AN ANALYSIS OF LEGAL FRAMEWORK ON MARINE GENETIC RESOURCES IN CAMEROON

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ABSTRACT

Marine genetic resources constitute valuable wealth to the economy of Cameroon. The presence of these genetic resources has attracted the attention of biotechnology companies in the country. Despite the growing interest from these companies, Cameroon's legal framework has not kept pace with the need to govern access, protect communities, and ensure fair benefit-sharing of the resources. This work seeks to address critically the current legal landscape that governs these resources. The study uses a qualitative doctrinal methodology. It then applies thematic content analysis to assess how existing laws regulate access to marine genetic resources, including requirements for prior consent, benefit-sharing, and enforcement. The findings show that there is a definitional vacuum that leaves marine genetic resources legally undefined across the entire domestic legal framework creating uncertainty about legal coverage. In addition, there is no clear bioprospecting permit regime for marine genetic material. Free, Prior and Informed Consent is not incorporated in a way that fully protects coastal and Indigenous or local communities. The findings further reveal that governance authority is fragmented across multiple ministries without a coordinating mandate, limiting effective regulation and compliance monitoring. To address these weaknesses, the study recommends three core reforms: enact a dedicated marine genetic resources legislation to provide clear rules for access and benefit-sharing, establish a national marine genetic resources authority to coordinate permits, monitoring, and registry management and make community benefit-sharing a non-negotiable condition for access.

KEYWORDS: *marine genetic resources, legal framework, access and benefit-sharing, Cameroon, Analysis*

1.0 INTRODUCTION

The ocean has long been understood as a frontier of economic possibility. In recent years, commercial attention has shifted well beyond traditional fisheries and mineral extraction to encompass something far less visible but potentially far more valuable: the genetic material contained within marine organisms.[1] As biotechnology continues to advance, corporations are investing heavily in the systematic collection, sequencing, and commercialisation of the genetic traits these organisms carry and as such, marine genetic resources have become a central commercial frontier.[2] Marine genetic resources (MGRs) underpin significant segments of the

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[1]Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th ed, Cambridge University Press, 2018) 432.

[2]Chris Hamilton, *Biodiversity and Benefits: What Allegations of Biopiracy Tell Us about Intellectual Property* (Oxford University Press, 2006) 45.

pharmacological industry, contributing to the manufacture of medicines, vaccines, and diagnostic tools.[3] They play an equally important role in food security, supporting aquaculture innovation and agricultural development.[4] Within the broader framework of the 'blue economy',[5] MGRs occupy an ever more prominent position, with organisms drawn from shallow mangroves to abyssal depths yielding bioactive compounds relevant to drug discovery, enzyme production, biofuel development, and beyond.[6]

The commercial dynamics surrounding MGRs have been transformed by advances in genomics and synthetic biology. Companies no longer require living collections of marine organisms.[7] It is now sufficient to sequence their DNA and reconstruct functional genetic elements under laboratory conditions,[8] dramatically lowering the barriers to entry for marine bio prospecting and rendering the genetic resources of coastal developing states accessible to corporations that may have little or no physical presence within those states.[9] For Cameroon, whose exclusive economic zone (EEZ) encompasses portions of the Gulf of Guinea with exceptional biodiversity, this dynamic represents both a development opportunity and a significant governance vulnerability.[10]Cameroon occupies a strategically significant position along the Gulf of Guinea coastline, with an EEZ extending 200 nautical miles into one of the world's most biologically productive marine regions.[11] The country's coastline spans approximately 402 kilometres, encompassing a complex mosaic of estuarine, mangrove, coral, and deep-sea habitats. This relatively compact coastline belies the ecological richness of the adjacent marine environment.[12] Cameroon ranks fourth in Africa by biodiversity richness and degree of endemism, surpassed only by the Democratic Republic of Congo, South Africa, and Madagascar.[13] The country hosts approximately 9,000 plant species (around 156 endemic), over 900 bird species, and some of the most extensive tropical rainforests on the continent.[14] Over 451 marine fish species have been recorded in Cameroonian waters alone.[15] This

[3]Igor Olegovich Anisimov and Elena Evgenyevna Gulyaeva, 'Legal Framework of Marine Genetic Resources: Filling the Gaps of the United Nations Convention on the Law of the Sea' [2022] 20(34) *Opiniao Juridica* 164, 170; CBD/SBI/3/14, 'International Instruments Regulating Access to Genetic Resources and Benefit-Sharing in the Context of Article 4(4) of the Nagoya Protocol' (13 July 2020) 9.
[4]Laura E. Lallier et al, 'Access to and use of Marine Genetic Resources: Understanding the Legal Framework' [2014] *Natural Product Report* 31(5), 612- 615.
[5]The increasingly influential paradigm of sustainable ocean-based development
[6]Wilson Sebastian et al, 'Marine Living Resources: A Blue Future' [2024] 126(2) *Current Science* 200, 202.
[7]Tilde Krusberg et al, 'A Review of Marine Genetic Violations' (2023) 3(6) Ocean Sustainability 1, 4.
[8]Harriet Harden-Davies, 'Deep-Sea Genetic Resources: New Frontiers for Science and Stewardship in Areas beyond National Jurisdiction' [2017] 137 Deep Sea Research Part II 504, 506.
[9]ibid 507.
[10]United Nations Convention on the Law of the Sea, opened for signature 10 December 1982, 1833 UNTS 3 (entered into force 16 November 1994) [UNCLOS], art 57. Cameroon's exclusive economic zone extends 200 nautical miles from its baselines, encompassing high-biodiversity marine habitats in the Gulf of Guinea.
[11]ERuDeF, Freshwater and Marine Conservation Programme (2026) <www.erudef.org/fresh-water-and-marine-conservation-programme> accessed 15 March 2026.
[12]ibid.
[13]Ministry of the Environment and Forestry (Cameroon), National Report on Biological Diversity (Government of Cameroon, 1997) 12.
[14]Ayuck Catherine Mbi, 'Legal Examination of Benefit Sharing and Livelihood Improvement in Protected Area Management: The Case of the Bakossi National Park' [2024] 7(10) *Scholars International Journal of Crime and Justice* 434, 436.
[15]Ministry of Environment and Protection of Nature (Cameroon) [MINEP], Convention on Biological Diversity: Third National Report (Government of Cameroon, 2005) 144.

extraordinary biological wealth has long made Cameroon a target for bio prospecting where commercial exploration of biological and genetic resources, frequently takes place without meaningful compensation to the state or to the indigenous and local communities whose knowledge and stewardship made those resources accessible.[16] For biotechnology companies, the country represents an under regulated repository of genetic innovation accessible at relatively low cost.[17]

The emergence of the 2023 Agreement on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ Agreement) has drawn international attention to the governance of marine genetic resources in areas beyond national jurisdiction.[18] Within EEZ waters, however, MGRs fall under coastal state sovereignty and typically require access permits.[19] The challenge confronting Cameroon is more immediate. Within its own EEZ, the legal framework governing who may access its marine genetic resources, on what conditions, and with what obligations to share resulting benefits, remains critically underdeveloped. International instruments such as the Nagoya Protocol[20] provide a normative architecture, but their practical force depends on domestic implementing legislation that Cameroon has not directly enacted. Law No. 2021/014 of 09 July 2021 on access to genetic resources, though a welcome development, fails to address marine genetic resources with adequate specificity. That gap creates the precise conditions in which corporate extraction flourishes over equitable governance.

Cameroon's existing environmental legislation (Law No. 96/12 of 1996 on Environmental Management) and its recently enacted Fisheries and Aquaculture Statute (Law No. 2024/019 of 23 December 2024) while providing some regulatory scaffolding, were not designed to address these dynamics and leaves the country's marine genetic heritage effectively exposed. Compounding the legislative deficit, Cameroon lacks a dedicated biodiversity agency with a mandate to regulate access to marine genetic resources. Governance responsibilities are dispersed across the Ministry of Environment and Sustainable Development, the Ministry of Fisheries and Aquaculture, the Ministry of Scientific Research, and the Ministry of Maritime Affairs, without clear coordination mechanisms or a single authority capable of mounting a coherent regulatory response.[21] Against this backdrop, the main aim of this article is to undertake a critical appraisal of the legal framework currently applicable to marine genetic resources (MGRs) in Cameroon.

[16]Patrick Agejo Ageh, 'Ethical Dilemmas with Respect to CBD Regulations in Genetic Modification Resources in Cameroon' [2021] 5(2) *African Journal of Environmental Law* 18, 22.
[17]Julia D Sigwart et al, 'Unlocking the Potential of Marine Biodiscovery' [2021] 38 *Natural Product Reports* 1235, 1239.
[18]Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction, opened for signature 20 September 2023, UN Doc A/RES/77/312 [BBNJ Agreement], art 11.
[19]UNCLOS (n 11), arts 56, 61-62. Coastal states exercise sovereign rights over all living resources within their exclusive economic zones, including organisms of biotechnological interest.
[20]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, opened for signature 29 October 2010, 3008 UNTS 1 (entered into force 12 October 2x014) [Nagoya Protocol].
[21]Cyril Loisel and Gilles Kleitz, 'Biodiversity and Development Aid: The Implementation of the Nagoya Protocol in Developing Countries' [2015] 23 Review of European, Comparative and International Environmental Law 225, 228.

This article proceeds in six substantive parts. Following this introduction, Part II is devoted to bring clarity as to major concepts used in the work. Part III dwells on the methodology used in the work. Part IV surveys Cameroon's existing domestic legal framework and maps its principal lacunae. Part V examines Cameroon's binding international obligations, with particular attention to the Nagoya Protocol and the BBNJ Agreement. Part VI sets out concrete legislative and institutional reform proposals. Part VII is entitled best practices towards a marine genetic resources' governance framework in Cameroon and Part VII ends with a conclusion.

2.0 CONCEPTUALISING MARINE GENETIC RESOURCES

No single universally binding definition of 'marine genetic resources' (MGRs) exists across international law. However, this study captures certain definitions which have been summarised below:

Instrument	Treatment of MGRs	Key Reference
CBD (1992)	Defines 'genetic resources' as genetic material of actual or potential value. Marine scope implied but not expressly stated.	Art 2 CBD
UNCLOS (1982)	Uses 'living resources' and 'living resources of the sea/high seas'; makes no mention of genetic resources.	Arts 116-119 UNCLOS
Nagoya Protocol (2010)	Applies CBD's genetic resource definition; ABS obligations extend to marine contexts within national jurisdiction.	Arts 3, 15 Nagoya Protocol
BBNJ Agreement (2023)	Expressly defines MGRs as 'any material of marine plant, animal, microbial or other origin containing functional units of heredity of actual or potential value.'	Art 1(8) BBNJ Agreement
Cameroon Law 2021/014 on Access to Genetic Resources	Defines genetic resources broadly (animal, plant, and microbial origin); does not specifically define marine genetic resources.	ss 3, 7, Law 2021/014

Cameroon Fisheries and Aquaculture Law 2024	Governs fishery and aquaculture activities; defines approximately 60 terms; provides no definition of MGRs.	ss 3-5, Law 2024/019

This study adopts the definition of marine genetic resources provided by the 2023 BBNJ Agreement, which defines them as 'any material of marine plant, animal, microbial or other origin containing functional units of heredity of actual or potential value'.[22] For better comprehension of the aforementioned definition, there are three functional elements from the definition which needs clarification.

First, the phrase *"any material of marine origin"* is broad enough to encompass organisms found at the depth of the ocean. Within the Cameroonian context, this covers the Gulf of Guinea's shallow mangrove ecosystems, coral assemblages, and deep-sea habitats within the 200 nautical mile EEZ. Critically, the definition does not require physical possession of a living organism. Digital sequence information derived from marine genetic material falls within MGR governance under this study, consistent with emerging international norm development.

Second, the requirement that material *"contain functional units of heredity"*, a phrase drawn from the CBD's definition of genetic material[23]distinguishes MGRs from biological resources used purely as physical commodities (fish harvested for food, for example). The functional-unit criterion captures DNA, RNA, plasmids, and any other heritable informational structure that biotechnology firms seek to sequence, patent, and commercialise.

Third, the phrase *"of actual or potential value"* is intentionally inclusive. It covers commercial pharmaceutical and industrial value, and equally encompasses inherent ecological value, informational value (genetic sequences useful for future research), and the traditional ecological knowledge of coastal communities. As used in this study, 'value' is not reducible to market price. It encompasses what Cameroon stands to lose when MGRs are extracted without a functioning ABS framework.

3.0 METHODOLOGY

This study employed a qualitative doctrinal research methodology. Data were gathered from primary and secondary sources. Primary sources comprised relevant statutes. Secondary sources were obtained through a review of scholarly literature, including books, peer-reviewed journal articles, official government reports, and institutional websites. Selection was guided by criteria of credibility, relevance, and recentness, with most sources published between 2005 and 2026. Thematic content analysis was used to interpret the findings, involving critical Analysis of statutory

[22]BBNJ Agreement, art 1(8).
[23]Convention on Biological Diversity, opened for signature 5 June 1992, 1760 UNTS 79 (entered into force 29 December 1993) [CBD], art 2.

instruments in force to assess the extent to which they address the governance of marine genetic resources and the gaps that impede effective regulation, notwithstanding the existing legal frameworks in the domain.

4.0 CURRENT LEGAL LANDSCAPE OF MARINE GENETIC RESOURCES IN CAMEROON

4.1 Constitutional and Environmental Foundations

The 1996 constitutional revision introduced an environmental preamble affirming every citizen's right to a healthy environment and placing on the state a corresponding duty to protect natural resources. The Framework Law on Environmental Management of the same year gave those principles legislative form, establishing sustainability, prevention, and the polluter-pays principle as governing norms.[24] Neither the constitutional preamble nor the Framework Law, however, engages with the specific modalities of genetic resource access or benefit-sharing. Their provisions operate at a level of generality that offers no practical guidance to regulators, researchers, or corporations engaged with marine biological material.[25] This omission is consistent with a broader African pattern. Many states incorporated general environmental principles into their constitutions during the 1990s in response to the Rio Declaration and the opening of the CBD for signature. In most cases, including Cameroon's, these provisions were never accompanied by the secondary legislation necessary to give them operational effect in specialised contexts such as access to marine genetic resources.

4.2 Biosafety Law and Access to Marine Genetic Resources (Law No. 2003/006 of 21 April 2003)

Law No. 2003/006 was enacted on 21 April 2003 to establish a comprehensive legal framework governing the development, use, and cross-border movement of genetically modified organisms (GMOs) and products derived therefrom.[26]

4.2.1 Aim of the Law

The law's primary aims, as articulated in Articles 1 and 4, span two broad dimensions.

The first dimension concerns protection of health and the environment:

- To govern the safety, development, use (including contained use), manipulation, and cross border movement of any GMO that may adversely affect human and animal health, biodiversity, or the environment;
- To safeguard products derived from GMOs that may pose risks to human or animal health, biodiversity, and the environment;

[24]Framework Law No. 96/12 of 5 August 1996 on Environmental Management [Environmental Management Law 1996], arts 3-9.
[25]ibid, art 7.
[26]Law No. 2003/006 of 21 April 2003 to Lay Down Safety Regulations Governing Biotechnology in Cameroon [Biosafety Law 2003], art 1(1).

- To guarantee safety and ethical standards in modern biotechnological research and to establish procedures for the cross-border movement of GMOs;
- To apply the precautionary principle, enabling competent biosafety authorities to prohibit GMO-related activities where new scientific knowledge or potential risks so warrant.[27]

The second-dimension concerns risk assessment, management, and socio-economic considerations:

- To provide mechanisms for assessing, managing, communicating, and controlling risks inherent in the use, release, and cross border movement of GMOs or organisms with novel traits;
- To take into account risks to human, animal, and plant health and their socio-economic implications while harnessing the benefits of biotechnology;
- To support the conservation and sustainable use of biological resources consistent with Cameroon's obligations under the Cartagena Protocol on Biosafety;
- To mandate socio-economic impact studies prior to any deliberate environmental release of GMOs, covering effects on traditional markets, health, production systems, and relevant ethical and social considerations.[28]

4.2.2 Relevance to Marine Genetic Resources

Although Law No. 2003/006 makes no express reference to marine environments, coastal ecosystems, or aquatic biodiversity, several of its provisions carry meaningful implications for marine genetic resources. The law's definitions of 'genetically modified organism'[29] and 'living modified organism'[30] are sufficiently broad to capture marine to an extent certain aspects of marine genetic resources. In this light, the law's definition of 'environment' expressly includes surface waters, underground water, and wildlife, and recognises the interactions between these elements.[31] Therefore, accidental or deliberate release of genetically modified marine micro-organisms or transgenic fish into coastal or inland waterways would therefore trigger the notification and risk assessment.[32] The law equally recognises that where GMOs are developed from genetic resources drawn from Cameroon's national heritage including potentially marine genetic resources, the regulations on access to genetic resources and sharing of benefits shall apply mutatis mutandis.[33]

[27] ibid.
[28] BioSafety Law,2003 (n 26)
[29] ibid, art 5(36) (defining 'genetically modified organism' as any organism whose genetic material has been altered through modern biotechnology in a way that does not occur naturally).
[30] ibid, art 5(38) (defining 'living modified organism' as any living organism that possesses a novel combination of genetic material obtained through modern biotechnology).
[31] ibid, art 5(21).
[32] ibid, 27, 28 and 36.
[33] ibid, art 54

This is especially significant given Cameroon's coastline along the Atlantic and its rich marine biodiversity in the Gulf of Guinea.

The law further regulates the transportation and import or export of marine GMOs, requiring that the national biosafety authority in the exporting country issue attestations of product safety before biotechnological products may cross borders.[34] While its primary focus is on terrestrial species, the provisions on containment levels,[35] labelling,[36] and advance informed agreement procedures would apply equally to transgenic marine fish, modified shellfish cultures, or GMO based aquaculture inputs.[37] The mandatory socio-economic impact study required before any deliberate environmental release[38] is directly relevant to coastal fishing communities whose livelihoods depend on wild marine species that could be disrupted by the introduction of transgenic organisms into the marine environment.

4.3 Law No. 2021/014 of 09 July 2021 on Access to Genetic Resources

Law No. 2021/014 of 09 July 2021 on access to genetic resources, their derivatives, traditional knowledge associated with genetic resources, and the fair and equitable sharing of benefits arising from their utilisation represents Cameroon's primary legislative response to the commercial exploration of biological and genetic resources. The law governs a tripartite subject matter: genetic resources, their derivatives, and associated traditional knowledge (ATK) reflecting a sophisticated understanding of the full value chain of biodiversity exploitation.[39]

4.3.1 Scope of Application

Section 3 of the Framework law extends the objective of the law to seven specific domains: access to genetic resources of plant, animal, and microbial origin containing functional units of heredity;[40] access to associated traditional knowledge, including that held by individuals or communities;[41] transfer of genetic resources and ATK to third parties for development or commercial purposes;[42] intellectual property rights obtained over genetic resources and ATK;[43] international cooperation and cross-border matters;[44] current use of previously acquired genetic resources or ATK;[45] and the conservation of genetic resources.[46] The inclusion of 'derivatives' defined as 'any naturally occurring biochemical compound resulting from the genetic expression or metabolism of biological

[34] ibid, art 43(1).
[35] ibid, art 16.
[36] ibid, art 49.
[37] ibid, arts 30-31.
[38] ibid, art 32.
[39] s 1 Law 2021/014 on Access to Genetic Resources.
[40] ibid, s 3(a).
[41] ibid, s 3(b).
[42] ibid, s 3(c).
[43] ibid, s 3(d).
[44] ibid, s 3(e).
[45] ibid, s 3(f).
[46] ibid, s 3(g).

or genetic resources, even if it does not contain functional units of heredity'[47] is particularly significant. It closes a loophole exploited where companies would access genetic material, extract biochemical compounds from it, and claim that the resulting product was not a 'genetic resource' subject to ABS obligations.

The law applies to the national territory of Cameroon[48] and extends its compliance obligations beyond the border through s 60, which gives any natural or legal person in Cameroon or abroad possessing genetic resources, derivatives, or ATK acquired on the national territory twelve months from the law's entry into force to come into compliance. Two exceptions are carved out: biological resources used for purely consumptive purposes (timber for construction, fish for food), and biological resources or ATK exchanged among indigenous and local communities in traditional, cultural, spiritual, or customary settings.[49] The law vests ownership of genetic resources and their derivatives of national origin in the state as common national heritage[50] and conditions any scientific, commercial, or cultural use on prior informed consent (PIC).[51] By contrast, ATK is vested in the indigenous and local communities that developed, preserved, and transmitted it across generations a dual ownership structure that preserves the distinction between state sovereignty over genetic resources and community intellectual sovereignty over associated knowledge.

4.3.2 Applicability to Marine Genetic Resources

The law establishes a two stage access mechanism. Stage one requires PIC issued by the competent national authority following approval by the National Genetic Resources Access and Benefit-Sharing Committee.[52] Stage two requires the conclusion of mutually agreed terms (MAT) between the applicant and the relevant community, following the grant of PIC, for a renewable period of three years. This layered approach state authorisation followed by community negotiation ensures both national sovereignty and community agency. The law distinguishes between two broad benefit-sharing categories. Monetary benefits include access rights, royalties, milestone payments, licence fees, research funding, joint ventures, and joint ownership of intellectual property rights.[53] Non-monetary benefits include sharing of research and development results, technology transfer on concessional terms, institutional capacity building, training, access to ex-situ conservation facilities, and contributions to the local economy.[54] The breadth of this catalogue acknowledges that financial payment alone may not be the most meaningful form of benefit for indigenous and local communities, for whom technology access, institutional capacity, and recognition may be

[47]ibid, s 7.
[48]ibid, s 3(a).
[49] Law 2021/014 on Access to Genetic Resources (n 39) s 4.
[50] ibid, s 5(1).
[51] ibid, s 5(2).
[52] ibid, ss 9, and 13.
[53] ibid, s 27(a) (monetary benefits including royalties, milestone payments, licence fees, research funding, and joint ownership of intellectual property rights).
[54]ibid, s 27(b) (non-monetary benefits including technology transfer, capacity building, institutional strengthening, and access to ex-situ collections).

equally or more valuable.The law establishes a graduated criminal deterrence regime. Unauthorised use of genetic resources attracts imprisonment of two to ten years and fines of CFAF 20 million to 100 million.[55] Use contrary to the terms of an ABS permit attracts imprisonment of six months to two years and fines of CFAF 10 million to 50 million.[56] Offences committed within protected areas carry doubled penalties.[57] This escalating structure is proportionate and reflects the gravity of biopiracy as a crime against national heritage and community rights.

4.4 Fisheries and Aquaculture Law (Law No. 2024/019 of 23 December 2024)

Law No. 2024/019 of 23 December 2024 establishes a comprehensive legal framework governing fisheries and aquaculture across Cameroon's maritime and inland waters. It repeals the fisheries-related provisions of Law No. 94/01 of 20 January 1994, which had governed forestry, wildlife, and fisheries in a single consolidated instrument.

4.4.1 Overall Purpose

The law identifies its overarching aim as the governance of fisheries and aquaculture across all waters under Cameroonian jurisdiction.[58] Three subsidiary objectives accompany this goal: to lay down rules and regulations for fisheries and aquaculture with a view to achieving general policy objectives; to promote integrated, responsible, participative, and transparent management of the sub-sector; and to ensure the sustained and sustainable preservation, protection, and use of fishery resources and their ecosystems.[59]

4.4.2 Scope and Governing Principles

Section 2 of the aforementioned framework establishes a broad scope of application covering fishing in all waters under Cameroonian jurisdiction, aquaculture activities, fishing and fishing support vessels (both Cameroonian flagged and foreign flagged), Cameroonian flagged vessels on the high seas and in third country waters, fishing gear and equipment, processing and storage establishments, and stakeholders responsible for surveillance of fishing activities. Four core principles guide fisheries and aquaculture resource management: state sovereignty over fishery resources;[60] the precautionary principle;[61] the ecosystem approach;[62] and sustainable resource management.[63]

[55]ibid, s 50 (imprisonment of two to ten years and fines of CFAF 20 million to 100 million for unauthorised utilisation of genetic resources).
[56]Law 2021/014 on Access to Genetic Resources (n 39) s 4; s 51 (imprisonment of six months to two years and fines of CFAF 10 million to 50 million for use contrary to an access and benefit-sharing permit).
[57]ibid, s 53.
[58]Law No. 2024/019 of 23 December 2024 to Lay Down the Rules and Regulations Governing Fisheries and Aquaculture in Cameroon [Fisheries Law 2024], s 1(1).
[59]ibid.
[60]ibid, s 7.
[61]ibid, s 8.
[62]ibid, s 9.
[63]ibid, s 10.

4.4.3 Relevance to Marine Genetic Resources

The law introduces a hierarchical, permit-based access system for fishery resources. Industrial, semi-industrial, artisanal, scientific, educational, underwater, and recreational fishing are each identified as distinct categories governed by specific conditions set by regulation.[64] Mandatory prior inspection of industrial vessels[65] and port state control measures against illegal, unreported, and unregulated (IUU) fishing[66] reinforce vessel regulation. The law aligns with CITES by prohibiting the taking of fully protected aquatic species and requiring their immediate return to water if caught inadvertently.[67] A wide suite of preservation measures covers spawning grounds, nurseries, marine plants, mangroves, and net mesh size regulation.[68] The integration of precautionary and ecosystem principles in binding provisions represents a positive alignment with international best practice, including the FAO Code of Conduct for Responsible Fisheries 1995. The law establishes a multi-layered enforcement architecture combining administrative penalties, criminal penalties, and a compromise mechanism whereby the Ministry of Fisheries and Aquaculture terminates criminal proceedings against an offender upon payment of a negotiated fine and damages.[69] Operating a fishing vessel without authorisation or engaging in industrial fishing without a licence carries a penalty of ten to fifteen years imprisonment and a fine of CFAF 500 million to CFAF 1 billion.[70] Despite these enforcement mechanisms, the law is almost entirely silent on marine genetic resources, a significant regulatory lacuna in what is otherwise a modern and comprehensive fisheries statute.

5.0 CAMEROON'S INTERNATIONAL LEGAL OBLIGATIONS

5.1 United Nations Convention on Law of the Sea (UNCLOS)

UNCLOS, adopted in 1982 and entered into force in 1994 is a global and general framework setting the boundaries of states' jurisdiction within the sea and regulating the activities taking place there, including marine scientific research. Art 56 confers on coastal states 'sovereign rights for the purpose of exploring and exploiting, conserving and managing' living resources within the zone. On the better reading of that provision, these sovereign rights extend to the genetic material of all living organisms. The phrase 'natural resources' in UNCLOS has been interpreted broadly to include genetic resources, although this interpretation remains incompletely resolved in state practice.[71]Critically, UNCLOS does not itself establish any benefit-sharing regime for genetic resources. It creates the jurisdictional basis for coastal state regulation, but the substantive content

[64] Law No. 2024/019 of 23 December 2024 (n 58) s 15.
[65]ibid, s 18.
[66]ibid, s 22.
[67]ibid, s 26 on the Convention on International Trade in Endangered Species of Wild Fauna and Flora, opened for signature 3 March 1973, 993 UNTS 243 (entered into force 1 July 1975) [CITES].
[68]Fisheries Law 2024, s 28.
[69]ibid, s 64.
[70]ibid, s 75 (imprisonment of ten to fifteen years and fines of CFAF 500 million to CFAF 1 billion for operating a fishing vessel without authorisation or engaging in industrial fishing without a licence).
[71]UNCLOS, arts 61–62; CBD (n 24), art 15. Read together, these provisions have been interpreted to establish coastal state authority over genetic access in the exclusive economic zone, though the scope of that authority remains contested in state practice.

of that regulation must be drawn from other instruments notably the CBD and the Nagoya Protocol and given concrete form through domestic legislation. The interaction between UNCLOS's jurisdictional framework and the CBD's benefit-sharing obligations has been a recurrent source of legal uncertainty.[72]

5.2 The Convention on Biological Diversity and Ratification Status

The CBD, which entered into force in 1993, addresses biodiversity irrespective of whether it is terrestrial or aquatic in origin. It has tripartite objectives: the conservation of biodiversity, the sustainable use of its components and the sovereignty of states over their natural resources.[73] Cameroon ratified the CBD in 1994[74] and the Nagoya Protocol in 2022.[75] These ratifications created binding international obligations including the duty to adopt legislative and administrative measures on access and benefit-sharing that Cameroon has not yet given full domestic effect. This is not merely a technical compliance deficit; it has practical consequences for Cameroon's ability to assert sovereign authority over the genetic resources within its jurisdiction. Art 15 of the CBD affirms that sovereign rights over genetic resources vest in states, but requires that access be on 'mutually agreed terms' and subject to 'prior informed consent'. These requirements cannot be operationalised without domestic legislation establishing the procedures through which consent is sought and terms are negotiated. In the absence of such legislation, a corporation that collects samples quietly and without seeking permission faces no effective legal obstacle.[76]

Cameroon's National Biodiversity Strategy and Action Plan version II adopted in 2012 with the third National Biodiversity Strategy and Action Plan (SPANB III) expected to receive final validation on 22 May 2026, acknowledges the importance of genetic resource governance and commits to the development of an ABS law.[77] That commitment has not yet been translated into enacted legislation, and the timeline for doing so remains unclear. In the meantime, the governance gap widens as commercial interest in Cameroon's marine biodiversity grows.[78]

[72]Gerd Winter, 'Towards a Common Heritage Approach to the High Seas and Deep Seabed Genetic Resources' [2019] 28(2) *Review of European, Comparative and International Environmental Law* 231, 240.
[73] Art 3 CBD.
[74]CBD, 'List of Parties' <www.cbd.int/information/parties.shtml> accessed 10 March 2026. Cameroon ratified the CBD on 19 October 1994.
[75]Nagoya Protocol, 'Parties' <www.cbd.int/abs/nagoya-protocol/signatories/> accessed 10 March 2026. Cameroon ratified the Nagoya Protocol on 6 July 2022.
[76]CBD, 'Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising out of their Utilization', Decision VI/24, UNEP/CBD/COP/6/20 (2002). In the absence of implementing legislation, the Bonn Guidelines offer persuasive operational guidance on prior informed consent and mutually agreed terms procedures.
[77]htpps://www.businessincameroon.com/environment/2205-16205-cameroon-nears-approval-of-biodiversity-strategy-focused-on-ecosystem-financing/> accessed 9 June 2026.
[78]Ministry of Scientific Research and Innovation (Cameroon), National Biotechnology Strategy 2020–2030 (Government of Cameroon, 2020) 22.

5.3 The Nagoya Protocol and Domestic Implementation Requirements

The Nagoya Protocol represents the most specific and operationally detailed international instrument applicable to Cameroon's marine genetic resources. It requires parties to adopt legislative, administrative, or policy measures to ensure that benefits arising from the utilisation of genetic resources are fairly and equitably shared with the provider country.[79] Its core mechanisms PIC and MAT require provider countries to establish clear procedures through which access requests can be lodged, evaluated, and approved or refused.[80] For Cameroon, having ratified the Protocol in 2022, the implementation obligation is now legally operative. Implementation requires not only the enactment of ABS legislation but also the designation of a competent national authority, the creation of a national ABS registry, and the development of institutional capacity to evaluate and monitor bio prospecting applications each of which demands sustained investment.[81]

One of the Protocol's most practically significant provisions for Cameroon is Article 15's compliance mechanism, which requires parties whose nationals or companies utilise genetic resources from other countries to monitor and enforce compliance with the access conditions of the provider country. Once Cameroon establishes a functioning ABS regime, this provision creates real leverage against corporate actors based in other Protocol parties who access Cameroonian MGRs without satisfying domestic requirements.[82]

5.4 The 2023 BBNJ Agreement and Its Relevance to Cameroon

The Agreement on Marine Biodiversity of Areas Beyond National Jurisdiction, adopted in June 2023, represents a landmark development in the governance of marine genetic resources. While its primary focus is on high seas and deep seabed resources beyond national jurisdiction, the Agreement establishes principles and mechanisms that are directly relevant to the design of domestic MGR governance frameworks.[83] Its benefit-sharing provisions establish a multilateral fund and non-monetary mechanisms designed to ensure that developing states and their populations benefit from commercial exploitation of marine genetic resources regardless of where those resources are found.[84]For Cameroon, the Agreement is significant on two fronts. First, Cameroonian nationals and research institutions may benefit from the Agreement's capacity-building and technology transfer provisions. Second, and more fundamentally, the Agreement's normative framework particularly its provisions on benefit-sharing, transparency, and the sharing

[79]Nagoya Protocol, arts 5–6.
[80]ibid, arts 6-7. Prior informed consent and mutually agreed terms together constitute the two foundational instruments for regulating access to genetic resources under the Protocol.
[81]Thomas Greiber et al, An Explanatory Guide to the Nagoya Protocol on Access and Benefit-Sharing (IUCN Environmental Policy and Law Paper No 83, 2012) 78.
[82]Siva Thambisetty et al, 'The Nagoya Protocol and Synthetic Biology Research: A Look at the Potential Impacts' [2019] 10 *Frontiers in Bioengineering and Biotechnology* 110, 115.
[83]Robert Blasiak et al, 'Corporate Control and Global Governance of Marine Genetic Resources' (2018) 4(6) Science Advances 1, 5.
[84]BBNJ Agreement (n 19), arts 10-16. Part II of the Agreement establishes a multilateral benefit-sharing mechanism covering monetary and non-monetary modalities for marine genetic resources in areas beyond national jurisdiction.

of research results provides a framework Cameroon can adapt for its domestic EEZ governance regime.[85] The growing global consensus around benefit-sharing for marine genetic resources, as evidenced by the Agreement's adoption, also strengthens Cameroon's position in insisting on compliance from corporations operating within its EEZ.[86]

6.0 AN APPRAISAL OF THE MARINE GENETIC RESOURCES LEGAL FRAMEWORK IN CAMEROON

6.1 Definitional Vacuum and Regulatory Ambiguity

The Fisheries and Aquaculture Law 2024 devote extensive provisions to definitional clarity: Sections 3, 4, and 5 together define approximately sixty terms covering fisheries, aquaculture, and fishing industry concepts. Despite this thoroughness, no statutory definition of marine genetic resources' is provided. Without a statutory definition, it is legally unclear whether MGR exploitation activities fall within the law's scope at all. Given that the law's subject matter is 'fisheries and aquaculture',[87] activities designed to collect and commercialise the genetic material of marine organisms for non-food purposes could readily fall outside the law's jurisdictional ambit, creating a governance vacuum. The same deficiency afflicts Law No. 2021/014, which defines genetic resources broadly but provides no marine specific definition that would capture the particular characteristics of aquatic genetic material.

6.2 Absence of Free, Prior and Informed Consent (FPIC) Standards

While Law No. 2021/014 requires PIC from the national authority[88] and MAT with communities,[89] it does not explicitly incorporate the international standard of Free, Prior and Informed Consent (FPIC) as applied to indigenous and local communities. The distinction is critical: PIC is an administrative act issued by a government authority, whereas FPIC is a community right requiring that communities be consulted freely (without coercion), prior to any decision, and with full information. Both the United Nations Declaration on the Rights of Indigenous Peoples (2007) and ILO Convention No. 169 require FPIC for activities affecting indigenous territories and knowledge. The law requires consent to the indigenous or local communities possessing the knowledge,[90] but the procedural standards how that consent is obtained, what constitutes meaningful consultation, whether communities retain a veto are left entirely to regulation. This gap creates a risk that state issued PIC will override community objection in practice.

[85]Blasiak et al (n 83) 6; BBNJ Agreement (n 19), art 14. The benefit-sharing modalities provide a template that coastal developing states may adapt for domestic exclusive economic zone governance.
[86]Harden-Davies (n 8) 510.
[87]Fisheries Law 2024, s 1.
[88]Law 2021/014, ss 9, 13.
[89]ibid, s 10.
[90]ibid, s 18.

6.3 Absence of a Bioprospecting Permit Regime

The Fisheries Law 2024 establishes a comprehensive licensing and permitting regime for the exploitation of fishery resources.[91] That regime is, however, designed exclusively for catching, collecting, and harvesting fish and other aquatic organisms as food or raw commercial material. It contains no provisions governing access to marine organisms for the purpose of extracting, characterising, or commercialising their genetic material. A bio prospecting entity seeking to collect marine organisms from Cameroon's EEZ for pharmaceutical or biotechnological purposes could therefore potentially do so without any specific authorisation under current law. This absence of an access permit category for MGR exploitation represents a direct regulatory gap with both commercial and sovereignty implications.

6.4 Insufficient Protection of Marine Biodiversity Linked to Genetic Value

The Fisheries Law prohibits the taking of fully protected aquatic species in alignment with CITES[92] and addresses ecosystem preservation measures more broadly.[93] These provisions are, however, oriented exclusively towards fisheries sustainability. They do not engage with the genetic uniqueness or biotechnological value of protected species. Deep-sea organisms, hydrothermal vent microorganisms, and rare marine invertebrates may be of substantial genetic value to pharmaceutical or bio prospecting industries, yet no provision in the law requires an assessment of genetic value when determining protection status, or mandates that the Ministry of Fisheries consult relevant authorities on genetic resource implications before issuing exploitation permits.

6.5 Limited Enforcement Capacity

Law No. 2021/014 establishes inspection, control, and monitoring mechanisms, including a mechanism for the competent national authority to access an applicant's facilities at all stages of bio prospecting, research, development, and commercialisation.[94] The practical challenge is nonetheless considerable: monitoring the utilisation of genetic resources across laboratories, research institutions, and corporate supply chains spanning multiple jurisdictions requires sophisticated technical capacity that Cameroon has not yet developed. The law acknowledges this deficit implicitly in the list of non-monetary benefits it prescribes, which includes 'human and material resources to strengthen capacities for the administration and enforcement of access regulations', but provides no domestic mechanism to build this capacity independently of user contributions.

[91]Fisheries Law 2024, ss 15-17, 59.
[92]ibid, s 26.
[93]ibid, s 28.
[94] Fisheries Law 2024 (n 90) s 38.

7.0 RECOMMENDATIONS - BEST PRACTICES TOWARDS A MARINE GENETIC RESOURCES GOVERNANCE FRAMEWORK IN CAMEROON

The most urgent reform is the enactment of a comprehensive Marine Genetic Resources Legislation establishing, within a single legislative instrument, the full range of regulatory requirements applicable to the access, collection, and utilisation of Cameroon's marine genetic heritage. Such a statute should affirm Cameroon's sovereign rights over its MGRs under UNCLOS and the CBD; establish mandatory PIC procedures for all bio prospecting activities within the EEZ; provide for the negotiation and registration of benefit-sharing agreements on mutually agreed terms; and create enforcement mechanisms including permit suspension, financial penalties, and injunctive relief.[95]

The Cameroonian government should enshrine FPIC as a distinct statutory right. FPIC must satisfy three cumulative conditions: it must be free (no coercion, inducement, or manipulation); prior (obtained before any access decision is made, not retrospectively); and informed (with full disclosure of the purpose, scope, duration, potential commercial applications, and benefit-sharing modalities of the proposed bio prospecting activity).

There should also be the establishment of community bio prospecting liaison committees (CBLCs) in all coastal communities falling within or adjacent to bio prospecting concession areas. CBLCs should be constituted through customary selection processes rather than government appointment, should have access to independent legal and scientific advice at the cost of the permit applicant, and should have the power to approve, condition, or veto proposed bio prospecting activities within their territories.

Furthermore, no bio prospecting permit should be issued without a signed Community Benefit-Sharing Agreement (CBSA) between the applicant and the relevant CBLC. CBSAs should contain both monetary and non-monetary benefit-sharing provisions.

A national marine genetic resources authority should be created as a dedicated regulatory body with a clear mandate to: process and evaluate bio prospecting permit applications, maintain the National ABS Registry, monitor permit compliance and coordinate the governance activities of the Ministry of Environment, the Ministry of Fisheries and Aquaculture, the Ministry of Scientific Research, the Ministry of Forestry and Wildlife, and the Ministry of Maritime Affairs.

Finally, the government should invest in building national technical capacity in Marine Genetic Monitoring. Priority capacity areas include marine genomics, DNA barcoding infrastructure,

[95]Greiber et al (n 81) 92-94. A well-drafted marine genetic resources statute should include mandatory disclosure of origin in patent applications as a compliance and traceability mechanism.

chemical fingerprinting for ABS compliance monitoring, and data systems for permit tracking and registry management.

8.0 CONCLUSION

The protection of Cameroon's marine genetic sovereignty is not merely a matter of environmental law it is, at its core, a question of economic justice. This article has demonstrated, through a systematic appraisal of Cameroon's constitutional, biosafety, genetic resources, fisheries, and international legal frameworks, that the country's legal architecture for governing access to and benefit-sharing from marine genetic resources is critically inadequate. That inadequacy is not incidental. It is structural, reflecting a governance model designed for an earlier era of resource exploitation in which the value extracted from marine organisms was measured in protein and calories rather than in genetic sequences and pharmaceutical patents. Five principal hooks have been identified in this appraisal: the definitional vacuum across the domestic legal framework; the absence of FPIC standards adequate to protect coastal and indigenous communities; the lack of a bio prospecting permit regime; the failure to protect biodiversity of genetic value; and the fragmentation of institutional authority across five ministries with no coordinating mandate. The reforms proposed in Part VII of this article represents the minimum legislative programme necessary to bring Cameroon's MGR governance from its current state to an internationally compliant and equitable governance standard.