87, 257.

[64] *Id.* at Part VII.

[65] *Id.* at arts. 153, 156, 157. The Authority has various regulatory powers over the area and is responsible for managing and securing compliance with the common heritage of mankind regime set out in Part XI. *Id.* at arts. 153, 160.

[66] *Id.* at art. 140.

liquid or gaseous mineral resources."[67] In its present form, therefore, UNCLOS provides no guidance regarding access to marine genetic resources or benefit sharing, since these resources and their associated benefits are not within the categories provided for in the Convention.

Nevertheless, and in spite of the precautions concerning the expansion of its mandate, the Authority still plays a significant role in scientific research management in the Area when it comes to the potential benefits of marine genetic resources located beyond national jurisdiction,[68] since it has an impacte on their governance .[69] Although applying the concept of "heritage of mankind" is complex, this opens up at least the possibility to consider the benefits of marine genetic resources under the category of "common concern."[70]

Given the limitations inherent in this narrow scope and the increasing need to update international regulation, regulation of resources in the Area has become the main subject of the debates of the United Nations Special Commission on Biological Diversity Beyond the Limits of National Jurisdiction ("the Special Commission") since its creation in 2006. On June 19, 2015, after ten years of virtual stalemate, the U.N. General Assembly adopted a resolution to develop a new agreement to protect marine biologi-

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[67] *Id.* at art. 133. At the time UNCLOS was negotiated—the late 1970's and early 1980's—it was never anticipated that genetic resources could be explored and exploited in the way that they are currently. *See* U.N. CONVENTION ON THE LAW OF THE SEA, UNCLOS AT 30, at 2 (2012), http://www.un.org/depts/los/convention_agreements/pamphlet_unclos_at_30.pdf [https://perma.cc/F9HV-V3KY].

[68] *See* Scovazzi, *supra* note 3, at 13, 17, 19.

[69] *See* INTERNATIONAL LAW AND GENETIC RESOURCES, *supra* note 5, at 218. Of particular note is the increasing interest shown by the Authority in the Area. *Id.*

[70] U.N. Comm'n on Sustainable Dev., Div. of Sustainable Dev., Rep. of the Expert Group Meeting on Identification of Principles of International Law for Sustainable Development, Background Paper of the 4th Session of the Comm'n on Sustainable Dev., ¶¶ 83–84, (2012), http://www.un.org/documents/ecosoc/cn17/1996/background/ecn171996-bp3.htm [https://perma.cc/7LZD-PTP3] [hereinafter Sustainable Development Report]; *see* Bonfanti & Trevisanut, *supra* note 52, at 197. Articles 136 of UNCLOS states that the "Area and its resources are the common heritage of mankind." UNCLOS, *supra* note 13, at art. 136. According to Article 137, States do not have sovereignty or jurisdiction in the Area, and "[a]ll rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act." *Id.* at art. 137. Further, the resources in the Area "are not subject to alienation." *Id.* This implies that resources in the Area are not susceptible of appropriation by any country, are under international management for peaceful purposes, and that the benefits of their exploitation must be shared among all countries. *See* Scovazzi, *supra* note 3, at 18 n.18. According to the U.N. Division of Sustainable Development, the concept of common concern refers to the common interest of humankind in matters of importance to the entire biosphere, that interest can no longer be considered under the competence of individual countries, but rather must be managed by the international community. Sustainable Development Report, *supra* note 70, at ¶ 83; *see* KERNAL BASLAR, THE CONCEPT OF THE COMMON HERITAGE OF MANKIND IN INTERNATIONAL LAW 82–103 (1998); DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 451–59 (5th ed. 2015).

cal diversity in waters beyond national jurisdiction.[71] A preparatory commission was set up to begin work in 2016 and is expected to report back to the Assembly by the end of 2017.[72]

II. Overview on the Interaction Between the Rights of Indigenous Peoples, Access and Benefit Sharing

A. Rights of Indigenous Peoples in International Law and the Right to Free, Prior and Informed Consent Regarding Access to Marine Genetic Resources

The framework of both the Indigenous and Tribal Peoples Convention ("ITPC"), adopted in 1989 by the International Labour Organization, ("ILO"), and the United Nations Declaration on the Rights of Indigenous Peoples ("UNDRIP"), adopted by the United Nations (U.N.) General Assembly in 2007, included the right of free, prior, and informed consent, and the principle of benefit sharing.[73] The ITPC protects the rights of indigenous peoples to the natural resources on their lands and establishes procedures with which countries that retain ownership in such natural resources consult with indigenous peoples.[74] This framework also invokes benefit sharing principles in connection with the indigenous peoples' rights to the protection of their cultural traditions, non-discrimination, the right to development, and in the context of large-scale investments in agricultural land that have an impact on their right to food.[75]

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[71] G.A. Res. 69/292, ¶ 1 (June 19, 2015); *see* Elisa Morgera, *Do We Need a New Treaty to Protect Biodiversity in the Deep Seas?*, INT'L INST. SUSTAINABLE DEV.: SDG KNOWLEDGE HUB (Jan. 20, 2015) (highlighting the need for a new international agreement to address the issues presented by bio-prospecting in areas beyond national jurisdiction), http://sdg.iisd.org/commentary/policy-briefs/do-we-need-a-new-treaty-to-protect-biodiversity-in-the-deep-seas/ [https://perma.cc/8XHT-G8EA].

[72] G.A. Res. 69/292, *supra* note 71, at ¶ 1(a).

[73] *See* G.A. Res. 61/295, *supra* note 15, arts. 10, 11(2), 19, 28(1), 29(2), 32.2; ILO Convention, *supra* note 15, at arts. 2(1)(a), 15(2), 16(2).

[74] *See* ILO Convention, *supra* note 15, at arts. 6(2), 15(2). Article 6 mandates that States "consult" with indigenous peoples when considering implementing "legislative or administrative measures that may affect [indigenous peoples] directly." *Id.* at art. 6(1)(a). These "consultations" should be conducted "with the objective of achieving agreement or consent to the proposed measures," including measures concerning the exploitation of resources under Article 15. *Id.* at arts. 6(2), 15.

[75] *See* ILO Convention, *supra* note 15, at arts. 2(2)(b), 3(1), 5(a), 6(1)(c), 19; Comm. on World Food Security Forty-First Session: Making a Difference in Food Security and Nutrition, *Principles for Responsible Investment in Agriculture and Food Systems* 9, CFS 2014/41/4 Rev.1 (Oct. 13–18, 2014), http://www.fao.org/3/a-ml291e.pdf [https://perma.cc/PGT5-5NH6] ("Principle 7: Respect cultural heritage and traditional knowledge, and support diversity and innovation"); *see also* Margherita Brunori, *Principles on Responsible Investment in Agriculture and Food Systems: A (Very) Critical Analysis*, UNIV. OF EDINBURGH: BENELEX BLOG (May 21, 2015), http://www.benelexblog.law.ed.ac.uk/2015/05/21/principles-on-responsible-investment-in-agriculture-

The consent of indigenous peoples, as outlined in these instruments, is understood to be free when there is no coercion or manipulation involved in obtaining it.[76] Prior consent exists when it has been requested by the potential user of these resources sufficiently in advance of the action and respects the requirements for indigenous people's consultation processes.[77] Finally, the consent is informed when sufficient information has been provided as to the nature, purpose, scope, duration, location, economic, social, cultural, and environmental impact of the project.[78]

Arctic indigenous peoples have a strong relationship with sea and sea-ice, as exemplified by the case of the Inuit, who have based their culture and common identity largely around these two natural resources.[79] The ILO Convention and UNDRIP recognize indigenous people's rights over their land as well as over the resources in their ancestral domain, particularly as those resources are tied to their subsistence and traditional life, including those found on the coastal seas and sea-ice.

Article 14 of the ILO Convention recognizes indigenous peoples ownership of the land they occupy as well as lands they share and have "traditionally had access for their subsistence and traditional activities."[80] The ILO Convention's Article 15 establishes indigenous peoples rights to "participat[ion] in the use, management and conservation" of natural resources on these lands.[81] Although there is no specific or direct reference to coastal seas or sea-ice in the final Article 26 text, Article 25 of UNDRIP recognizes a right to "spiritual relationship[s] with . . . waters and coastal seas."[82]

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and-food-systems-a-very-critical-analysis/ [https://perma.cc/552L-MLQZ] (discussing Principle 7's commitment to honoring cultural heritage within the context of benefit sharing).

[76] U.N. Econ. & Soc. Council, Permanent Forum on Indigenous Issues, Rep. of the International Workshop on Methodologies Regarding Free, Prior and Informed Consent and Indigenous Peoples, ¶¶ 23–24, 46(i), U.N. Doc. E/C.19/2005/3 (Feb. 17, 2005), https://www.humanrights.gov.au/sites/default/files/content/social_justice/conference/engaging_communities/report_of_the_international_workshop_on_fpic.pdf [https://perma.cc/NW86-BWFT] [hereinafter *Methodologies Report*].

[77] *Id.* at ¶ 46.

[78] *See id.*

[79] TIMO KOIVUROVA ET AL., BACKGROUND PAPER: INDIGENOUS PEOPLES IN THE ARCTIC 17 (2008), http://arctic-transform.org/download/IndigPeoBP.pdf [https://perma.cc/Z9EH-4YJ6]. Inuit territory covers Canada, Alaska, Greenland, the coastal region of Chukotka in Russia, and parts of the Arctic Ocean and the northern Atlantic Ocean. INUIT CIRCUMPOLAR COUNCIL, A CIRCUMPOLAR INUIT DECLARATION ON SOVEREIGNTY IN THE ARCTIC § 1.1 (2009), http://inuit.org/fileadmin/user_upload/File/declarations/ICC_Sovereignty_Declaration_2009_pages.pdf [https://perma.cc/NKE9-C6XH] [hereinafter ICC DECLARATION]. International soft law may consider portions of sea as part of indigenous peoples' territory. *See* G.A. Res. 61/295, *supra* note 15, at art. 26; Sumudu Atapattu, *Climate Change, Indigenous Peoples and the Arctic: The Changing Horizon of International Law*, 22 MICH. ST. INT'L L. REV. 377, 387–88 (2013).

[80] ILO Convention, *supra* note 15, at art. 14(1).

[81] *Id.* at art. 15(1).

[82] G.A. Res. 61/295, *supra* note 15, at art. 25. Of note, the draft text of the United Nations Declaration of Rights of Indigenous Peoples ("UNDRIP") Article 26 announced the "right to own,

Therefore, this framework strongly encourages policymakers to consider this inherent right to make use of marine resources in order to ensure that these communities are involved in the decision-making process linked to marine resources management.[83]

Both the ILO and the UNDRIP have limited application in the case of bio-prospecting in the Arctic. Only two of the eight Arctic countries are parties to the ILO Convention.[84] In fact few, mostly South American countries, have so far ratified the ILO Convention.[85] Sweden and Finland, being strongly involved in negotiations over land and natural resources with the Saami people, have so far refused to ratify the ILO Convention.[86] The United States, Canada, and Russia have argued that it threatens or infringes upon fundamental domestic legislation.[87]

Similarly, the UNDRIP is considered a soft law instrument and therefore it is not legally binding.[88] The United States and Canada bitterly opposed

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develop, control and use the lands and territories, including the total environment of the lands, air, waters, coastal seas, sea-ice, flora and fauna and other resources which they have traditionally owned or otherwise occupied or used." U.N. Econ. & Soc. Council, Comm'n on Human Rights, Rep. of the Sub-Commission on Prevention of Discrimination and Protection of Minorities on its Forty-Sixth Session, art. 26, U.N. Doc. E/CN.4/1995/2, E/CN.4/Sub.2/1994/56, Annex (Oct. 28, 1994), http://ap.ohchr.org/documents/alldocs.aspx?doc_id=440 [https://perma.cc/2AHW-AD3Z] (from the link provided, navigate to the first document, and select language in the left column).

[83] *See* ROBERT CHARLES G. CAPISTRANO, DIV. FOR OCEAN AFFAIRS & THE LAW OF THE SEA, INDIGENOUS PEOPLES, THEIR LIVELIHOODS AND FISHERY RIGHTS IN CANADA AND THE PHILIPPINES: PARADOXES, PERSPECTIVES AND LESSONS LEARNED 15, 47 (2010), http://www.un.org/depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/capistrano_0910_philippines.pdf [https://perma.cc/YNB9-YXQB]; Svein Jentoft, *The Human Rights of Small-Scale Fishing People*, SAMUDRA REP., Nov. 2008, at 13, 14; Monica E. Mulrennan & Colin H. Scott, *Mare Nullius: Indigenous Rights in Saltwater Environments*, 31 DEV. & CHANGE 681, 699 (2000).

[84] *Ratifications of C169—Indigenous and Tribal Peoples Convention, 1989 (No. 169)*, INT'L LABOUR ORG.: NORMLEX, http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11300:0::NO::P11300_INSTRUMENT_ID:312314 [https://perma.cc/623X-63AF] (out of the Arctic states, only Norway and Denmark, on behalf of Greenland, have ratified the ILO Convention).

[85] *Id.* The other countries that have ratified the ILO Convention are Argentina, Bolivia, Brazil, Central African Republic, Chile, Columbia, Costa Rica, Dominica, Ecuador, Fiji, Guatemala, Honduras, Mexico, Nepal, Netherlands, Nicaragua, Paraguay, Peru, Spain, and Venezuela. *Id.*

[86] *See* James Anaya (Special Rapporteur on the Rights of Indigenous Peoples), *The Situation of the Sami People in the Sápmi Region of Norway, Sweden and Finland*,¶¶ 26, 31, 38, U.N. Doc. A/HRC/18/35/Add.2 (June 6, 2011), http://www.ohchr.org/Documents/Issues/IPeoples/SR/A-HRC-18-35_en.pdf [https://perma.cc/KK8N-TPBA].

[87] *See* KOIVUROVA ET AL., *supra* note 79, at 23.

[88] *See id.*; Tara Ward, *The Right to Free, Prior, and Informed Consent: Indigenous Peoples' Participation Rights Within International Law*, 10 NW. J. INT'L HUM. RTS. 54, 58 (2011). Although few soft law instruments do it expressly, some soft law instruments and institutions have supported the right of free, prior, and informed consent of indigenous peoples. For example the resolutions of the U.N. Human Rights Committee, the Committee on Economic, Social and Cultural Rights, and particularly the U.N. Permanent Forum on Indigenous Issues have to be mentioned. *See* Ward, *supra*, at 56, 61. From a regional approach, particularly the Inter-American Commission for Human Rights must be considered as well as the African Commission on Human and Peoples' Rights. *Id.* at 66. Being a Declaration adopted by the U.N. General Assembly,

approval of UNDRIP in 2007, but both countries reviewed their initial positions and finally supported and fully endorsed the Declaration in 2010.[89]

Notwithstanding these constraints, the requirement of free, prior, and informed consent is recognized by the ILO and UNDRIP and should be applied when granting access to marine genetic resources for exploration and exploitation and to the traditional knowledge associated to with those resources. Such application must be considered either by directly claiming access to the resources according to the provisions of national law to carry out biotechnology activities, or by calling for consultations with the interested actors for the purpose of obtaining their consent. In either case, the free, prior, and informed consent of the indigenous peoples is required in order to guarantee respect for their rights pertaining to economic, social, and cultural development. [90]

Therefore, requiring prior, free, and informed consent is a determinative principle that should guide any authorization procedure to operate in the lands, and with the resources, of indigenous peoples. As some authors argue, this procedure strongly requires "good faith and culturally appropriate consultation procedures" and affects the exploration or exploitation of any resources within the lands of indigenous peoples or any actions that would impact the traditional use of their resources.[91]

UNDRIP was not subject to ratification and does not impose legal obligations on the countries. *See id.* at 59. UNDRIP has relevance, however, because it may reflect obligations for the countries under existing customary law or of general principles, as recognized by the International Court of Justice. INT'L LABOUR STANDARDS DEP'T, ILO STANDARDS AND THE UN DECLARATION ON THE RIGHTS OF INDIGENOUS PEOPLES 2 n.4 (2007), http://www.ilo.org/wcmsp5/groups/public/—-ed_norm/—-normes/documents/publication/wcms_100792.pdf [https://perma.cc/5BRP-SYUX]. It could also serve as a basis for the development of new internationals norms in the future if there is a States' consistent practice. *See* Ward, *supra,* at 58, 66.

[89] *See Canada's Statement of Support on the United Nations Declaration on the Rights of Indigenous Peoples*, INDIGENOUS & N. AFFAIRS CAN. (July 30, 2012), https://www.aadnc-aandc.gc.ca/eng/1309374239861/1309374546142 [https://perma.cc/EQ3N-6AV8]; U.S. DEP'T OF STATE, ANNOUNCEMENT OF U.S. SUPPORT FOR THE UNITED NATIONS DECLARATION ON THE RIGHTS OF INDIGENOUS PEOPLES 1 (2010), http://www.achp.gov/docs/US%20Support%20for%20Declaration%2012-10.pdf [HTTPS://PERMA.CC/P57T-QQX2]; *see also* U.N. Econ. & Soc. Council, Permanent Forum on Indigenous Issues, *Report on the Fifteenth Session*, ¶ 18, U.N. Doc E/2016/43-E/C.19/2016/11 (2016), http://www.un.org/esa/socdev/unpfii/documents/2016/15th-session/Report_of_the_Permanent_Forum_15th_Session_unedited.pdf [https://perma.cc/78UJ-HGZU] (noting the "endorsement by Canada of the United Nations Declaration" and recognizing it as full participation).

[90] A. Pigrau Solé et al., *Union Européenne et Droits des Peuples Autochtones de l'Arctique: Terres, Ressources et Consentement*, *in* PEUPLES AUTOCHTONES ET INTÉGRATIONS RÉGIONALES, RÉSEAU THÉMATIQUE PLURIDISCIPLINAIRE BIODISCEE, CNRS INEE (Nathalie Herve-Fournereau ed., forthcoming 2017).

[91] ELISA MORGERA ET AL., UNRAVELING THE NAGOYA PROTOCOL: A COMMENTARY ON THE NAGOYA PROTOCOL ON ACCESS AND BENEFIT-SHARING TO THE CONVENTION ON BIOLOGICAL DIVERSITY 150 (2014); *see* Ward, *supra* note 88, at 64.

B. The ILO Convention on Indigenous and Tribal Peoples

The framework of the ILO Convention states very little about free, prior, and informed consent, primarily focusing on the rights of consultation and participation. Article 16 is the sole article that expressly mentions the free and informed consent of indigenous people.[92] Under Article 16, the consent requirement only applies to necessary relocation of indigenous communities as a safeguard to prevent displacement.[93]

In contrast, Article 6 of the ILO Convention refers to a general obligation to consult with indigenous peoples before a government takes legislative or administrative action.[94] This consultation requirement applies whether the regulations are applied at the state or national level. To satisfy this requirement, governments must engage in "in good faith and in a form appropriate to the circumstances" seeking to obtain consent or agreement.[95]

Although a government is required to consult with indigenous peoples, it is not required to obtain their consent. Rather, what is required is a consultation process that might lead to the achievement of this consent. In this way, the ILO provides that indigenous people have an opportunity to influence the decision-making process. The consultation required by the ILO is an administrative process that might be conducted according to the local indigenous peoples' laws and practices and is presented as the compulsory procedure in any restriction of rights to land and resources.[96] The ILO Convention also imposes consultation procedures in circumstances when the country owns minerals, the subsurface, or other resources.[97]

In detailing this principle, the ILO Convention sets out the right of indigenous peoples to participate in the formulation, application and evaluation of national and regional development plans that may directly affect them.[98] The ILO Convention also provides a right to decide their own priorities as well as the right to participate in using the natural resources on their lands.[99] That means that indigenous people may not only influence natural

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[92] *See* ILO Convention, *supra* note 15, at art. 16(2).

[93] *Id.*

[94] *Id.* at art. 6(1)(a).

[95] *Id.* at art. 6(2).

[96] Fergus MacKay, *Indigenous Peoples' Right to Free, Prior and Informed Consent and the World Bank's Extractive Industries Review*, SUSTAINABLE DEV. L. & POL'Y, Summer 2004, at 43, 49.

[97] *See* ILO Convention, *supra* note 15, at arts. 15(2), 17(2). The Convention stipulates that governments "shall establish or maintain procedures through which they shall consult these peoples . . . before undertaking or permitting any programs for the exploration or exploitation of such resources pertaining to their lands." *Id.* at art. 15(2). Stating further, "whenever consideration is being given to their capacity to alienate their lands or otherwise transmit their rights outside their own community." *Id.* at 17(2).

[98] *See id.* at art. 7.

[99] *Id.* at arts. 7(1), 15(1).

resource exploration or exploitation projects, but also may actively participate on their development. Furthermore, the ILO Convention stipulates that countries have an obligation to establish consultation procedures with indigenous peoples before embarking on programs to explore and exploit these resources and that these communities should "wherever possible participate in the benefits of such activities."[100]

C. The U.N. Declaration on the Rights of Indigenous Peoples

Meanwhile, the UNDRIP recognizes in Article 31 the rights of indigenous peoples in a similar manner to the protections under the ILO Convention:

> [T]o maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts.[101]

To guarantee this protection, the UNDRIP refers specifically to the principle of prior, free, and informed consent at different moments. Article 19 stipulates generally that countries must engage in a good faith consultation process to achieve consent from indigenous peoples before taking government actions.[102] From the same perspective, Article 32 calls for the principle of consent to be generally applied for "any project affecting their lands or territories and other resources" and instills the right of indigenous peoples to develop strategies and plans for the use of their resources and land.[103] Furthermore, Article 10 requires consent in situations involving the relocation of indigenous communities, and Article 29 considers consent essential when dealing with the "storage or disposal of hazardous materials" in the territories of these indigenous peoples.[104]

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[100] *Id.* at art. 15(2).

[101] G.A. Res. 61/295, *supra* note 15, at art. 31.

[102] *Id.* at art. 19.

[103] *Id.* at art. 32(2).

[104] *Id.* at arts. 10, 29(2). Of note, the Inuit Circumpolar Council's Declaration of Sovereignty in the Arctic, signed in 2009, prioritizes the rights of the Inuit "to freely determine our political status, freely pursue our economic, social, cultural and linguistic development, and freely dispose of our natural wealth and resources." ICC DECLARATION, *supra* note 79, at § 1.4. Referring to the rights recognized by the UNDRIP, the Declaration of Sovereignty expressly mentions "the right [of the Inuit] to own, use, develop and control our lands, territories and resources and the right to ensure that no project affecting our lands, territories or resources will proceed without our free and informed consent." *Id.*

Consent is specifically required before a country adopts certain measures, and its absence might entail a "just, fair and equitable compensation" for land and resources used or taken without consent.[105] The international courts have upheld that the exploitation of natural resources tied to the survival of the indigenous people may not be jeopardized by major developments or investments projects and requires effective participation and consent of the affected community.[106]

The UNDRIP also refers in general terms to the related indigenous peoples' right to participate in the "political, economic, social and cultural" life of the country and have a role in the decision-making involving any issues that may impact their rights.[107] In particular, Article 27 stipulates that governments must establish "a fair, independent, impartial, open and transparent process" for formal judgments regarding land matters that takes the customs and laws of indigenous peoples into consideration.[108]

The UNDRIP also takes account of the obligation to adopt particular measures in consultation with indigenous peoples in a number of provisions, but only specifies that consultation must be carried out in order to obtain their free, prior, and informed consent in few sections.[109] While drafted in terms of reaching an agreement or obtaining consent, using the terms prior, free, and informed illustrate how the consultation should be carried out. But the indigenous community has an absolute right to veto the adoption of the measure. Nevertheless, these considerations apply to all the provisions that deal with consultation and not just those that specifically include the expression "in order to obtain their free, prior and informed consent."[110]

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[105] G.A. Res. 61/295, *supra* note 15, at art. 28(1).

[106] *See* Ctr. for Minority Rights Dev. v. Kenya, Communication 276/2003, Afr. Comm'n on Human & Peoples' Rights [Afr. Comm'n H.P.R.], ¶ 291, (Nov. 25, 2009), http://www.achpr.org/files/sessions/46th/comunications/276.03/achpr46_276_03_eng.pdf [https://perma.cc/6AUB-ZCGM] (holding that if the State undertakes "any development or investment projects that would have a major impact within the Endorois territory, the State has a duty to not only consult with the community, but also to obtain their free, prior, and informed consent, according to their customs and traditions"); Saramaka People v. Suriname, Preliminary Objections, Merits, Reparations, and Costs, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 172, ¶¶ 134–137 (Nov. 28, 2007) (concluding that the Saramaka people had the right a right to use the resources on their land and holding that "in addition to the consultation that is always required when planning development or investment projects . . . the safeguard of effective participation . . . must be understood to additionally require the free, prior, and informed consent of the Saramakas"); *see also* Pigrau Solé et al., *supra* note 90, at 10 (discussing the case of the Saramaka people).

[107] G.A. Res. 61/295, *supra* note 15, at art. 5; *see id.* at art. 18.

[108] *Id.* at art. 27.

[109] *See id.* at arts. 15(2), 36(2), 38.

[110] G.A. Res. 69/2, ¶ 20 (Sept. 22, 2014).

III. FREE, PRIOR, AND INFORMED CONSENT AND ACCESS TO MARINE GENETIC RESOURCES IN THE LEGAL INTERNATIONAL BIODIVERSITY REGIME

From the perspective of protecting biodiversity, there are two important international instruments: the Convention on Biological Diversity ("CBD"), signed in Rio de Janeiro in 1992, and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization of 2010 ("Nagoya Protocol" or "the Protocol").[111] These instruments deal directly with the fair and equitable participation of indigenous peoples in the benefits deriving from the commercial exploitation of genetic resources as well as free, prior, and informed consent.

Although the exploration and use of marine genetic resources promises potential socioeconomic benefits for biotechnology companies, questions of justice and fairness remain when such activities affect Arctic indigenous populations.[112] The role of the indigenous communities is key to ensuring that the benefits derived from the exploitation of genetic resources are shared fairly and equitably and that the traditional knowledge and values of these peoples are respected.[113]

Article 1 of the CBD guarantees the interests of indigenous populations by recognizing the principle of access and fair and equitable benefit sharing of genetic resources.[114] This concept relates to how and to what extent genetic resources can be accessed and how the benefits derived from the commercial exploitation of genetic resources should be shared between those who utilize the resources and those who provide them in a way that is

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[111] *See* Convention on Biological Diversity, *supra* note 16; Nagoya Protocol, *supra* note 16.

[112] *See* Atapattu, *supra* note 79, at 381; Janis Geary et al., *Access and Benefits Sharing of Genetic Resources and Associated Traditional Knowledge in Northern Canada*, 72 INT'L J. CIRCUMPOLAR HEALTH 21,351, 21,357 (2013). A study on the indigenous peoples of northern Canada revealed multiple examples of irregular activities in carrying out research that had a direct effect on these communities. *See* MICHAEL SAINI, A SYSTEMATIC REVIEW OF WESTERN AND ABORIGINAL RESEARCH DESIGNS: ASSESSING CROSS-VALIDATION TO EXPLORE COMPATIBILITY AND CONVERGENCE 5, 7 (2012), http://www.nccah-ccnsa.ca/Publications/Lists/Publications/Attachments/54/review_research_designs_web.pdf [https://perma.cc/TK93-7MEQ]. For example, drilling activities may have a significant impact on biological processes and might affect the specific socio-economic status and culture of indigenous communities. *See* Atapattu, *supra* note 79, at 381.

[113] Elisa Morgera & Elsa Tsioumani, *The Evolution of Benefit Sharing: Linking Biodiversity and Community Livelihoods*, 19 REV. OF EURO. COMP. & INT'L ENVTL. L. 150, 162, 173 (2010). Benefits can be classified according to the time when they accrue, e.g., start-up benefits, process benefits, product benefits, or the kind of benefit, e.g., "monetary, software or hardware benefits, moral benefits such as recognition in publications or 'relation' benefits such as establishing or entering networks . . . ." Conference of the Parties to the Convention on Biological Diversity, *Synthesis of Case-Studies on Benefit Sharing*, ¶¶ 66–67, U.N. Doc. UNEP/CBD/COP/4/Inf.7 (May 4, 1998), https://www.cbd.int/doc/meetings/cop/cop-04/information/cop-04-inf-07-en.pdf [https://perma.cc/RV5N-5C29] [hereinafter *Benefit Sharing Case Studies*].

[114] *See* Convention on Biological Diversity, *supra* note 16, at art. 1.

fair and equitable. How fair and equitable this division should be is not clear, which presented challenges for the Conference of the Parties to the Convention on Biological Diversity.[115]

In short, the notion of benefit sharing is intended to address the concerns of developing countries regarding use of their natural wealth by industrialized nations. Benefit sharing seeks to guarantee broad access to resources, not only by biotechnology companies, and also that all parties using the resources share the benefits arising from their utilization. This mutuality affects any use of natural resources and any measure that may have a negative impact on the rights of indigenous peoples.[116] Therefore, the CBD takes shape as an instrument that encourages sustainable use of genetic resources by the various actors involved and is grounded on the principle of free, prior, and informed consent.

A. The Convention on Biological Diversity

Most of the world's genetic resources are subject to the CBD, signed in Rio de Janeiro in 1992 and in force since 1993.[117] The CBD includes useful elements for determining the scope of the concept of sharing the benefits arising from the exploitation of terrestrial and marine genetic resources. The CBD has some peculiarities concerning benefit sharing that must be considered.

Notably, Article 15 requires that parties obtain free, prior, and informed consent before accessing genetic resources.[118] In obtaining consent under Article 15, countries may reference the Bonn Guidelines on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilization, adopted in April 2002 by the CBD.[119] The Bonn Guidelines provide further detail on prior informed consent, stating "[e]lements of a prior informed consent system may include: (a) [c]ompetent authority(ies) granting or providing for evidence of prior informed consent; (b) [t]iming and deadlines; (c) [s]pecification of use; (d) [p]rocedures for obtaining prior informed consent; (e) [m]echanism for consultation of relevant stakeholders; (f) [p]rocess."[120] The Bonn Guidelines aim to guarantee that before users obtain

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[115] Bram De Jonge, *What Is Fair and Equitable Benefit-Sharing?*, 24 J. AGRIC., ENV'T & ETHICS 127, 128 (2011) (explaining the complexity of the concept of fair and equitable benefit sharing). The Conference of the Parties to the Convention on Biological Diversity noted that "[w]hether the sharing of benefits is 'fair and equitable' is a question that can only be answered after an in-depth analysis," and further, that the question "depends on the value system upon which the judgment is based." *Benefit Sharing Case Studies*, *supra* note 113, at ¶ 39.

[116] *See* Morgera & Tsioumani, *supra* note 113, at 160, 164.

[117] *See* Convention on Biological Diversity, *supra* note 16, at arts. 2, 4, 15.

[118] *Id.* at art. 15(5).

[119] *See* BONN GUIDELINES, *supra* note 55, at III, 9.

[120] *Id.* at 9.

access to genetic resources, those affected are informed about the potential uses planned so that they can make a fully informed decision.

The CBD works on the assumption that genetic resources are subject to the single national sovereignty of the country where they are located. Therefore, its scope is limited to the components of biological diversity within areas of national jurisdiction, leaving specific regulation up to each Arctic country.[121] That explains why, for instance, Norway, Greenland, and, to some extent, Iceland, have adopted specific domestic regulation concerning access and benefit sharing, but Sweden and Denmark have not.[122]

Only if "processes or activities," are controlled by a party to the CBD in the high seas or in the Area, such as marine research and bioprospecting, those activities fall within the scope of the CBD.[123] Therefore, in principle, resources found outside of national jurisdictions, both at the water column or the deep seabed, fall outside the scope of the CBD, unless the research or bio-prospecting activities are interpreted in a consistent manner with Part XII of UNCLOS.[124] Under UNCLOS, Part XII establishes certain obligations for the countries to protect and preserve the marine environment, and Article 237 provides the basis to apply these protections more broadly.[125]

In this regard, Article 22 of the CBD maintains that the CBD should be applied consistent with UNCLOS, as far as the marine environment is concerned.[126] The wording of the Nagoya Protocol's Preamble furthermore supports the inclusion of marine genetic resources in areas beyond national jurisdiction within the CBD's material scope, when it concerns "transboundary situations or for which it is not possible to grant or obtain prior informed consent."[127]

The CBD only regulates relations between contracting parties, and does not consider the intervention of other parties, such as non-governmental actors or indigenous communities.[128] Accordingly, the Arctic region presents a singular challenge in that interested countries are both users and suppliers of marine genetic resources. In ordinary situations as-

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[121] *See* Convention on Biological Diversity, *supra* note 16, at art. 4(a).

[122] *See Bi-Polar Disorder*, supra note 7, at 50–51; *Scramble for Arctic Resources*, *supra* note 32, at 143–44.

[123] Convention on Biological Diversity, *supra* note 16, at art. 4(b); *see* Allen, *supra* note 43, at 652–53; Drankier et al., *supra* note 50, at 409.

[124] *See* UNCLOS, *supra* note 13, at arts. 256, 257; Convention on Biological Diversity, *supra* note 16, at art. 4(b); Allen, *supra* note 43, at 639, 654.

[125] *See* UNCLOS, *supra* note 13, at pt. XII, art. 237; Bonfanti & Trevisanut, *supra* note 52, at 208–10.

[126] *See* Convention on Biological Diversity, *supra* note 16, at art. 22(2).

[127] Nagoya Protocol, *supra* note 16, at 2–4.

[128] Convention on Biological Diversity, *supra* note 16, at art. 4; *see* De Jonge, *supra* note 115, at 142; Drankier et al., *supra* note 50, at 427–28.

sociated with the use of genetic resources, there tends to be a conflict between the developing countries that own and supply the resources and the developed countries that use or exploit them.[129] Where parties represent both sides of the conflict as in the Arctic region, unique challenges arise.

Seeking to solve these practical difficulties, the Bonn Guidelines recognize this challenge and recommend that a benefit sharing system be developed on a regional and national level.[130] The challenge now is ensuring the fair and equitable sharing of the benefits with the indigenous peoples within the territory of those countries. Such consideration will guarantee the protection of their environmental, social and economic interests.

The CBD's Article 15 acknowledges a country's sovereign rights to determine access to genetic resources and establishes that parties have discretion in determining the appropriate way to take action with the goal of an equitable sharing structure.[131] Article 15 does grant the right to the sovereign country—not to the indigenous peoples in whose territory genetic resources are located—and only requires the country to adopt the necessary measures to share benefits with the indigenous communities.[132] In short, this structure recognizes the role of these indigenous communities as custodians of genetic resources, but does not sufficiently guarantee their participation in the benefits arising from their use.

Article 15 of the CBD limits access to conditions that must be mutually agreed between the Party supplying the resources, which is assumed to be a country, and the potential user.[133] The adoption of a mutual agreement is the chief means of authorizing access to genetic resources, monitoring their subsequent use, and establishing the fair and equitable sharing of the benefits. On the one hand, benefit sharing could be a condition for obtaining prior, free, and informed consent, thereby contributing to the negotiation of mutually agreed terms. On the other hand, it could also be considered the

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[129] *See* BONN GUIDELINES, *supra* note 55, at III; *Bi-Polar Disorder*, *supra* note 7, at 45; Désirée M. McGraw, *The CBD—Key Characteristics and Implications for Implementation*, 11 RECIEL 17, 17 (2002). Some examples of this conflict in Latin American countries include the cases of Brazil, Colombia, Costa Rica, Ecuador, Peru, and Bolivia. *See* Carlos M. Correa, *Do National Access Regimes Promote the Use of Genetic Resources and Benefit Sharing?*, 4 INT. J. ENV'T & SUSTAINABLE DEV. 444, 447–50, 452–54 (2005).

[130] *See* BONN GUIDELINES, *supra* note 55, at 8.

[131] Convention on Biological Diversity, *supra* note 16, at arts. 15(1), (7).

[132] *See id.* at art. 15(1).

[133] *See id.* at art. 15(4). Likewise, in addition to regulating the share of benefits arising from their use, Article 8(j) also promotes a wider application of the traditional knowledge associated with genetic resources through the approval and involvement of the holders, though it does not specifically call for the free, prior, and informed consent. *See id.* art. 8(j). Meanwhile, Article 19 stipulates that each party should "promote and advance priority access on a fair and equitable basis" to the biotechnology results and benefits arising from the use of genetic resources. *Id.* art. 19(2).

end result of the free, prior, and informed consent process, providing definite expression of the mutual agreement given by indigenous peoples on the basis of their own preferences.[134]

B. The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization

To complement the benefit sharing provisions in the CBD, the Nagoya Protocol was adopted on October 29, 2010, and came into force on October 12, 2014.[135] Of the five coastal Arctic countries, only Norway, Denmark (on behalf of Greenland), and Sweden have ratified it so far.[136] Canada, the United States, and Russia have yet to even sign it.[137]

The Nagoya Protocol aims to increase legal certainty and accountability for those who provide and use genetic resources. To further this goal, the Nagoya Protocol sets out a series of obligations to supplement domestic legislation by defining the genetic resources and the contractual obligations that need to be written in mutually agreed terms.[138] In addition to the requirement to negotiate agreements with indigenous peoples on mutually agreeable terms, the Protocol insists on the need of the prior, free, and informed consent of the holders of genetic resources.[139] The Protocol retains the system of prior, free, and informed consent established by the CBD and incorporates a certificate of compliance.[140]

For the first time in a legally binding text, the Nagoya Protocol addresses the connection of benefit sharing for local communities and indige-

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[134] *See* Morgera & Tsioumani, *supra* note 113, at 152–53. In particular, the Bonn Guidelines "may serve as inputs when developing and drafting legislative, administrative or policy measures on access and benefit-sharing . . . under mutually agreed terms for access and benefit-sharing." BONN GUIDELINES, *supra* note 55, at 1. The Bonn Guidelines should also help parties "in the development of mutually agreed terms to ensure the fair and equitable sharing of benefits." *Id*. at 12.

[135] *See* Nagoya Protocol, *supra* note 16, at 1.

[136] *Parties to the Nagoya Protocol*, CONVENTION ON BIOLOGICAL DIVERSITY, https://www.cbd.int/abs/nagoya-protocol/signatories/ [https://perma.cc/4BJX-L6JA]. Norway, Denmark, and Sweden ratified the Nagoya Protocol in October 2013, May 2014, and September 2016, respectively. *Id.*

[137] *See id.*

[138] *See* Nagoya Protocol, *supra* note 16, at arts. 2(c), 15, 16, 18.

[139] *See id.* at arts. 5(2), 6(2).

[140] *See id.* at art 17. This certificate is issued by the national authority of the provider country once it confirms that its domestic framework allowing access has been complied with, i.e. when previous and informed consent has been obtained and the mutually agreed upon terms have been negotiated, at which point the certificate becomes proof that the genetic resources in question have been acquired legally. *Id.* This national certificate of compliance becomes internationally recognized once the national issuing authority makes it available to the Protocol's Access and Benefit-sharing Clearing-house. *Id.* at art. 14, 17(2); *see* Convention on Biological Diversity, *supra* note 16, at art. 18(3).

nous peoples to prior, free, and informed consent as a condition for granting access to genetic resources. Notably, Article 6 requires each party to obtain prior informed consent from local communities and indigenous peoples in order to access genetic resources "subject to domestic access and benefit sharing legislation or regulatory requirements . . . unless otherwise determined by that Party."[141] Article 6 also distinguishes between the consent from the country and the consent from the local communities and indigenous peoples, establishing the goal of consent of from all parties that possess a right to the resources.[142] Article 7 also extends the consent requirement to the access to traditional knowledge of indigenous peoples, which covers a wide range of fields including the environment and resource use.[143] Some scholars contend, the new consent requirement in the Nagoya Protocol creates a "concept of community" that empowers indigenous peoples to control the resources and benefits and to prevent projects from jeopardizing their lands and resources.[144]

Under both Article 6 and 7 of the Nagoya Protocol, the country providing genetic resources shall take measures with the aim of ensuring that the prior informed consent or approval and involvement of indigenous peoples is obtained and it notably also affects the relationship between the indigenous communities and private companies. Articles 15 and 16 both explain that these efforts should be "appropriate, effective and proportionate."[145] Article 12 also requires that countries must work with the indigenous peoples to communicate traditional knowledge to potential users of genetic resources.[146]

In 2014, the Conference of the Parties to the CBD requested the adoption of guidelines on prior, informed consent and the fair and equitable utilization of the traditional knowledge of the local indigenous peoples.[147] These guidelines form part of the renewed effort to put into practice some of the elements of the CBD working program on Article 8(j) regarding traditional knowledge.[148] The Conference requested experiential and practical

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[141] Nagoya Protocol, *supra* note 16, at art. 6(1).

[142] *See id.* at art. 6.

[143] *See id.* at art. 7.

[144] MORGERA ET AL., *supra* note 91, at 148.

[145] Nagoya Protocol, *supra* note 16, at arts. 15, 16. Of course, those regulations apply in addition to the international regulations on the protection of human rights. *See Methodologies Report*, *supra* note 76, at ¶ 16.

[146] Nagoya Protocol, *supra* note 16, at art. 12.

[147] Conference of the Parties to the Convention on Biological Diversity, *Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity*, 8, U.N. Doc. UNEP/CBD/COP/DEC/XII/12 (Oct. 13, 2014), https://www.cbd.int/doc/decisions/cop-12/cop-12-dec-12-en.pdf [https://perma.cc/53QY-5XQW] [hereinafter CBD Decision].

[148] Elisa Morgera, *Towards International Guidelines on Prior Informed Consent and Fair and Equitable Benefit-Sharing from the Use of Traditional Knowledge*, UNIV. OF EDINBURGH: BENELEX BLOG (Dec. 9, 2015), http://www.benelexblog.law.ed.ac.uk/2015/12/09/towards-international-

information and examples of how to best conduct the process of obtaining free, prior, and informed consent and access to traditional knowledge.[149] Twelve countries and two associations responded to the call, including Canada**,** Finland, Norway, Sweden, and the Saami Parliament.[150]

The first draft of the guidelines was presented to the CBD Working Group at meeting in Montreal in November 2015.[151] Final guidelines were adopted at the last Conference of the Parties to the CBD in December 2016.[152] The principle of prior informed consent is understood in the voluntary Guidelines as a "*continual* process of building mutually beneficial, *ongoing* arrangements between users and holder of traditional knowledge of indigenous peoples and local communities."[153]

CONCLUSION

With climate change and growing access to the Arctic's natural resources, bio-prospecting is an important development in the use of natural resources, as the increasing number of marine genetic patent claims from

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guidelines-on-prior-informed-consent-and-fair-and-equitable-benefit-sharing-from-the-use-of-traditional-knowledge/ [https://perma.cc/NX44-9PPA]; *see* CBD Decision, *supra* note 147, at Annex, pt. II, ¶ 5.

[149] Ad Hoc Open-Ended Inter-Sessional Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity, *Compilation of Views and Information Received on Sub-Tasks (i), (ii), (iii) and (iv) Concerning How Tasks 7, 10 and 12 Could Best Contribute to Work Under the Convention and to the Nagoya Protocol*, U.N. Doc. UNEP/CBD/WG8J/9/INF/1 (July 17, 2015), https://www.cbd.int/doc/meetings/tk/wg8j-09/information/wg8j-09-inf-01-en.pdf [https://perma.cc/V642-D3FG] [hereinafter *Compilation of Views*]. The submissions were analyzed in November 2015. *See* Ad Hoc Open-Ended Inter-Sessional Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity, *A Glossary of Relevant Key Terms and Concepts to Be Used Within the Context of Article 8(j) and Related Provisions*, U.N. Doc. UNEP/CBD/WG8J/9/2/Add.1 (Sept. 24, 2015), https://www.cbd.int/doc/meetings/tk/wg8j-09/official/wg8j-09-02-add1-en.pdf [https://perma.cc/69LN-H7A2].

[150] *See Compilation of Views*, *supra* note 149, ¶ 2. Canada has created the Area Co-Management Committees and adopted a global Inuit Impact and Benefit Agreement associated with all of Environment Canada's existing and proposed National Wildlife Areas and Migratory Bird Sanctuaries, 13 of which are linked to the Nunavut Land Claim Agreement. *Id.* at 3–4.

[151] Ad Hoc Open-Ended Inter-Sessional Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity, *Proposed Guidelines for the Development of Mechanisms, Legislation or Other Appropriate Initiatives to Ensure the Prior Informed Consent or Approval and Involvement of Indigenous Peoples and Local Communities for Accessing Their Knowledge, Innovations and Practices, the Fair and Equitable Sharing of Benefits Arising from the Use and Application of Such Knowledge, Innovations and Practices and for Reporting and Preventing Unauthorized Access to Such Knowledge, Innovations and Practices*, U.N. Doc. UNEP/CBD/WG8J/9/2 (Sept. 24, 2015), https://www.cbd.int/doc/meetings/tk/wg8j-09/official/wg8j-09-02-en.pdf [https://perma.cc/4PFX-4FKC].

[152] Conference of the Parties to the Convention on Biological Diversity, *Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity*, U.N. Doc. CBD/COP/DEC/XIII/18 (Dec. 17, 2016), https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-18-en.pdf [https://perma.cc/429R-SKLP].

[153] *Id.* Annex, para. 8 (emphasis added).

the area shows, and also raises an important challenge to international law. While there is growing evidence of scientific and commercial interest in the biotechnology potential of the wild genetic resources of the Arctic region, sustainable use of the resources is fundamental to the welfare of Arctic communities. Arctic indigenous peoples are therefore entitled to be informed of any potential use of these resources, to consent to access, and to share benefits from the exploitation of these marine genetic resources. Although sea and coastal zone management largely remains the responsibility of individual nations, international human rights law entitles these communities who might be affected to claim respect for participatory rights, including taking part in the decision-making procedures.

Bio-prospecting activities, especially when they affect marine genetic resources are currently the subject of extensive discussion in various international forums. Due to an insufficient international legal framework, countries and even non-governmental actors such as corporations, as well as local communities and indigenous peoples, have traditionally lacked a clear policy on the bio-prospecting requirements that should underscore benefit sharing agreements.

At the moment, three main legal international frameworks overlap in the regulation of these activities, especially as far as indigenous peoples are concerned, the law of the sea, human rights law, and biodiversity regulation. This patchwork of legal instruments introduces in several ways—and in spite of the high degree of vagueness of terms—the fundamental principle of free, prior and informed consent and the principle of access and fair and equitable benefit sharing. These instruments mainly affect marine genetic resources under national jurisdiction. Further, they mainly address genetic resources primarily owned by developing countries, even though the developed countries' biotechnology companies do most of the exploitation and use.

The situation presented in this Article is slightly different from the typical one. First, because although most of these resources are found in areas under national jurisdiction, which in the Arctic may be extended due to the continental shelf claims, there is huge potential with respect to the exploitation of resources located beyond national jurisdiction, especially in the Central Arctic Ocean. Second, the situation explored here consists of a relationship between the five Arctic developed countries that exploit marine genetic resources and the Arctic indigenous people, who are supposed to own them.

There is an urgent need to clarify the situation and the nature of bio-prospecting activities in the Arctic within the framework of international conventions and the law of the sea and the international tools addressing the rights of participation of Arctic indigenous peoples. International law guarantees the right to consultation and participation as well as the right to free,

prior, and informed consent for indigenous peoples, regardless of domestic law or a countries' ratification of the instruments.

Accordingly while the country exercises absolute sovereign power over marine genetic resources under its jurisdiction or control, it is limited by having to fulfill its international obligations and human rights law. As a result, domestic governments are obliged to support indigenous peoples by exchanging scientific and other information, ensuring access to consultation and consent procedures, and providing the capacity for handling them properly.

Thus, it is through effective participation that fair and equitable sharing of benefits arising from the exploration and exploitation of genetic resources and their sustainable use can be guaranteed to Arctic indigenous communities. Until now, these rights were only considered in purely general terms. In part because of the inadequacy of international regulation and the diversity of applicable national legislation, discussion of these rights rarely went beyond a generic appreciation of their importance. Even less effort was expended in trying to address the asymmetries between providers and users of genetic resources.

Finally, the requirement of free, prior, and informed consent before allowing access to genetic marine resources is a principle that, with the main objective to achieve equitable solutions, is constantly evolving and should be adaptable to different situations. It is mainly presented as an element that can support the creation and reinforcement of decision-making capabilities for the indigenous peoples as far as it concerns the management of genetic resources. In addition to being a right in itself, it has an instrumental character, and is a mechanism that can be used to enable and pursue other rights, as is the case with fair and equitable benefit sharing. While the exact form, scope and procedure whereby this free, prior, and informed consent is obtained are governed by the country in which the resources are located, there is still a right of indigenous peoples that must be fully recognized and guaranteed by legally binding international law.