

Supplementary Material

Table 1. Types of connectivity, Scientific information and Implications for the BBNJ Agreement

Types of connectivity	Scientific Information	Implications for the BBNJ Agreement
Passive (circulation) connectivity/ Structural connectivity	<p>Ocean currents vary in position, strength and direction and are modified by climate change (Popova et al., 2019)</p> <p>Ocean currents carry pollution to different regions of the ocean (UNEP-WCMC, 2018)</p>	<p>Cumulative and transboundary impacts have to be accounted for in ABMT establishment and conduct of EIAs (Gjerde & Wright, 2019)</p> <p>Policy responses need to adapt to changing conditions of the ocean</p>
Active (migration connectivity)/ Functional connectivity	<p>Long-distance migrations of sea birds, turtles, sharks and marine fish such as tuna (Mossop & Schofield, 2021)</p> <p>Movement of species and the organic matter derived from them (UNEP-WCMC, 2018)</p>	<p>Access to baseline information on migratory connectivity needed for the establishment of ABMTs (Dunn et al., 2019)</p> <p>Dynamic ABMTs are suggested (Maxwell et al. 2020; Popova et al., 2019)</p> <p>MGRs with the same genetic material can be found in AWNJ and ABNJ (Metaxas et al., 2020)</p>
Horizontal connectivity	<p>The ocean is connected geographically (O'Leary & Roberts, 2018)</p>	<p>“Straddling” MGRs can be found in AWNJ and ABNJ</p> <p>A network of ecologically connected marine protected areas are needed to conserve and sustainably use marine biodiversity (IUCN, 2019; Mossop & Schofield, 2021)</p> <p>EIAs for activities in ABNJ to consider impacts on AWNJ (Mossop & Schofield, 2021)</p>
Vertical connectivity	<p>Upper-ocean communities and processes are linked to seabed ecology and biogeochemistry (O'Leary & Roberts, 2018; WHOI, 2022)</p> <p>Exploitation of the water column can have impacts on the deep sea (O'Leary & Roberts, 2018)</p>	<p>Water column and seafloor cannot be governed independently but in coordination</p> <p>Cross-sectoral cooperation requires a common goal/overarching set of principles, shared between managing bodies (Gjerde et al., 2018)</p>

Genetic connectivity	Population genetic studies demonstrate genetic connectivity (UNEP-WCMC, 2018)	MGRs with the same genetic material can be found in areas within and beyond national jurisdiction
Cultural Connectivity	Indigenous views on the interconnectedness between humans and ecosystems point to an extraterritorial and eco-centric view of governance (Endalew Lijalem et al., 2021)	Recognition of indigenous models of ocean connectivity (Endalew Lijalem et al., 2021)

Further sources:

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IUCN. (2019). *Governing areas beyond national jurisdiction*. Issues Brief. <https://www.iucn.org/resources/issues-briefs/governing-areas-beyond-national-jurisdiction>

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OceanCare. (2019). *OceanCare Briefing for BBNJ IGC3 Proposed Text for the New Instrument: "Transboundary Pollution"* http://www.oceancare.org/wp-content/uploads/2019/08/OceanCare-Briefing-for-BBNJ-IGC3_July2019_final.pdf

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Webster, Marra, P. P., Haig, S. M., Bensch, S., & Holmes, R. T. (2002). Links between worlds: unraveling migratory connectivity. *Trends in Ecology & Evolution*, 17(2), 76–83. [https://doi.org/10.1016/S0169-5347\(01\)02380-1](https://doi.org/10.1016/S0169-5347(01)02380-1)

Table 2. The Ecological Connectivity Concept in BBNJ documents

BBNJ Meeting	Text Document	Number of Mentions	Location of Mentions
IGC 4	Revised Draft Text	1	[ANNEX I Indicative criteria for identification of areas]
IGC 3	Draft Text	1	Article 16 (2)(n) Identification of areas requiring protection
IGC 2	Presidents Aid to Negotiations	2	1. General Principles & Approaches (Part III, Section 1(4)(9)) <i>[General principles and approaches raised in relation to environmental impact assessments]</i> 4. Measures such as area-based management tools, including marine protected areas Identification of areas (4.3.1(2)(a)(xiv))
IGC 1	Presidents Aid to Discussions	0	-

Table 3. Side events on ecological connectivity in BBNJ

Time	Title	Host
Prep Com 3	Making Connections: Cultural, ecological and legal connectivity between national jurisdictions and areas beyond national jurisdiction	The Nippon Foundation
IGC 2	“Connectivity: a critical consideration in global ocean governance”	UNEP-WCMC, CPPS, GEF
IGC 2	So far, yet so close: Ecological connectivity between ABNJ and territorial waters	IEED