

How does the new BBNJ Agreement regulate access to and benefit-sharing of marine genetic resources at deep-sea hydrothermal vents? – ECO LAW Blog

Source: <https://blogs.ed.ac.uk/ecolaw/2023/06/01/how-does-the-new-bbnj-agreement-regulate-access-to-and-benefit-sharing-of-marine-genetic-resources-at-deep-sea-hydrothermal-vents/> [<https://blogs.ed.ac.uk/ecolaw/2023/06/01/how-does-the-new-bbnj-agreement-regulate-access-to-and-benefit-sharing-of-marine-genetic-resources-at-deep-sea-hydrothermal-vents/>]

Downloaded: 2025-08-08T10:55:58.407Z

1st June 2023

How does the new BBNJ Agreement regulate access to and benefit-sharing of marine genetic resources at deep-sea hydrothermal vents?

About the author

Dr Sarah Lothian is a Lecturer and Academic Barrister at the Australian National Centre for Ocean Resources and Security (ANCORS) at the University of Wollongong. Her research focuses on the law of the sea and international law, with a particular focus on marine environmental law and the protection of biodiversity beyond national jurisdiction.

UOW Scholars Profile [<https://scholars.uow.edu.au/sarah-lothian>] LinkedIn Profile [<https://www.linkedin.com/in/dr-sarah-lothian-b9688715>]

1. Introduction

On 4 March 2023, Member States at the United Nations reached an agreement on a new instrument under the 1982 Law of the Sea Convention (LOSC) [https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf] for the conservation and sustainable use of biodiversity beyond national jurisdiction (BBNJ Agreement). [https://www.un.org/bbnj/sites/www.un.org.bbnj/files/draft_agreement_advanced_unedited_for_posting_v1.pdf]

As a key component of marine biodiversity, deep-sea hydrothermal vents and their associated biological resources provide a useful medium for examining the provisions of the new BBNJ Agreement, particularly its access and benefit-sharing regime for marine genetic resources (MGRs).

Hydrothermal vents [<https://www.sciencedirect.com/topics/earth-and-planetary-sciences/hydrothermal-vent>] are like geysers or hot springs on the ocean floor and are generally present in areas associated with volcanic activity at an average depth of 2,100 metres [<https://oria.ceoe.udel.edu/the-deep-ocean/seafloor-geology/>]. The

environments at hydrothermal vents are **extreme** [<https://www.nhm.ac.uk/discover/survival-at-hydrothermal-vents.html>], with high temperatures (350–407°C), water pressure and toxicity levels, coupled with an absence of light. Despite these harsh conditions, hydrothermal vents are teeming with life and their biological resources are highly sought after because they have adapted unique genetic and biochemical traits that enable them to survive physical and chemical conditions that exceed the usual tolerances for life.

Marine genetic resources (MGRs) at hydrothermal vents have piqued both **scientific and commercial interest** [<https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2019/09/deep-sea-mining-on-hydrothermal-vents-threatens-biodiversity>]. However, under the existing international law framework for areas beyond national jurisdiction, access to MGRs at hydrothermal vents is open, and no formal benefit-sharing mechanism is in place. There is also no limit imposed on the volume of MGRs removed from hydrothermal vents, nor has there been a coherent legal regime to regulate the environmental impacts of MGR activities.

Now that we have a new BBNJ Agreement, what provisions are made to regulate access to MGRs at hydrothermal vents, and how are the benefits derived from these resources to be shared in a fair and equitable manner?

Before we turn to the provisions of Part II of the new instrument, which is completely devoted to this issue, we first need to consider what type of resources fall under the MGR term.

2. Defining Marine Genetic Resources

Article 1 of the BBNJ Agreement defines “marine genetic resources” as:

‘any material of marine plant, animal, microbial or other origin containing functional units of heredity of actual potential value.’

MGRs can therefore be understood as encompassing genetic material from all living marine organisms ranging from mammals, invertebrates and plants to fungi, bacteria, archaea and viruses. The adoption of such a broad and flexible definition in the new instrument was necessary to cope with the range of MGRs on offer at deep-sea hydrothermal vents.

Microbes [<https://ocean.si.edu/ecosystems/deep-sea/microbes-keep-hydrothermal-vents-pumping#:~:text=Most%20bacteria%20and%20archaea%20cannot,venting%20fluid%20and%20cold%20seawater.>] are found in different locations at hydrothermal vents. They can be free-living in the water column above the vent, part of the vent’s discharged fluid, attached to the rock, chimney or sediment of the vent structure or share a symbiotic relationship with the vent’s macrofauna, including molluscs, clams and tubeworms. In effect, the same microbe can be found in any or all of these habitats. Then higher up the hydrothermal vent’s food web are shrimps, crabs, lobsters, fish and octopus.

Arguably, all of these organisms will be of equal interest to the research and development sector due to their unique genetic properties and their ability to withstand some of the most inhospitable conditions on Earth. The definition of MGRs in the BBNJ Agreement is wide enough to encompass all of the MGRs found at hydrothermal vents. But does this definition extend to high-seas fisheries?

3. Fish

Part II of the BBNJ Agreement will not apply to fish or other living marine resources taken in fishing and fishing-related activities from areas beyond national jurisdiction, except where those specific resources are regulated as utilization under the instrument (Art. 8, BBNJ Agreement).

Helpfully, Article 1 of the BBNJ Agreement defines ‘utilization of marine genetic resources’ as:

'to conduct research and development on the genetic and/or biochemical composition of marine genetic resources, including through the application of biotechnology.'

In effect, if fish found at hydrothermal vents are used for research on their genetic properties, they will fall under the scope of Part II of the BBNJ Agreement and its access and benefit-sharing regime.

4. The benefit of all Humanity

The BBNJ Agreement also sets out a number of requirements when it comes to MGR activities. MGR collection and analysis essentially involve two activities, **bioprospecting** [<https://www.sciencedirect.com/topics/medicine-and-dentistry/bio-prospecting>] and **marine scientific research** [<https://academic.oup.com/edited-volume/42608/chapter-abstract/357548912?redirectedFrom=fulltext>].

Pursuant to Article 9 of the BBNJ Agreement, MGR activities are to be undertaken 'in the interests of all States and for the benefit of all humanity, particularly for the benefit of advancing scientific knowledge of humanity and promoting the conservation and sustainable use' of marine biodiversity.

At first blush, this appears to signal a victory for proponents of the common heritage of humankind principle, however, it is important to note that the instrument speaks of MGR activities being for the benefit of all humanity, rather than the resources themselves. In other words, the BBNJ Agreement does not definitively state that MGRs are the common heritage of humankind.

This interpretation is further reinforced by Article 5 of the BBNJ Agreement, which sets out a list of general principles and approaches to guide the Parties in achieving the objectives of the instrument. The common heritage of humankind is included in this list, however, it is qualified as follows:

'the principle of the common heritage of humankind which is set out in the [LOSC] Convention.'

Article 136 of the LOSC [https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf] designates the international deep seabed area (the Area) and its resources as the **common heritage of humankind**. [<https://www.oxfordbibliographies.com/display/document/obo-9780199796953/obo-9780199796953-0109.xml>] However, resources are limited to 'all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules' (Article 133 LOSC). Thus, living resources are excluded from the common heritage of the humankind regime in the LOSC.

In restricting the application of the common heritage of humankind principle to reflect that which is set out in the LOSC, the BBNJ Agreement does not extend the common heritage of humankind principle to MGRs. Instead, its application is limited to MGR activities.

5. Access to Marine Genetic Resources: Advance Notification Prior to Collection

In terms of regulating access to MGRs at hydrothermal vents, Part II of the BBNJ Agreement lays out an elaborate prior notification system.

If one wants to collect MGRs in-situ at hydrothermal vents, one will need to ensure that advance notification is provided to the clearing-house mechanism (established under the BBNJ Agreement) at least six (6) months prior to collection (Art. 10, BBNJ Agreement).

This notification is to be accompanied by a minimum dataset of information, including, but not limited to:

- The nature and objectives of the collection;
- The subject matter of the research/purposes for collection;
- The geographical areas of collection;

- A summary of the method and means to be used for collection.

While there is no specific requirement to provide information concerning whether the access activity will occur in or around hydrothermal vents, the information should include a data management plan, taking into account current international practice. Presumably, the current international practice includes the **InterRidge Statement of Commitment to Responsible Research Practices at Deep-Sea Hydrothermal Vents** [http://194.254.225.67/files/interridge/IR_Statement_flier_1.pdf] and other similar Codes of Conduct, including the **OSPAR Code of Conduct for Responsible Marine Research in the Deep Sea and High Seas of the OSPAR Maritime Area** [<https://www.ospar.org/work-areas/bdc/marine-protected-areas/mpas-in-areas-beyond-national-jurisdiction>], which are considered to be Codes of Best Practice when it comes to conducting MGR activities at deep-sea hydrothermal vents.

It is also important to note that it is within the power of the Scientific and Technical Body of the BBNJ Agreement to formulate further guidance or codes of conduct at a later date (Art. 49, BBNJ Agreement).

5.1. Access to Marine Genetic Resources: Notification Post-Collection

The BBNJ Agreement's access regime not only lays out prior notification requirements, it also sets down notifications that will need to be made after the collection of MGRs.

For example, after the collection of MGRs from a hydrothermal vent, Parties to the instrument will need to ensure that certain information is notified to the clearing-house mechanism as soon as it becomes available but no later than one (1) year after collection (Art.10(4), BBNJ Agreement).

This information must include details on the current location of the MGR (i.e. the repository or database) (Art. 10(4), BBNJ Agreement). Parties also need to ensure that MGR samples kept in repositories or databases in their home country are able to be identified as originating from areas beyond national jurisdiction (Art. 10(5), BBNJ Agreement).

But what happens if someone decides to utilize or commercialize MGRs collected from hydrothermal vents?

5.2. Access to Marine Genetic Resources: Notification upon Utilization

Well, aside from notification obligations prior to and post collection, Parties to the BBNJ Agreement are required to provide notification to the clearing-house mechanism should an MGR collected from areas beyond national jurisdiction be utilized and commercialized by persons or companies under their jurisdiction (Art. 10(6), BBNJ Agreement).

This notification is to be provided as soon as the information becomes available.

Parties to the BBNJ Agreement are also to ensure that MGRs are deposited in publicly accessible repositories and databases, maintained either nationally or internationally, no later than three (3) years from the start of utilisation or as soon as they become available, taking into account current international practice (Art. 11(3), BBNJ Agreement).

But do the Parties have to share the benefits derived from the utilization or commercialization of the MGR? The simple answer is yes.

5.3. Benefit-Sharing of Marine Genetic Resources

Recognising that only a handful of developed States have the technical, financial and human resources to physically access and utilize MGRs from areas beyond national jurisdiction, including deep-sea hydrothermal vents (see, **Arnaud-Haond, Arrieta and Duarte** [<https://www.jstor.org/stable/29783905>]) the BBNJ Agreement provides for the sharing of both monetary and non-monetary benefits (Art. 11, BBNJ Agreement).

Non-monetary benefits include access to samples/sample collections and open access to scientific data. While monetary benefits from the utilization of MGRs, including commercialization, are to be shared fairly and equitably, through the financial mechanism under the instrument, for the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction (Art. 11(5), BBNJ Agreement).

The Conference of the Parties will decide the exact modalities for the sharing of monetary benefits at a later date (Art. 11(5bis), BBNJ Agreement), but these modalities are likely to include milestone payments and contributions related to the commercialisation of products.

6. Conclusion

Hydrothermal vents and their associated biological resources provide a useful medium to assess the new BBNJ Agreement, particularly Part II of the instrument relating to MGRs. The BBNJ Agreement sets out a sophisticated access and benefit-sharing regime for MGRs, one based on notification and transparency. And while it would have been nice to see more guidance when it comes to the conduct of MGR activities at hydrothermal vents, it is open to the Scientific and Technical Committee to adopt a code of conduct or guidelines at a later date to ensure that these activities are carried out in a safe and environmentally-friendly manner to minimise impacts on these fragile ecosystems and other deep-seabed environments.

Jun 1, 2023

[How does the new BBNJ Agreement regulate access to and benefit-sharing of marine genetic resources at deep-sea hydrothermal vents?](https://blogs.ed.ac.uk/ecolaw/?p=101) / [ECO LAW Blog]
[https://blogs.ed.ac.uk/ecolaw] by [blogadmin]() is licensed under a [Creative Commons Attribution CC BY 3.0](http://creativecommons.org/licenses/by/3.0)

Comments

Post Info

Author Info

Leave a Reply Cancel reply

Your email address will not be published.

Comment

POSTS BY PEDRO CISTERNA GAETE

Call for contributions on the Treaty on Biodiversity Beyond National Jurisdiction

11th April 2023

Welcome to the ECOLAW Blog

4th April 2023

COMMENTS BY PEDRO CISTERNA GAETE

Previous post
«

Next post
»